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# The development of the Global Flourishing Study questionnaire: charting the evolution of a new 109-item inventory of human flourishing

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## Abstract

Given the well-founded critiques of academia as Western-centric, there are increasing efforts to conduct research that is more cross-cultural and global. These dynamics apply to all aspects of life, including human flourishing, as exemplified by the new Global Flourishing Study (GFS), a longitudinal panel study investigating the predictors and components of flourishing across over 200,000 participants from 22 geographically and culturally diverse countries (Argentina, Australia, Brazil, Hong Kong [S.A.R of China, with mainland China also included from 2024 onwards], Egypt, Germany, India, Indonesia, Israel, Japan, Kenya, Mexico, Nigeria, Philippines, Poland, South Africa, Spain, Sweden, Tanzania, Turkey, UK, and USA). The research is not only comprehensive in its global reach but also its *conceptual* coverage of flourishing, involving 109 distinct questions (comprising a one-off intake survey of 43 items and an annual survey of 71 items, with five items shared by both). This paper elucidates the questionnaire development process, giving a transparent and open accounting of its multi-phase construction. By describing this process in detail, this article not only articulates the nature of the GFS but also serves as a useful resource in the survey development literature more broadly (e.g., for scholars undertaking similar endeavors).

**Keywords** Global, Cross-cultural, Flourishing, Language, Psychometric

## Background

Over recent decades, the question of human flourishing has increasingly commanded academic attention. An exemplar is the recently launched Global Flourishing Study (GFS), a longitudinal panel study enabled with \$43.4 million in initial funding—involving a consortium of funders including the John Templeton Foundation, the Templeton Religion Trust, the Templeton World Charity Foundation, the Fetzer Institute, the Paul Foster Family Foundation, the Wellbeing for Planet Earth Foundation, Well Being Trust, and the David & Carol Myers Foundation—investigating the predictors and components of human flourishing. As part of a raft of papers elucidating various aspects of the methodology of this endeavor, this

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paper articulates the process by which the GFS questionnaire (GFS-Q) at the heart of the project was constructed, over several sections. First, we set the context by introducing the concept of flourishing, and the need to study it globally, followed by details of the GFS itself. Second, we chart the process of the GFS-Q construction, which unfolded over seven phases. Third, we review the main issues that arose during the GFS-Q development process and outline the main kinds of amendments that were made to items. Finally, we finish with lessons, recommendations, and conclusions. Various versions of the GFS-Q and other relevant material are provided as additional files, including: items ordered by thematic dimension, together with explanatory notes (Additional file 1); the GFS-Q as presented to participants, involving an intake questionnaire (Additional file 2) and an annual questionnaire (Additional file 3); the prior three iterations of the GFS-Q which were constructed and refined during the questionnaire development process (Additional files 4, 5, and 6); a select list of experts involved in the GFS-Q development (Additional file 7); and a summary of cognitive interviews undertaken in phase 7 (Additional file 8).

### Conceptualizing flourishing

There has been a blossoming of academic interest in flourishing. Indeed, in some quarters, the concept may now be starting to eclipse similar terms, like wellbeing. Although the latter has tended to be more prominent in recent decades—with a Google Scholar search in February 2025 returning 5,680,000 results for “well-being” and 2,970,000 for “wellbeing,” versus only 926,000 for flourishing—there are signs of scholars starting to prefer flourishing as a more all-encompassing term. An influential early adopter was Corey Keyes [1, 2] who argued that rather than mental illness and health being a single continuum, they are separate (physiologically, functionally, experientially), and people can experience both concurrently. As such, his “dual continua” model had *separate* spectra for each, placed orthogonally to create a bivariate state space; most relevantly, he labeled the ideal top-right quadrant—an absence of illness and active presence of health—as flourishing. Another pioneer was Martin Seligman [3], whose book *Flourish* introduced his PERMA framework (positive emotion, engagement, meaning, positive relationships, accomplishment). Also prominent are Huppert and So, who view flourishing as “synonymous with a high level of mental well-being ... epitomis[ing] mental health” [4]. Similarly, Deci and Ryan’s [5] influential self-determination theory is also sometimes presented as a framework of flourishing, with the satisfaction of the main three self-determination needs (autonomy, competence, and relatedness) described as “central to human flourishing” [6].

