scientific reports

OPEN

Childhood predictors of balance in life: a cross-national analysis of the global flourishing study

Tim Lomas[1,2✉], R. Noah Padgett[1,2], James L. Ritchie-Dunham[4], James O. Pawelski[5], Koichiro Shiba[6], Byron R. Johnson[7] & Tyler J. VanderWeele[1,2,3]

Although the importance of balance has been recognized in various specific domains, from work-life balance to a balanced diet, there has been curiously little attention to balance in life overall (i.e., across all aspects of living). As a result, there is relatively little understanding of its various dynamics, including of any childhood factors that may be associated with balance in adulthood. To gain a better understanding of such factors, we analysed cross-sectional wave 1 data on life balance in the Global Flourishing Study. This is a five-year (minimum) panel study investigating the predictors of human flourishing, involving (in this first year) 202,898 participants from 22 countries, and which includes the item, "In general, how often are the various aspects of your life in balance?" Here we looked at 13 childhood predictors of balance, using random effects meta-analyses to aggregate all findings in the main text, focusing on three research questions. First, how do different aspects of a child's upbringing predict balance in adulthood?, for which the most impactful factor was "feel[ing] like an outsider in your family" when growing up (Risk Ratio = 0.90), and the least was immigration status (0.98). Second, do these associations vary by country?, with the effect of being an outsider, for example, strongest in Australia, and weakest (not different than zero) in Egypt, Hong Kong, Indonesia, Nigeria, the Philippines, Poland, South Africa, and Turkey. Third, are the observed relationships robust to potential unmeasured confounding, as assessed by E-values, which overall was the case. These results shed new light on the cross-cultural and potential causal dynamics of this overlooked topic and provide the foundation for further enquiry.

Keywords Balance, Wellbeing, Flourishing, Global, Cross-cultural, Global flourishing study

Scholars have long sought to understand how people's childhood affects their outcomes later in life. For the most part though, this scholarship has focused on "negative" (i.e., undesirable) outcomes, such as mental health problems. Recent decades however have seen an emergent interest in more desirable phenomena too, spearheaded by the positive psychology paradigm initiated by Martin Seligman in 1998[1]. Yet even amidst this "positive turn," some topics have still been relatively understudied and underappreciated. This includes the notion of life balance (LB). Despite pockets of interest – most notably in relation to "work-life balance" – its significance overall, across myriad aspects of life, has yet been relatively neglected. So too have its dynamics, including childhood factors that might be associated with experiences of LB in adulthood. To that end, we report on cross-sectional wave 1 data on LB from the Global Flourishing Study (GFS), exploring its association with 13 childhood factors. To set the context, here we briefly review literature showing the importance of balance across different domains of life, but then argue that scholarship about LB *overall* has been minimal, hence the need for studies like the present.

An emerging literature across myriad fields suggests principles of balance are integral to wellbeing, to the extent that Lomas calls balance a "golden thread" that runs through all aspects of flourishing[2]. Essentially, across many (but not all) aspects of life, it is hard to categorically deem something good or bad. Rather, it is often about identifying the *right* amount, balancing too little and too much[3]. Consider physical health[4]: across its varied aspects – from diet[5] to sleep[6] to exercise[7] – seldom can phenomena be categorically deemed desirable or

[1]Human Flourishing Program, Harvard University, Cambridge, MA, USA. [2]Harvard T.H. Chan School of Public Health, Department of Epidemiology, Boston, MA, USA. [3]Harvard T.H. Chan School of Public Health, Department of Biostatistics, Boston, MA, USA. [4]McCombs School of Business, University of Texas at Austin, Austin, TX, USA. [5]Positive Psychology Center, University of Pennsylvania, Philadelphia, PA, USA. [6]Department of Epidemiology, Boston University, Boston, MA, USA. [7]Institute for Studies of Religion, Baylor University, Waco, TX, USA. ✉email: tlomas@hsph.harvard.edu

undesirable, hence one necessarily seeking to embrace the former while eliminating the latter; rather, it is often a question of proportion, as shown in work on "energy balance-related behaviours"[4]. Moreover, such dynamics apply across life domains. Lomas groups the relevant scholarship into four categories: affective, cognitive, behavioural, and self-other relations. The affective domain includes work around the value of experiential states like peace of mind[8], inner peace[9–11], calmness[12], emotional equanimity[13], and emotional equilibrium[14]. In relation to cognition, a framework by Walsh and Shapiro[15], bridging Buddhism and Western psychology, identifies various forms of balance, such as conative (motivation and intention), as reflected in the notion of "harmonious passion"[16]. The behavioural category spans the myriad ways people act in the world, from the notion above of energy balance-related behaviours[4], to the vast literature on work-life balance[17], and the related but far less-extensively studied idea of "lifestyle balance" ("a satisfying pattern of daily occupation that is healthful, meaningful, and sustainable to an individual within the context of his or her current life circumstances")[18,19]. The final "self-other" category highlights the importance of balance across relationships at all levels of scale, from marriages[20] and families[21], to whole societies[22], and up to the natural environment upon which people depend materially and existentially[23,24].

Despite this extensive literature on balance however, there is surprisingly little research about LB overall, encompassing all aspects of living. Even lifestyle balance, the broadest concept above, is mainly about activities. In our view though, LB pertains to all dimensions of life, including psychological dynamics for example. Moreover, even though there *is* some scholarship on the broader idea of LB, this is often defined in ways that are narrower than the perspective underpinning our paper, such as a two-pronged definition of optimal LB[25]: "a numerically equitable distribution of time across one's actual time-use profile," whereby "that actual time-use profile is psychologically congruent with one's ideal time-use profile." Although a useful perspective, arguably one does not need a "numerically equitable distribution of time" to attain LB. The broader point is that despite some work on LB, this topic has received relatively little attention overall. One indication of such attention is the number of psychometric scales developed to assess it. In that respect, there are very few on LB, and those that do exist have hardly been used. Thomson and De Bruin's[26] scale for instance does not appear to have been deployed in the handful of papers citing their work. By contrast, one review identified 27 scales pertaining to resilience alone[27].