Of particular relevance here is the framework developed by Tyler VanderWeele, as introduced in his seminal paper “On the promotion of human flourishing” in the Proceedings of the National Academy of Sciences [7], which is the basis for the GFS. In the models above, flourishing tends to be conceptualized in terms of high levels of wellbeing and often mental wellbeing specifically. VanderWeele and colleagues’ approach, by contrast, is more expansive, in two key ways. First, flourishing is not just about mental thriving, but attaining wellbeing across all dimensions of existence. In that respect, VanderWeele and colleagues [8–11] identify four main dimensions, which they refer to as the “WHO+” taxonomy, drawing on the three in the WHO’s definition of health—“a state of complete physical, mental and social well-being, and not merely the absence of disease and infirmity” [12]—and adding a spiritual dimension. As such, they define wellbeing as “a personal subjective state of quality across the physical, mental, social, and spiritual dimensions of existence” [8]. Secondly though, while many scholars often use wellbeing and flourishing synonymously, VanderWeele and colleagues assign a broader role to flourishing. Whereas wellbeing is about how well a person is faring in life, flourishing is about the person *and* their context both thriving. With wellbeing, it is possible for a person to attain this in spite of adverse circumstances. By contrast, VanderWeele suggests flourishing implies being supported by one’s environment, deriving etymologically from the Latin *florere* (“to bloom, blossom, flower”). Thus, it implies an adaptive interaction and consonance between the individual and their contextual systems, such that they help people within those systems to prosper, and perhaps vice versa. Thus, expanding upon the definition of wellbeing above, flourishing is defined as “a state of personal and systemic quality in relation to all dimensions of existence, in a way that is relatively enduring and well-supported by the various conditions of life” [10]. An alternative, more concise phrasing that captures the same idea is “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.”

More specifically, VanderWeele [7] identifies five key domains of flourishing—happiness and life satisfaction; mental and physical health; meaning and purpose; character and virtue; and close social relationships—to which a sixth domain, financial and material stability, is added as an important means for “secure flourishing” over time. While he emphasizes that these domains are not exhaustive of flourishing and that other dimensions may also be important, he nevertheless argues that whatever one’s view on this topic, all these six are “arguably at least a part of what we mean by flourishing.” To that point, VanderWeele suggests that the first five domains satisfy the

following two criteria: (i) each is generally viewed as an end in itself; and (ii) each is nearly universally desired. (Financial stability arguably does not satisfy the first criterion, since wealth has only instrumental value, namely as a medium of exchange.) VanderWeele has also presented a 12-item Secure Flourish Index featuring two items per dimension—with subsequent evidence supporting its psychometrics [13–15]—which serves as one foundation for the GFS, although as elucidated below, numerous other aspects of flourishing and other domains have also been included in the GFS-Q, such as aspects of communal wellbeing [16]. To reiterate, VanderWeele’s framework is of course not the only approach to flourishing; however, it is the basis of the GFS, with which this paper is concerned, as we introduce shortly. Before that though, it is worth noting why the GFS is needed, and the issues it is designed to redress.

### Studying flourishing globally

While the recent academic interest in flourishing is most welcome, it has nevertheless been subject to various critiques. Prominent among these is that such scholarship has tended to be Western-centric, influenced by the cultural dynamics of the USA in particular [17–19]. This complaint is hardly limited to the topic of human flourishing and has been leveled at fields like psychology more broadly and indeed academia as a whole (though we mostly limit our comments here to psychology as an exemplar of this wider bias). This issue was influentially brought to attention by Henrich and colleagues [20], who argued that most research in top psychology journals has been conducted by and on people in societies they deemed “WEIRD” (i.e., Western, Educated, Industrial, Rich, Democratic). Although one cannot simplistically classify places in a binary way as WEIRD versus non-WEIRD—as each element of the acronym is a spectrum upon which countries may be variously situated [21]—most of the world is not *as* WEIRD as the USA, from where the majority of research has historically originated [22], even if the situation is gradually improving [23]. This cultural bias has numerous implications, particularly given that psychology and related fields tend to aim for universality (i.e., presenting its theories and findings as universally applicable). If prominent research is mostly from WEIRD societies, one can question the extent to which empirical findings are generalizable to people living elsewhere. Some theorists argue they *are* generalizable, on the basis that humans are relatively similar across cultures and share a common human nature. However, a wealth of research—such as the now vast collection of studies using data from the Gallup World Poll