It is unclear *why* LB has been relatively neglected in academia. One suggestion is that balance has historically been associated more with Eastern than Western cultures[28], and given the well-established critique of fields like psychology as Western-centric[29], this might explain the topic's relative neglect. However, these historic patterns do not necessarily reflect current cultural trends. Even *if* Eastern cultures have historically been more attentive to ideas around balance, we must be wary of stereotyping such cultures and assuming they are particularly focused on balance today, especially since many countries in the East have experienced dramatic socio-economic changes over the past century[30]. South Korea for example was among the fastest-growing global economies from the early 1960s to the late 1990s, and indeed recorded the world's fastest rise in average GDP per capita between 1980 and 1990; as a result, it was heralded as one of the four "Asian Tiger" economies (with Hong Kong, Singapore, and Taiwan), and in 2023 ranked 6th globally in the number of companies on the Fortune 500 (with 18). Although such success has undoubtedly been positive for the country in many ways[31], the overall picture of such development may be complex – a dialectical situation that has been called "parallelism," whereby cultural globalization can mean "many related events and processes are taking place at the same time"[32] – including some negative consequences. These may include a detrimental impact on LB, with some scholars concerned that modern South Korea has become unbalanced in relation to aspects of life such as education[33] and work/leisure time[34]. Similar worries have been raised regarding Japan, with its culture of overworking so severe it has generated the term *karoshi*, meaning "working oneself to death"[35]. An equally bleak picture is painted by the fact that while rates of suicide mortality have declined among most OECD member states, Japan and South Korea are two notable exceptions[36].

These considerations do not necessarily undermine the suggestion that balance may have *historically* been given greater emphasis in the East than West, but they show that modern cross-cultural dynamics in relation to LB are potentially complex. Such complexity is highlighted by one of the most comprehensive global studies to date on LB, namely the Global Wellbeing Initiative, involving the development of a module for the Gallup World Poll centred on balance and harmony[37,38]. Each iteration of the module has included an item on LB, such as, in the 2020 poll, "In general, do you feel the various aspects of your life are in balance?" (Yes/No). In a chapter for the 2022 World Happiness Report[39] it was reported that the item had a correlation of 0.25 with life evaluation (Cantril's ladder), which was – alongside an item on peace in life – higher than any other variable examined to explain life evaluation (with the next highest being household income and having friends to count on at 0.22). But despite suggestions that balance may be more closely associated with Eastern rather than Western cultures, the percentage of people reporting LB was higher in *Western* (81.0%) than East Asian countries (71.2%) or the rest of the world (69.0%). Moreover, beyond East-West comparisons, many other significant patterns also demand attention. Indeed, scholars have warned about cross-cultural scholarship being dominated by a focus on East versus West[40], and have argued for the importance of a more global view that attends to all regions in all their complexity[41,42]. Another notable pattern pertained to economics for example, with a correlation of 0.69 between balance and GDP per capita, as reflected when ranking nations on LB, with the top ten being all relatively affluent European countries and the bottom ten mostly poor African ones.

As to why such cultural variation exists, at present we essentially have little idea. Given the paucity of work in general on LB, there is minimal understanding of the factors associated with people experiencing/attaining it. One can potentially extrapolate from the literature on the narrower construct of work-life balance, for which there *is* considerable research (with a Google Scholar search in March, 2025 retrieving 25,200 with this phrase in the title). However, even with work-life balance, longitudinal studies of this remain scarce (with only 31 papers including both "work-life balance" and "longitudinal" in the title), with no studies moreover looking

specifically at its childhood predictors, let alone the childhood predictors of the more expansive construct of LB. If LB is considered a valuable outcome, then developing such understanding is of considerable importance. A vast program of enquiry across myriad outcomes has shown that childhood has a significant impact on later life, as revealed most consequentially by the extensive literature on Adverse Childhood Experiences[43,44]. As one study put it[45], physical and mental problems in childhood cast a "long shadow" on adult life. Moreover, the consequences of childhood are not limited to significant adverse experiences or problems, but apply more broadly, with decades of developmental research showing childhood generally shapes people's life trajectories[46]. However, most researchers have focused on the aetiology of "negative" (i.e., undesirable) outcomes, such as mental health problems[47], reflecting a wider preoccupation with negative phenomena in fields like psychology overall. Over the past few decades though, especially since the emergence of positive psychology, there has been increasing longitudinal attention to more "positive" outcomes, especially to well-studied topics like happiness and life satisfaction[48,49]. Despite this "positive turn" though, to date there has been no comparable work on the childhood roots of many desirable outcomes, including LB.

Hence the value of the present study, which analyses associations between childhood factors and adult LB in the GFS. The GFS is a five-year (minimum) panel study investigating the predictors of human flourishing across over 200,000 participants from 22 geographically and culturally diverse countries. It involves a 109-item questionnaire[50], which includes a comprehensive battery of items relating to all aspects of flourishing, including an item on LB adapted from the Global Wellbeing Initiative ("In general, how often are the various aspects of your life in balance?": always; often; rarely; never), together with a detailed demographic intake form that asks about respondents' childhood. The analysis was guided by three research questions: (1) how do different aspects of a person's childhood predict LB in adulthood; (2) do these associations vary by country; and (3) are the observed relationships robust to potential unmeasured confounding (as assessed by E-values)? We examined 13 different childhood predictors: (1) age (year of birth); (2) gender; (3) marital status / family structure; (4) age 12 religious service attendance; (5) religious affiliation at age 12; (6) relationship with mother; (7) relationship with father; (8) feeling like an outsider in one's family growing up; (9) abuse; (10) self-rated health growing up; (11) immigration status; (12) subjective financial status of family growing up; and (13) race/ethnicity (when available). Our three main hypotheses were: (1) among the childhood predictors, certain ones will show meaningful associations with LB in adulthood; (2) the strength of associations between the predictors and LB in adulthood will vary by country, reflecting the influence of diverse sociocultural, economic, and health contexts that characterize each nation; and (3) the observed associations between the childhood predictors and LB in adulthood will be robust against potential unmeasured confounding (as assessed through E-values), in some cases suggesting that the observed associations would require strong confounding effects by unmeasured variables to explain away, thus enhancing the credibility of our findings).

These hypotheses are somewhat generic, and some might argue that more specific predictions would be useful. However, these hypotheses were initially created to apply across all flourishing-related outcomes in the GFS, which are being analysed across an extensive series of papers, thus helping ensure methodological and analytic consistency across these studies[6], and were submitted when the study design was pre-registered with the Open Science Framework (https://osf.io/5uzke). Moreover, there are also good conceptual/theoretical reasons for the lack of specificity such as: (a) the general lack of scholarship into LB, and relatedly, (b) that the little research that exists seems to challenge conventional assumptions around this topic, which arguably have not been hitherto challenged precisely due to (a). An example of (b) is the findings of the Global Wellbeing Initiative regarding the prevalence of LB in various regions. As noted above, despite suggestions that balance has been more highly valued in Eastern rather than Western cultures, higher levels of LB were observed in Western than Eastern countries. There are potential complicating factors, such as a possible economic dimension to LB, with a strong correlation with GDP per capita. Thus, if Western countries are more affluent overall than Eastern ones, controlling for economic factors might possibly reveal higher LB in the East than West. But even if a viable speculation, these findings were complicated and surprising enough that we did not feel confident proposing more specific hypotheses for the current study.

Methods

This Methods section has been adapted from VanderWeele et al.[52] with further detail available elsewhere, including regarding the overall methodology[53,54], the GFS questionnaire[50,55,56], the survey sampling design[57], the analytic methodology[51,58], and the statistical analysis code[59].

Data

The GFS includes 202,898 participants (in this first year) from 22 geographically and culturally diverse countries, with nationally representative sampling within each country. 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. The countries were selected to (a) maximize coverage of the world's population, (b) ensure geographic, cultural, and religious diversity, and (c) prioritize feasibility and existing data collection infrastructure. Data collection was carried out by Gallup. Data for Wave 1 were collected principally during 2023, with some countries beginning data collection in 2022 and exact dates varying by country[54]. Four additional waves of panel data on the participants will be collected annually from 2024 to 2027. The precise sampling design to ensure nationally representative samples varied by country[54]. Survey items included aspects of wellbeing such as happiness, health, meaning, character, relationships, and financial stability[60], along with other demographic, social, economic, political, religious, personality, childhood, community, health, and wellbeing variables. The datasets generated and analysed during the current study are available in the Open Science Framework repository upon submission of pre-registration (https://www.cos.io/gfs-access-data). During the translation

process, Gallup adhered to TRAPD model (translation, review, adjudication, pretesting, and documentation) for cross-cultural survey research, with additional details available[61].

Measures

Childhood Antecedents. 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". An analogous variable was used for relationship with father. "Does not apply" was treated as a dichotomous control variable for respondents who did not have a mother or father due to death or absence. Parental marital status during childhood was assessed with responses of married, divorced, never married, and one or both had died. 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?" Participants were separately asked: "When you were growing up, did you feel like an outsider in your family?" 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?" Immigration status was assessed with: "Were you born in this country, or not?" Religious 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. Sex (referred to in the questionnaire as "gender") was assessed as male, female, or other. Continuous age (year of birth) was classified as 18–24, 25–29, 30–39, 40–49, 50–59, 60–69, 70–79, and 80 or older. Childhood religious tradition/affiliation was had response categories of 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. Racial/ethnic identity were assessed in some, but not all, countries, and response categories were unique to each country. For additional details on the assessments see the GFS codebook[62].

Outcome variable. LB is assessed with one question: "In general, how often are the various aspects of your life in balance?" The response options were: always, often, rarely, never. In our analyses, we dichotomized balance in life as always/often[1] vs. rarely/never [0]. LB response categories, "always/often" and "rarely/never," were grouped together due to the implied frequencies of the respective categories. Additionally, this dichotomization aligns with reporting on GFS results of a companion paper on demographic variation in LB[63]. Also though, as a post-hoc sensitivity analysis we provide the equivalent results of Table 2 in the Supplemental Tables with a different dichotomization point (see Tables S24a and S24b).

Analysis

Descriptive statistics for the observed sample, weighted to be nationally representative within country, were estimated for each childhood demographic category. A weighted modified Poisson regression model with complex survey adjusted standard errors was fit within each country of LB on all childhood predictor variables simultaneously. The primary analyses include random effects meta-analyses of the regression coefficients[64,65], along with confidence intervals, estimate proportions of effects across countries with effect sizes (risk-ratios) larger than 1.1 and smaller than 0.9, and I^2 for evidence concerning variation within a given demographic category across countries[66]. Forest plots of estimates are available in the Online Supplement. Religious affiliation/tradition and race/ethnicity were used within country as control variables, when available, but these coefficients themselves were not included in the meta-analyses since categories/responses varied by country. All meta-analyses were conducted in R[67] using the metafor package[68]. Within each country, a global test of association of each childhood predictor variable group with outcome was conducted, and a pooled p-value[69] across countries reported concerning evidence for association within any country. Bonferroni corrected p-value thresholds are provided based on the number of childhood demographic variables[66,70]. For each childhood predictor, we calculated E-values to evaluate the sensitivity of results to unmeasured confounding. An E-value is the minimum strength of the association an unmeasured confounder must have with both the outcome and the predictor, above and beyond all measured covariates, for an unmeasured confounder to explain away an association[71]. As a supplementary analysis, population weighted meta-analyses of the regression coefficients were estimated. All analyses were pre-registered with COS prior to data access, with only slight subsequent modification in the regression analyses due to multicollinearity (https://doi.org/10.17605/OSF.IO/ZT84X); all code to reproduce analyses are openly available in an online repository[61].