[24] (<https://www.gallup.com/178667/gallup-world-poll-work.aspx>)—show people *do* meaningfully differ across myriad aspects of life related to their cultural and geographical location [25]. As a result, one cannot simplistically draw conclusions based on people mainly from WEIRD contexts.

In light of such critiques, psychology and related fields are beginning to respond and adapt in a process of evolution that has been described as an emerging wave of “global scholarship” [17]. There are two fundamental issues that such scholarship aims to redress, namely the Western-centrism of (a) participants and contexts, and (b) ideas and scholars. First, it is important to study people and places across the world, not merely in the West, as noted above. This is a guiding ethos of the GFS, as we shall see. However, even if research is conducted globally, the ideas through which it is operationalized and assessed might still be Western-centric, shaped by the values and traditions of Western countries. As such, it is also increasingly acknowledged that scholarship must be more globally inclusive in terms of how topics and ideas are conceptualized and interpreted. In the case of flourishing, an example of this inclusivity is the Global Wellbeing Initiative, a recent collaboration between Gallup and a Japanese foundation called Wellbeing for Planet Earth [26]. This has involved developing a module of items for the Gallup World Poll that reflects ideas and priorities around wellbeing associated especially with Eastern cultures, and which has focused in particular on balance and harmony [27], together with the related phenomenon of low-arousal positive states, such as calmness [28] and inner peace [29].

To an extent, the GFS has also embraced this second point of greater inclusivity with respect to ideas and scholars; for instance, it has included items on balance and inner peace from the Global Wellbeing Initiative, and has involved researchers in or from many different countries across the various aspects and stages of the project. For the most part, however, its prerogative has been with (a) rather than (b)—being more globally inclusive with respect to participants and contexts rather than ideas and academics per se. As such, it relies on a framework of flourishing developed in a Western context, which a critic might suggest still reflects Western values and perspectives and hence might construe as a limitation. Nevertheless, even if the conception of flourishing underpinning the GFS-Q is not necessarily as globally inclusive as an idealist might wish for, the GFS is arguably at least on a par with other comparable endeavors in trying to be conceptually open and inclusive, such as gaining input from scholars across the world, as elucidated below. In any case, the GFS has

certainly aimed to be globally inclusive in terms of participants and contexts, as we outline next.

### The Global Flourishing Study

The GFS is a longitudinal panel study involving—in its first wave—202,898 participants from 22 geographically and culturally diverse countries, with the aim being to retain as many of these participants in a process of annual participation lasting at least 5 years. The countries are Argentina, Australia, Brazil, Hong Kong [S.A.R. of China, with mainland China also included from 2024 onwards], Egypt, Germany, India, Indonesia, Israel, Japan, Kenya, Mexico, Nigeria, Philippines, Poland, South Africa, Spain, Sweden, Tanzania, Turkey, UK, and USA. (Note: Data from Hong Kong (S.A.R. of China) is available in the first wave of data collection. Data from mainland China were not included in the first data release due to fieldwork delays. The first wave of fieldwork in mainland China began in February 2024, and a second wave occurred in November–December 2024. All wave 1 and 2 data from mainland China will be part of the second dataset release in March 2025.) 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 [30]. Four additional waves of panel data on the participants will be collected annually from 2024 to 2027.