Missing data

Missing data on all variables were imputed using multivariate imputation by chained equations, and five imputed datasets were used[72,73]. To account for variation in the assessment of certain variables across countries (e.g., religious affiliation/tradition and race/ethnicity), the imputation process was conducted separately in each country. This within-country imputation approach ensured that the imputation models accurately reflected country-specific contexts and assessment methods. Sampling weights were included in the imputation model to account for missingness to be related to probability of inclusion.

Accounting for complex sampling design

The GFS used different sampling scheme across countries based on availability of existing panels and recruitment needs[54]. All analyses accounted for the complex survey design components by including weights, primary

sampling units, and strata. Additional methodological detail, including accounting for the complex sampling design, is provided elsewhere[57].

Data and code availability
Data that support the findings of this article are openly available on the Open Science Framework (Wave 1 non-sensitive Global data: https://osf.io/sm4cd/), and are available from February 2024 - March 2026 via preregistration and publicly from then onwards. Please see https://www.cos.io/gfs-access-data for more information about data access. Code in multiple software is openly available in an online repository[59] for the demographic variation and childhood predictor analyses (https://doi.org/10.17605/osf.io/vbype).

Results
Descriptive statistics
Table 1 provides the distribution of descriptive statistics (weighted counts and proportions). Participant ages ranged the entire adult lifespan (18–80+). The sex distribution (referred to in the GFS questionnaire and subsequent analyses as "gender") was nearly balanced (51% women, 48% men, with 0.3% identifying their gender as "other"). Most participants reported either having a somewhat good or very good relationship with either parent while growing up. The distribution of individuals reporting attending religious services growing up shows that 41% report attending at least once a week and 23% report never attending. Counts and proportions for demographic characteristics weighted to be representative of each country's population are reported on in Supplementary Tables S1a-S22a.

Childhood experiences predicting balance in life
The meta-analytic estimates of how childhood experiences predict LB are reported in Table 2. These results show an association between all 13 childhood predictors and responses on the LB item, though often these associations are quite modest in magnitude. Childhood experiences associated with greater reported LB included having a good relationship with either parent, a comfortable subjective financial status growing up, being in very good or excellent health growing up, and more frequent attendance at religious services. These factors were, on average across countries, associated with a higher frequency of LB as an adult. Immigration status was the only candidate childhood predictor where the global p-value was not significant after controlling for multiple testing (RR = 1.01; 95% CI [0.97,1.05]; global p-value for association in some country = 0.004). For most of these effects, although pooled over countries they were positive, there was commonly no definitive evidence for the effect being statistically different than zero within the country-specific analyses. There were, however, some notable exceptions. For example, immigration status had a moderately strong positive effect in Nigeria (RR = 1.28), which indicates that those born outside Nigeria more often report LB when later living in Nigeria. Another result that stood out was the effect of growing up in a household with a single, never married parent, which on average across countries was negatively related to LB (0.94). However, this was not universal; within India, for example, the effect was reversed, where individuals growing up in household with a single parent were more likely to report LB in adulthood (1.21). The forest plots provided in our Online Supplement provide additional evidence for the heterogeneity of these effects across countries (see Figures S1-S27). Further comment on variation in effect sizes and directions across countries is given in the Discussion.

Sensitivity of effects to unmeasured confounding
Sensitivity to unmeasured confounding was assessed using E-values, suggesting that some of the observed associations were potentially robust to unmeasured confounding (Table 3). Further, country-specific sensitivity analyses are reported in the Online Supplement (see Tables S1c-S23c). For example, to explain away the association between excellent (versus good) self-rated health in childhood with adult LB, an unmeasured confounder that was associated with both excellent health and LB with RRs of 1.43 each, above and beyond the measured covariates, could suffice, but weaker joint confounder associations could not; to shift the 95% confidence interval to include the null, an unmeasured confounder that was associated with both excellent health and LB with risk ratios of 1.34 each, above and beyond the measured covariates, could suffice but weaker joint confounder associations could not.

Discussion
The results of this study shed unique light on the childhood predictors of LB. In summary, all three of our main hypotheses were supported. Our first was that of the 13 childhood predictors, certain ones would show meaningful associations with LB in adulthood; indeed, all had a significant association globally (across the GFS as a whole), and in some countries individually. Second, we hypothesized that the strength of associations between the predictors and LB would vary by country, reflecting the influence of diverse sociocultural, economic, and health contexts that characterize each nation. Third, the observed associations between the predictors and LB were expected to be robust against potential unmeasured confounding (as assessed through E-values).

On average, the factor most strongly associated with LB was self-rated health growing up, as assessed on a five-point scale: poor; fair; good; very good; and excellent. Relative to the middle category of "good," the RRs ranged from 0.92 for poor and 0.93 for fair to 1.07 for very good and 1.10 for excellent, with all results significant at $p < .001$. An RR can be interpreted as the relative percentage in each category, which we calculated in relation to the proportion of people reporting LB. Although balance was assessed on a four-point scale – never, rarely, often, or always in balance – in our analysis and interpretation we aggregated this into two binary categories, whereby people either *had* balance (endorsing either "often" or "always") or *did not have* it (endorsing either "rarely" or "never"). Another way of interpreting the strength of these results is through the E-value[71], which measures the

Characteristic	$N = 202{,}898^1$
Relationship with mother	
Very good	127,836 (63%)
Somewhat good	52,439 (26%)
Somewhat bad	11,060 (5.5%)
Very bad	4,642 (2.3%)
Does not apply	5,965 (2.9%)
(Missing)	956 (0.5%)
Relationship with father	
Very good	107,742 (53%)
Somewhat good	55,714 (27%)
Somewhat bad	15,807 (7.8%)
Very bad	8,278 (4.1%)
Does not apply	13,985 (6.9%)
(Missing)	1,372 (0.7%)
Parent marital status	
Parents married	152,001 (75%)
Divorced	17,726 (8.7%)
Parents were never married	15,534 (7.7%)
One or both parents had died	7,794 (3.8%)
(Missing)	9,843 (4.9%)
Subjective financial status of family growing up	
Lived comfortably	70,861 (35%)
Got by	82,905 (41%)
Found it difficult	35,852 (18%)
Found it very difficult	12,606 (6.2%)
(Missing)	674 (0.3%)
Abuse	
Yes	29,139 (14%)
No	167,279 (82%)
(Missing)	6,479 (3.2%)
Outsider growing up	
Yes	28,732 (14%)
No	170,577 (84%)
(Missing)	3,589 (1.8%)
Self-rated health growing up	
Excellent	67,121 (33%)
Very good	63,086 (31%)
Good	47,378 (23%)
Fair	19,877 (9.8%)
Poor	4,906 (2.4%)
(Missing)	530 (0.3%)
Immigration status	
Born in this country	190,998 (94%)
Born in another country	9,791 (4.8%)
(Missing)	2,110 (1.0%)
Age 12 religious service attendance	
At least 1/week	83,237 (41%)
1–3/month	33,308 (16%)
< 1/month	36,928 (18%)
Never	47,445 (23%)
(Missing)	1,980 (1.0%)
Year of birth	
1998–2005; age 18–24	27,007 (13%)
1993–1998; age 25–29	20,700 (10%)
1983–1993; age 30–39	40,256 (20%)
Continued	

Characteristic	N = 202,898[1]
1973–1983; age 40–49	34,464 (17%)
1963–1973; age 50–59	31,793 (16%)
1953–1963; age 60–69	27,763 (14%)
1943–1953; age 70–79	16,776 (8.3%)
1943 or earlier; age 80+	4,119 (2.0%)
(Missing)	20 (<0.1%)
Gender	
Men	98,411 (49%)
Women	103,488 (51%)
Other	602 (0.3%)
(Missing)	397 (0.2%)
Country	
Argentina	6,724 (3.3%)
Australia	3,844 (1.9%)
Brazil	13,204 (6.5%)
Egypt	4,729 (2.3%)
Germany	9,506 (4.7%)
Hong Kong	3,012 (1.5%)
India	12,765 (6.3%)
Indonesia	6,992 (3.4%)
Israel	3,669 (1.8%)
Japan	20,543 (10%)
Kenya	11,389 (5.6%)
Mexico	5,776 (2.8%)
Nigeria	6,827 (3.4%)
Philippines	5,292 (2.6%)
Poland	10,389 (5.1%)
South Africa	2,651 (1.3%)
Spain	6,290 (3.1%)
Sweden	15,068 (7.4%)
Tanzania	9,075 (4.5%)
Türkiye	1,473 (0.7%)
United Kingdom	5,368 (2.6%)
United States	38,312 (19%)

Table 1. Nationally representative descriptive statistics of the observed sample. [1]n (%); History of abuse was not collected in Israel.

strength that an "unmeasured confounder" would need to be to "explain away" the observed relationship. Here the E-values were substantial (e.g., 1.43 for "excellent" health); thus, to explain away the RR for excellent health, an unmeasured confounder associated with both excellent health and higher LB with RRs of 1.43 each, above and beyond the measured covariates, could suffice, but weaker joint confounder associations could not.

The finding that childhood health was associated with LB in adulthood is unique: we could find no previous study that has explored such a connection, so simply observing it here is a notable addition to the literature. However, we did not actually assess people's health in childhood itself, but rather retrospective recollections about their childhood. There are indications that people sometimes change their ratings of childhood health over time; one analysis found nearly one half of their sample revised this during a 10-year observation period[72]. As such, caution is needed in interpreting our results. However, for recall bias to completely explain away the observed associations, the effect of adult LB on the retrospective assessments of the childhood predictors would have to be at least as strong as the observed associations themselves[73]. Several longitudinal studies have measured health in childhood then traced its impact on later outcomes, with a substantial literature showing it *does* have a substantive effect on myriad aspects of adult life. Accordingly, it seems reasonable to suggest that LB is also one of the variables affected by it. Much of this existing longitudinal work focuses either on physical or mental health or socio-economic status, with poor childhood health having a long-term detrimental health on these outcomes[76–80]. Given how expansive and all-encompassing the concept of LB is, issues relating to physical and mental health or socio-economic status are likely to be also relevant to LB.