In addition to the present paper focusing on questionnaire design, other aspects of the methodology and overall survey design are available, including an overview of the GFS and its initial results [31], a summary of the methodology [30], an early and condensed summary of the questionnaire development process [32], analysis of the cognitive interviews [33], the translation document [34], the survey sampling design for wave 1, [35], the statistical analyses code, [36], the analytic methodology for childhood predictor analyses for wave 1 [37], the analytic methodology for demographic variation analyses for wave 1 [38], and the wave 1 Codebook [39]. 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 (<https://www.cos.io/gfs>). Subsequent waves of the GFS will similarly be made available. Please see <https://www.cos.io/gfs-access-data> for more information about data access. Code in multiple software is openly available for both the GFS demographic variation

analyses [38] (<https://doi.org/https://doi.org/10.17605/osf.io/vbype>) and GFS childhood predictor analyses [37] (<https://doi.org/https://doi.org/10.17605/osf.io/vbype>).

As a final point here, we should emphasize—since it is germane to the issue and task of developing a questionnaire for use across different cultural contexts—that the main analytic purpose of the GFS was not to make cross-cultural comparisons per se, but rather to create 22 closely related cohort studies. We acknowledge that cross-cultural comparison is difficult and, due to translation challenges and differing interpretations of items and response scales, the items themselves should not be viewed as being absolutely identical across countries. Rather, the primary analytic strategy is to carry out data analysis separately within countries, which is of interest in its own right, and also allows for meta-analysis across countries. Such meta-analytic approaches do not presume that the items are interpreted identically across countries but merely are relatively closely related to one another (just as a meta-analysis of closely related interventions that may differ in specific administration, dose, mode, etc.).

Turning now to the focus of the present paper, the process of questionnaire design took several years, involving seven main stages, during which the GFS-Q underwent considerable evolution and refinement. To that end, this paper aims to shed light on this process of GFS-Q construction, which will be useful in elucidating the nature of the GFS and serve as a valuable resource for scholars who will use the GFS in their work. In addition, the paper also shines a light on questionnaire development more generally, providing insights into a comprehensive questionnaire construction process that could serve as a “template” that scholars might draw on in future research projects. Although some aspects of questionnaire development are often discussed in the literature, these are frequently confined to the methods sections of papers (e.g., those presenting and validating a new measure). Rarely can one find entire papers devoted to exploring the nuances and complexities of such an endeavor. An exception is an article that discusses the creation of the aforementioned Global Wellbeing Initiative module on balance and harmony in the Gallup World Poll [26]. Drawing on this example, we offer a similar account of the GFS-Q, tracing its development by describing seven core phases of the process, building upon and extending briefer and less formal earlier summaries [32].

### Phases of GFS-Q development

#### Phase 1: selection of initial items

An initial set of 103 items relating to flourishing was compiled by the core members of the research teams at Harvard and Baylor Universities in 2019, thus constituting



“Version 1” of the GFS-Q (see Additional file 4). This process unfolded in two phases: (1) a selection of items by a core team of researchers associated with the GFS (discussed as “Phase 1” in this first subsection); and (2) additional input from content experts (discussed below as “Phase 2” in the following subsection). The first phase of item selection by the core GFS team drew on several main sources. The first was VanderWeele’s aforementioned Secure Flourish Index [7], which is the foundation of the GFS-Q, and hence was included unchanged in the finalized annual survey. A second key resource was the Gallup World Poll, a global survey established in 2005 that has since been administered annually in up to and over 160 countries. Gallup is a core partner in the GFS, having been intimately involved at all stages of development and implementation, and moreover being responsible for data collection in each country included in the GFS, harnessing their expertise and networks accrued through their operation of the World Poll. The World Poll features items relating to all aspects of flourishing which have been tested, honed, and validated through the operation of the World Poll. As such, 22 of the core items from the World Poll were included in Version 1. Additionally, a variety of core social, demographic, economic, and wellbeing items were chosen in consultation with Gallup in order to achieve some consistency with the World Poll.

A third key source was the Brief Multi-Dimensional Measure of Religion/Spirituality (BMMRS) [40, 41]. The connection of religion/spirituality to flourishing is not only of particular interest to the GFS team [42, 43] and its funders but has often been overlooked in the literature on this topic. As such, from the start, there has been a motivation to have religion/spirituality be a prominent aspect of the GFS-Q. In that regard, a starting point was the BMMRS, which was developed in 1999 by a working group of US experts supported by the Fetzer Institute and the National Institute on Aging. Using this as a key resource, an expert religion/spirituality advisory group was formed (see Additional file 7 for participants) to further select, refine, and update the items for the GFS-Q. In discussions with the expert panel, alternative items were proposed or adapted when those in the BMMRS were either not sufficiently general to be applicable for use among diverse global religions, when further research in the field had suggested other wording was preferable, or for aspects of religion/spirituality not explicitly addressed by the BMMRS.

Here we ought to acknowledge that some critics might take issue with the fact that representatives of all 22 countries featured in the GFS were not included in the design process from the start. However, we should also note that, (a) the process did include open global feedback in

phase 5 from 133 participants in many different countries, (b) many participating scholars who reside in the USA/West are originally from the countries of interest, and (c) the process included within-country work on translation in phase 7, and in a number of cases scholars from the various countries provided final review of translations and construct fidelity. But, of course, more could still have been done to attain even greater global coverage and inclusivity, and any relative lack in that respect is acknowledged as a limitation. That said, we would also argue that it is not critical to include representatives from every country at every phase to achieve cross-cultural validity. The initial phases were intended to set up the overarching framework for the research design, including the identification of key constructs to cover in the GFS-Q. Existing operationalizations of those concepts seemed like a useful means for a placeholder, and too many voices at that point could have actually presented a hindrance at those formative stages of research design. Of course, though, the inclusion of diverse perspectives was nevertheless important as the process unfolded, which indeed occurred throughout subsequent stages. This is especially the case for phase 7, which was designed to examine the cross-cultural validity of the GFS-Q items in each country: questions were reviewed by a team of local survey experts, as well as cognitive interviews of the items conducted in each country and in every language (apart from in India, in which interviews were only conducted in two of the 11 languages in which the GFS was eventually fielded in that country), with the resulting input leading to numerous changes to the final questionnaire, as outlined below.

## Phase 2: input from content experts

In addition to the first phase outlined above (i.e., item selection by a core GFS team), the initial survey iteration (version 1) also featured a second phase that ran from 2019 to 2020. This involved soliciting feedback and item recommendations from domain experts around the world, with a particular focus on the domains of flourishing in VanderWeele’s framework and on aspects of flourishing extending beyond the 12-item core measure (see Additional file 7 for participants). Experts were invited to recommend single items on these topics for survey inclusion and moreover to provide evidence and justification for the items selected. Often, the proposed items came from validated scales and were chosen because they were the specific indicators most strongly associated with other indicators and/or most strongly predictive of subsequent outcomes in longitudinal studies. Thus, in conjunction with the item selection from phase 1, an initial survey draft (version 1) was then developed based on the input from the domain experts.

### Phase 3: targeted global feedback

Once an initial questionnaire draft (version 1) had been finalized in phase 2, input, recommendations, and criticisms were solicited from a culturally diverse group of nine scholars from a range of countries (including Australia, Brazil, China, England, New Zealand, South Africa, and the USA) and representing different disciplines (e.g., psychiatry, psychology, public health, sociology, theology). Selected scholars were sent the entirety of the questionnaire and were asked for feedback (see Additional file 7 for participants). The proposed study and a brief description of the GFS-Q (version 1) were also presented in October 2019 at a meeting hosted by Dominic Johnson (University of Oxford) and the Templeton Religion Trust, convening scholars from numerous disciplines on the Social Consequences of Religion (SCORE (see also Additional file 7)). Revisions to the GFS-Q were made based on feedback received from these various experts and stakeholders, with open and disputed questions and additional comments addressed during Phase 4 of the development process.

### Phase 4: cross-cultural and translational survey feedback

The fourth phase took place at the University of Oxford on March 9, 2020, involving a discussion of cross-cultural and translational issues at an in-person meeting in order to further refine the details of the questionnaire items. The meeting consisted of a small group of senior members of Gallup, experts on translation and cross-cultural issues, and further experts on wellbeing assessment, many of whom have decades of experience in cross-national survey research and language/translation issues (see Additional file 7 for participants). The meeting focused on the questionnaire items, their suitability for use in a global context, issues of item translation, and evaluating additional recent input and suggestions received from scholars around the world. One should note though that final decisions on question wording and translations were not made in this meeting; rather, the translation process was discussed, and some terms were flagged as potential translation challenges. The full translation process and review took place later in phase 7. This meeting led to further refinement of the items, creating a second main iteration of the survey ("Version 2"—see Additional file 5).