Regarding our second hypothesis, namely that we would observe regional differences in the effects of the factors, many studies into childhood factors are in a Western context, which is characteristic of the psychological literature overall. A particular strength of our research is thus its multinational reach, covering 22 diverse

Variable	Category	Risk Ratio	95% CI	Estimated Proportion of Effects by Threshold		I^2	Global p-value
				< 0.90	> 1.10		
Relationship with mother	(Ref: Very bad/somewhat bad)						< 0.001**
	Very good/somewhat good	1.05	(1.01,1.09)	0.05	0.32	70.6	
Relationship with father	(Ref: Very bad/somewhat bad)						< 0.001**
	Very good/somewhat good	1.04	(1.01,1.06)	0.00	0.14	63.5	
Parent marital status	(Ref: Parents married)						< 0.001**
	Divorced	0.97	(0.94,1.00)	0.09	0.00	64.7	
	Single, never married	0.96	(0.92,1.00)	0.23	0.05	75.9	
	One or both parents had died	0.95	(0.92,0.98)	0.14	0.00	42.5	
Subjective financial status of family growing up	(Ref: Got by)						< 0.001**
	Lived comfortably	1.03	(1.02,1.05)	0.00	0.00	69.0	
	Found it difficult	0.96	(0.94,0.98)	0.00	0.00	48.9	
	Found it very difficult	0.94	(0.91,0.96)	0.18	0.00	26.1	
Abuse	(Ref: No)						< 0.001**
	Yes	0.93	(0.91,0.95)	0.10	0.00	33.3	
Outsider growing up	(Ref: No)						< 0.001**
	Yes	0.90	(0.87,0.92)	0.36	0.00	66.2	
Self-rated health growing up	(Ref: Good)						< 0.001**
	Excellent	1.10	(1.07,1.13)	0.00	0.55	81.5	
	Very good	1.07	(1.05,1.09)	0.00	0.27	65.6	
	Fair	0.93	(0.90,0.95)	0.23	0.00	53.2	
	Poor	0.92	(0.87,0.97)	0.36	0.00	46.9	
Immigration status	(Ref: Born in this country)						0.004*
	Born in another country	1.01	(0.97,1.05)	0.00	0.09	60.5	
Age 12 religious service attendance	(Ref: Never)						< 0.001**
	At least 1/week	1.06	(1.03,1.08)	0.00	0.14	59.3	
	1–3/month	1.06	(1.02,1.09)	0.00	0.14	77.8	
	< 1/month	1.04	(1.02,1.06)	0.00	0.00	38.6	
Year of birth	(Ref: 1998–2005; age 18–24)						< 0.001**
	1993–1998; age 25–29	1.01	(0.99,1.04)	0.00	0.00	44.9	
	1983–1993; age 30–39	1.02	(0.99,1.04)	0.00	0.00	68.2	
	1973–1983; age 40–49	1.02	(0.97,1.06)	0.14	0.14	85.4	
	1963–1973; age 50–59	1.06	(1.01,1.11)	0.09	0.50	86.6	
	1953–1963; age 60–69	1.11	(1.06,1.17)	0.00	0.55	86.9	
	1943–1953; age 70–79	1.12	(1.05,1.19)	0.05	0.50	86.8	
	1943 or earlier; age 80+‡	0.53	(0.13,2.18)	0.27	0.59	100.0	
Gender	(Ref: Men)						< 0.001**
	Women	0.98	(0.96,1.00)	0.09	0.00	88.1	
	Other‡	0.25	(0.04,1.37)	0.67	0.28	99.9	

Table 2. Random effects meta-analysis of regressing balance in life on childhood predictors. *Note. N = 202,898.* *p < .05; **p < .004 (Bonferroni corrected threshold); ‡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; CI = confidence interval; the estimated proportion of effects is the estimated proportion of effects above (or below) a threshold based on the calibrated effect sizes; I^2 is an estimate of the variability in means due to heterogeneity across countries vs. sampling variability; the 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; and additional details of heterogeneity of effects are available in the forest plots of our Online Supplemental Material.

countries, and there was indeed considerable variation in the impact of childhood health, with many regional nuances. For a start, relative to the 0.19 difference in RR comparing poor and excellent health in the pooled meta-analysis (0.91 for poor to 1.10 for excellent health), some nations had a smaller range (with Egypt the narrowest, at 0.05), and others larger (with Turkey the biggest at 0.50), implying a greater association between childhood health and adult LB in the latter. More research is needed to explore why this regional variation exists, but it will almost certainly involve considerations such as the provision of healthcare in the various countries. There

Variable	Category	E-value for Estimate	E-value for 95% CI
Relationship with mother	(Ref: Very bad/somewhat bad)		
	Very good/somewhat good	1.28	1.11
Relationship with father	(Ref: Very bad/somewhat bad)		
	Very good/somewhat good	1.23	1.10
Parent marital status	(Ref: Parents married)		
	Divorced	1.21	1.01
	Single, never married	1.26	1.05
	One or both parents had died	1.28	1.15
Subjective financial status of family growing up	(Ref: Got by)		
	Lived comfortably	1.22	1.15
	Found it difficult	1.25	1.18
	Found it very difficult	1.34	1.24
Abuse	(Ref: No)		
	Yes	1.36	1.30
Outsider growing up	(Ref: No)		
	Yes	1.47	1.38
Self-rated health growing up	(Ref: Good)		
	Excellent	1.43	1.34
	Very good	1.34	1.27
	Fair	1.37	1.27
	Poor	1.41	1.22
Immigration status	(Ref: Born in this country)		
	Born in another country	1.10	1.00
Age 12 religious service attendance	(Ref: Never)		
	At least 1/week	1.31	1.22
	1–3/month	1.30	1.17
	<1/month	1.23	1.15
Year of birth	(Ref: 1998–2005; age 18–24)		
	1993–1998; age 25–29	1.13	1.00
	1983–1993; age 30–39	1.15	1.00
	1973–1983; age 40–49	1.14	1.00
	1963–1973; age 50–59	1.30	1.11
	1953–1963; age 60–69	1.47	1.31
	1943–1953; age 70–79	1.48	1.27
	1943 or earlier; age 80+[‡]	3.17	1.00
Gender	(Ref: Men)		
	Women	1.18	1.03
	Other[‡]	7.55	1.00