### Phase 5: open global feedback

Once the questionnaire items were further refined following the March 9, 2020, meeting at the University of Oxford, version 2 of the GFS-Q was posted on April 29, 2020, on a public website hosted by the Human Flourishing Program at Harvard University to allow further open feedback from anyone who would desire to comment. It

was publicized through Baylor's Institute for Studies of Religion's *Religion Watch* (circulation of about 10,000), the Human Flourishing Program's e-mail list-serve (circulation of about 5000), and the *Psychology Today* blog (with up to 150,000 readers per post). Moreover, invitations to comment were also sent via internal communication channels to members of the following professional societies and groups: the Association for the Study of Religion, Economics, and Culture; the International Association for the Psychology of Religion; the International Positive Psychology Association; the Society for Personality and Social Psychology; the Society of the Scientific Study of Religion; and the World Happiness Report team. All feedback received by June 15, 2020, was compiled into a single document, organized by item. This document ran to 176 pages (single-spaced 12-point font) and involved input from 133 named scholars. While this feedback included some critique of the questionnaire, much of it was requests for what could *also* be included (given that most scholars have topics that they are particularly interested in). This document is available on request in anonymized form (referencing only the respondents' discipline and/or area of expertise).

Given the prior phases of questionnaire development, the bar at this point for further modification based on this open feedback was relatively high, since reasonable individuals can disagree on trade-offs between parsimony and generalizability versus contextual specificity. Such trade-offs are especially pertinent to the GFS, given the task of compressing a multi-faceted instrument, covering an expansive assessment of flourishing with many dimensions, into a 20–25-minute survey. Nevertheless, in total, 26 items were further modified, deleted, or added to the GFS-Q in response to the open global feedback. The overarching purpose of this phase was, by inviting commentary from academia and the broader public, to raise awareness of, and hence to minimize, hitherto unrecognized biases and blind spots among the core research team. To that point, repeated comments on specific items, issues, or omissions, were given serious consideration. Major points of revision are elucidated in the next section, but as a brief summary here, these include (a) revising questions that refer to "God" so that they would be either applicable to all faiths or have a response category that allowed individuals to opt-out if the item does not apply to them, (b) modifying items that reviewers thought were double-barreled, (c) removing a few similar items and replacing them with others, (d) ensuring that the religious items adequately and accurately tap the beliefs and practices of the diverse religious traditions around the world, (e) ensuring item relevance in countries and cultures around the world, (f) considering words and items that may not translate well around

the world, (g) considering alternative items that may be more appropriate than the ones currently included on the questionnaire, and (h) considering important concepts that may be missing (with many suggestions for additional or alternative questions). This feedback stage, together with feedback from Gallup survey design experts (discussed below as phase 6), led to the creation of a third main iteration of the questionnaire (version 3—see Additional file 6).

#### Phase 6: Gallup feedback

In early 2021, Gallup survey design specialists provided feedback to the GFS research directors from Harvard and Baylor, intended to optimize the questionnaire for fielding in a wide range of global settings and disparate populations. Given constraints to the length of the annual questionnaire, 14 questions were omitted prior to the subsequent stage of cognitive interviews, as detailed in Additional file 1. The constraints centered on restricting the length of time it would take participants to complete the questionnaire, aiming for 20 min on average or less—albeit with the realization that this would not be possible in all countries—thereby aiming to ensure it would not be unduly taxing or inconvenient. Revisions to item wording and response options of some items also occurred to reduce respondent burden and increase comprehension of abstract concepts across cultural contexts. As noted above, in conjunction with the open survey feedback (phase 5), the Gallup feedback was included in the third main iteration of the questionnaire (version 3).

#### Phase 7: translation, cognitive interviews, and pretesting

Once version 3 of the questionnaire had been established, Gallup translated it for cognitive interviews and pretesting. Before delving into the latter two aspects, both of which essentially constitute different forms of pilot testing, let us briefly dwell on the details of the translation process, a summary of which is provided elsewhere [30], with more details in the GFS Translation Document [34]. The core questionnaire translation process adhered to a TRAPD model (translation, review, adjudication, pretesting, and documentation), as developed and recommended by Harkness [44], with modifications appropriate to the dynamics of this particular research endeavor (essentially, a “double TRAPD” model). The TRAPD approach was adopted by Gallup in 2019 for the Gallup World Poll [45], replacing the hitherto-used method of “back translation” in light of perceived issues with this latter technique, such as the critique that its resulting translations may “lack naturalness, be difficult to comprehend or may simply be downright wrong” [46].

Here, the process was as follows. (T): a professional translator translated the questionnaire into the target

language using a shared set of notes and guidance regarding the meaning of specific words, phrases, and concepts. (R): A different professional translator reviewed the translation. This reviewer identified any issues with the translated material, suggested alternative translations, and provided reasoning, in English, behind their decision for modifications. (A): The original translator received feedback on the disputed translations and accepted or rejected the suggestions. If they disagreed with the reviewer’s edits, the initial translator provided an explanation in English. A third-party reviewer then adjudicated the translation based on the explanation that best aligned with the research objectives. (P): Gallup’s local partner ran a pretest of the entire questionnaire—described in more detail below—with at least 10 respondents per language to ensure the accuracy and quality of the translations. This constitutes a form of “translatability assessment”—defined as “the evaluation of the extent to which a measure can be meaningfully translated into another language” [47]—as recommended by, for example, Acquadro and colleagues [48], who argue that the “successful translation and cultural adaptation of an instrument into a new context can only be proven empirically, once the translation process has been finalized.” (D): Final translations were documented for researchers. In several countries, data collection occurred using interviewer- and self-administered approaches, depending on the participants’ access to the internet and willingness to complete online surveys. To ensure translation consistency across modes of data collection, a professional translator adapted the final interviewer-administered translation to reflect the modifications required for the self-administered version of the GFS-Q. That is, as minor adjustments to the English instrument occurred between the pilot and main study, a local translator used the existing translations and made updates as needed. For quality assurance, these translations were reviewed a final time by a third-party native speaker, effectively constituting a “double TRAPD” approach.

Once an initial translation of the questionnaire (version 3) had been rendered into the languages of the 22 participating countries, Gallup undertook a process of cognitive interviews (CIs) and pretesting to help ascertain the adequacy of the translations, as well as to examine the viability of the GFS-Q more generally (i.e., aside from specific translation issues). While having slightly different functions and aims, both CIs and pretesting are used to assess: respondents’ comprehension; the meaning and relevance of the items to the sampled population(s); the extent to which it is difficult for respondents to answer a question; and the steps required to select a response. Starting first here with CIs, this is a qualitative approach that uses both psychological and measurement theory

to analyze how participants interpret and respond to self-report items [49]. The goal is to ensure respondents share a similar understanding of what the question is seeking to measure across different segments of society. In a CI, trained interviewers ask probing and clarifying questions in a semi-structured format [50]. For example, after a participant answers a questionnaire item, the interviewer might ask them to think about how difficult it was to answer that item, or to consider how well the item captured the intended construct. These qualitative responses are used to enhance or modify items for future use. Essentially, CIs are one kind of pilot test: an initial data collection effort with a very small sample to see if measures, stimuli, or recruiting methods (as examples) are consistent with the researchers' intended effects or interpretation. Ten CIs were completed in each of the 22 countries, apart from India, where 20 CIs were completed (since in India the questionnaire was fielded in 11 languages, and while it was not possible to conduct CIs in all 11, they were conducted in two—namely Bengali and Hindi—hence double the number of CIs compared to other countries). A detailed account of the CI process and results is provided elsewhere [33], with summary notes provided here in Additional file 8, and with select findings of interest noted below in the next section. In addition to the draft questionnaire items, interviewers used question probes to determine what respondents had in mind when answering questions about key concepts and to gauge how difficult it was for them to answer each question. The CI guides also had different versions of some questions to compare variations in question wordings or response options. Also of note: there were two versions of the CIs. Version A had a longer (e.g., 10-point) scale for some questions, whereas version B had a shorter response scale for the same items; this was to assess the ideal scale length. Additionally, version A and B had different wording for some items to compare the relative difficulty and comprehension of certain items.