Table 3. Sensitivity of meta-analyzed childhood predictors to unmeasured confounding. Note. $N = 202,898$; the E-value is the minimum strength of the association an unmeasured confounder must have with both the outcome (balance in life) and the predictor, above and beyond all measured covariates, for an unmeasured confounder to explain away an association; and [‡]Group is very small (<0.1% of the observed sample) within several countries potentially leading to complete separation and large uncertainty in this estimate—be cautious about interpreting this estimate.

were also patterns that are harder to explain and certainly merit further investigation, perhaps most strikingly that, in some countries, the RRs seemed "out of order." Overall, relative to "good" childhood health, people with worse health had lower LB, and people with better health had higher. However, only eight countries exhibited this linear escalating trend (Argentina, Australia, Brazil, Hong Kong, Indonesia, Japan, Sweden, and USA), and in the remaining countries this pattern was subverted in various ways. In Spain and Israel, for instance, people with poor childhood health had higher LB than those with good health. We cannot know from our data why this effect was observed, but it is possible that in some places poor childhood health either encourages or compels people to develop certain psychological qualities (e.g., resilience) that might subsequently be conducive to LB. But understanding why this effect is only observed in some countries and not others demands more in-depth study.

Other notable patterns that also merit further enquiry include family dynamics. We found that LB is associated with having a good relationship with one's mother (1.05) and father (1.04), and with one's parents

being married, compared to either being divorced (0.97), single or never married (0.96), or one or both parents having died during childhood (0.95). The financial situation of the family also matters: relative to people whose families "got by," those who "lived comfortably" fared better (1.03), while people did worse whose families found it either "difficult" (0.96) or "very difficult" (0.94). These findings accord with a vast existing literature on the importance of these factors for wellbeing, both in childhood itself and moreover in later life. With respect to relationships with parents, for example, a considerable literature on attachment styles shows the positive impact of "secure" bonds – generally regarded as the optimal type of attachment – on mental health later in life[81]. So too with marriage: research has consistently shown this to be beneficial for children relative to other possibilities such as divorce/separation, both during childhood itself[82] and over the life course[83], though one notes that in some situations – such as conflicted or abusive marriages – divorce may indeed be better the option[84]. Similarly, economic security in childhood is associated with better long term mental health prospects[85]. Until now, however, these factors had not been linked to LB in adulthood, and thus our work extends the literature to encompass this.

Importantly however, these general trends varied considerably based on the cultural context. The effect of having a good relationship with one's mother ranged from 0.82 in Egypt to 1.19 in Spain, while having a good relationship with one's father ranged from 0.89 in Indonesia to 1.16 in Poland. Likewise, there was considerable variation pertaining to marital status: compared to having parents who were married, the effect of parents: being divorced ranged from 0.85 in Indonesia to 1.26 in Turkey; being single or never married ranged from 0.76 in Israel to 1.21 in India; and one or both parents having died ranged from 0.71 in Turkey to 1.18 in Australia. There was also variation in relation to finances, albeit less so than other familial dynamics, implying that this factor is somewhat less susceptible to cultural influence. Compared to those whose families "got by" financially, the effect of having "lived comfortably" ranged from 0.97 in India to 1.11 in Indonesia, while finding it "difficult" ranged from 0.79 in Turkey to 1.04 in India, and "very difficult" ranged from 0.70 in Turkey to 1.04 in Hong Kong. These regional differences are again fascinating and deserve further in-depth enquiry into cultural dynamics to help explain them. Consider for example the impact of having parents who were single or unmarried, with a *0.45* RR differential between Israel, where such divorce has a markedly negative impact on the likelihood of experiencing LB in adulthood, and India, where it means one is *more* likely to have LB compared to people whose parents were married. Accounting for such findings will require detailed exploration into the traditions, values, and practices pertaining to both marriage and divorce in the respective countries, and likewise in their respective dominant religions (Judaism and Hinduism respectively).

Another important variable is religious attendance at age 12. Not only was this associated with adult LB, but moreover to an increasing degree depending on the frequency of attendance. Compared to those who never attended, the impact of attending rose from 1.04 for those attending less than once a month to 1.06 for those attending 1–3 times a month or weekly. These trends align with an extensive body of work on the positive impact of childhood religious attendance on subsequent physical and mental health[86]. Our study seems to be the first to link this to LB specifically, but again there was striking regional variation: the association with LB of attending less than once a month ranged from 0.79 in South Africa to 1.23 in Kenya, of attending 1–3 times a month ranged from 0.82 in South Africa to 1.33 in Turkey, and attending weekly ranged from 0.86 in South Africa to 1.25 in Kenya. Such variation demands closer investigation. Consider the discrepancy between South Africa and Kenya (a gap of 0.44 with regard to attending less than once per month, and 0.39 for weekly attendance). When it comes to research on flourishing, Africa receives little attention, and even when it does is rarely considered in granular detail, instead often subject to generalizations about the continent as a whole; yet there is considerable variation within the continent across myriad aspects of flourishing[87], as is evident in our findings. However, the two countries are very similar in terms of religious composition, being predominantly Christian to almost the exact same level (85.5% in Kenya and 85.3% in South Africa)[88]. As such, whatever is driving the disparity is most likely not religion per se, but some other factor, which future research can ideally look into.

One final set of childhood factors here that were impactful for balance in adulthood are adverse experiences, namely, experiencing abuse (0.93) and feeling like an outsider in one's family growing up (0.90). The vast literature on the long-term detrimental impact of Adverse Childhood Experiences documents their negative effect on a panoply of outcomes later in life, from substance use[89] and food insecurity[90] to depression[44] and even frailty in older adults[91]. To this literature we can also add that such adversities are also associated with lower LB in adulthood. Again though, the regional variation is considerable, where the association of abuse ranged from 0.83 in Poland to 1.01 in India, while being an outsider ranged from 0.76 in Australia to 1.06 in Turkey.

Finally, there are three factors that are not necessarily about childhood but are relevant to childhood: age, sex/gender, and immigration status. Regarding age, the older the participants, the more likely they were to have LB: compared to people aged 18–24 (i.e., born between 1998 and 2005), the RRs rose from a marginally higher 1.01 for those aged 25–29 (1993–1998), to 1.12 for those aged 70–79 (1943–1953), although it dropped considerably to just 0.53 (0.13, 2.18) for those aged over 80 (born in 1943 or earlier), though this latter group was *very* small, so caution is required in interpreting this data (as indicated by the massive 95% CI of 2.05). These findings could be regarded as reflecting a childhood factor, especially if we interpret the data as being about when people were *born*, hence being a cohort effect. However, the emergent literature on LB suggests it tends to increase as a function of age[39], so it may be more realistic to interpret the findings as simply being about participants' actual current age. It is still interesting to note regional variation though, where the RR of the 70–79 age group ranged from 0.79 in Nigeria to 1.51 in Australia, showing the relationship between age and LB is not universally observed, and like the other factors here is affected by socio-cultural dynamics.

The penultimate variable was sex (referred to in the GFS questionnaire as "gender"), which ranked second last in terms of impact, where compared to males, females had an RR of 0.98. Also though, a very small percentage of the sample stated their gender was neither male nor female but "other", with this group having *considerably* lower LB (0.25). Caution in interpreting this finding is needed however as this group was very small (<0.1% of the observed sample) in several countries, leading to complete separation and large uncertainty in this estimate.

Nevertheless, their very low RR still demands further study and attention. There is an extensive literature showing that people who identify as LGBTQ + tend to have lower levels of mental health across the lifespan, from youth[92] to older adults[93]. It is thus perhaps unsurprising that this factor then would also affect LB. It is not certain whether the data here constitute a childhood factor per se, since the item asks people their *current* gender, not their gender as a child, and it is possible that some percentage who answered "other" now would not have done so in childhood. Even if so though, it is likely that some relevant dynamics would have manifested during childhood (e.g., some sense of gender dysphoria). As with other factors, it will also be important to further investigate the regional variation, where the RR for females ranged from 0.87 in Kenya and the Philippines to 1.08 in Japan, and for those answering "other" ranging from 0.28 in Germany to 1.43 in Mexico and Nigeria. It would be helpful to know, for instance, what it is about Mexico and Nigeria that means people who answered "other" tended to be much *more* likely to have LB than men or women. Perhaps one possibility is that both have long-standing traditional non-binary roles in some of their cultures – including the *Muxes* in Mexico[94] and the '*Yan Daudu* in Nigeria[95] – which may be driving at least some of the differences in the data here.

Lastly, the factor with the least impact was immigration status: compared to people born in the country in which they live, those born elsewhere had a RR that was basically equal (1.01). As with age and gender, this is not necessarily a childhood factor, since it reflects *current* immigrant status, though it does indicate that as a child they were born in a country other than the one in which they currently live. Strikingly, such status does not seem to have any bearing on LB, which is notable, given that being an immigrant is frequently perceived as presenting challenges that can be detrimental to mental health[96]. On the other hand, researchers have often found immigrant mental health is "better than expected"[97], and may even be better than native people, a phenomenon remarked on often enough to be labelled "healthy immigrant effect," which suggests "immigrants have a health advantage over the domestic-born," though this usually "vanishes with increased length of residency"[98]. In our case, while we did not observe this effect, neither were immigrants disadvantaged regarding LB. Again though, there were also significant regional disparities (though the confidence intervals were quite wide), with RRs ranging from 0.81 in the Philippines to 1.45 in Tanzania, so in some countries at least the healthy immigrant effect may potentially play out.

Conclusion

Although scholars increasingly appreciate the importance of LB, this topic has received relatively little attention amidst the proliferation of research into flourishing over recent decades, particularly when it comes to childhood predictors. Using a retrospective assessment of childhood experiences in over 200,000 participants across 22 countries we found that most aspects of a child's upbringing that we measured did predict LB in adulthood, though there were important country-level variables that require further research to understand. The most impactful factor was self-rated health growing up, reflecting a significant body of work showing physical health to be an important predictor of many subsequent flourishing outcomes[76], while least impactful was immigration status. Moreover, all the significant relationships were robust to potential unmeasured confounding, as assessed by E-values. However, there was considerable cultural diversity, and in many places, differences in numerous aspects of childhood had little to no effect on LB in adulthood. We hope future research will help to explain these divergent patterns, and more generally that researchers will pay closer attention to LB as a key constituent of human flourishing.

Data availability

Data that support the findings of this article are openly available on the Open Science Framework (Wave 1 non-sensitive Global data: https://osf.io/sm4cd/), and are available from February 2024 - March 2026 via preregistration and publicly from then onwards. Please see https://www.cos.io/gfs-access-data for more information about data access. Code in multiple software is openly available in an online repository for the demographic variation and childhood predictor analyses (https://doi.org/10.17605/osf.io/vbype).

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Author contributions

T.L. wrote the main manuscript text. R.N.P. prepared all tables and figures. B.R.J. and T.V.J. led the overall study on which this paper reports. All authors reviewed the manuscript and contributed edits and additions to the text.

Declarations

Competing interests

Tyler J. VanderWeele reports partial ownership and licensing fees from Gloo, Inc. The remaining authors have no competing interests to declare.

Additional information

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1038/s41598-025-89853-w.

Correspondence and requests for materials should be addressed to T.L.

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