Following the CIs, pretest interviews were also conducted, also per Gallup protocol. The main goals of pretests are to examine if the planned process of administering and collecting responses is feasible, timely, efficient, and—when combined with the results of the CIs—whether the survey more broadly is “fit for purpose.” Also, although not the primary purpose, pretests can also help identify remaining challenges related to response scales and respondent comprehension of items. Pretests highlight areas where logistical and practical challenges might arise and provide information about the average length of interviews. Pretests were completed with 1162 respondents from the 22 countries in the GFS in June 2021. About 50 respondents were interviewed in each country (again except India, where 101 pretest

interviews were conducted). Most data collection was conducted online using Computer-Assisted Web Interviewing (CAWI) software, but at least 10 interviews in each country were conducted over the phone using Computer-Assisted Telephone Interviewing (CATI).

In addition to CIs and pretesting, version 3 was also sent back to scholars in many of the participating countries to evaluate whether the translated items in fact corresponded to what would be desired for the relevant constructs for the GFS (see Additional file 7 for participants). Further revisions to the translations were made in light of their feedback—with any new or adapted items again using the double TRAPD model approach—thus finalizing the process of questionnaire development and creating a fourth and final version of the GFS-Q. This finalized version can be found in the appendices, in two formats, as noted in the Introduction. The first format, in Additional file 1, arranges the items roughly according to the dimensions of VanderWeele's flourishing framework, together with explanatory notes and citations, showing where the items are derived from, as well as any adaptations to the original items made as a result of the phases outlined here. Additionally, the actual questionnaire as presented to participants is provided in Additional files 2 and 3, separated into the initial intake questionnaire (Additional file 2) and the annual questionnaire (Additional file 3).

### Issues and amendments

The process of questionnaire development, outlined above, resulted in refinements to numerous items, and hence to the GFS-Q as a whole. Of the 109 items eventually selected for the final iteration of the questionnaire, nearly one-third ( $n=30$ ) were revised or adapted in some way as a result of the phases above, especially the seventh stage of CIs and pretesting, as detailed in Additional file 1. Overall, reasons for revision/adaptation fell into three main categories: improving clarity; improving cultural and personal sensitivity; and changes to item formatting. Here, we briefly touch upon each in turn, including the relevant items, listed with their numeric placement in the GFS-Q in square parentheses, together with a letter signifying whether they were in the intake questionnaire (“I”; Additional file 2) or annual questionnaire (“A”; Additional file 3).

#### Improving clarity

The cognitive and pretest interview comments highlighted the obvious need to be as specific and clear as possible when asking about abstract concepts that may have clearer connotations in English than in other languages. This need was a concern particularly regarding questions about respondents' worldview and religious/



spiritual beliefs. There are strategic trade-offs between generalizability, consistency, comparability, and accuracy. In general, when it comes to poorly understood concepts, Gallup works with the local partners and translators to consider alternative translations of words/phrases that could improve respondent comprehension of the item's intent. Alternatively, Gallup considered ways to reformulate the question in English to enhance comprehension while still capturing the underlying construct of interest. If the issue was more fundamental, Gallup would resort to fielding the least bad version unless it caused excessive respondent frustration. By way of example, version 3 had various items that included the term “community” in an open-ended way, which in the CIs caused confusion in many countries (as can be found with a key word search for “community” in the translation document). As such, when it came to the final instrument, only a few items included “community.” Those items typically defined the term in a more grounded way; for example, in A19, “How would you describe your sense of belonging to your local community?” was changed to “How would you describe your sense of belonging in your country?” In total, nine items were revised for improved clarity and comprehension in some way.

- [A13] I have the freedom in my life to pursue the things that are most important to me. [0=Strongly disagree, 10=Strongly agree]. The initial phrasing, modified from the Aetna Wellbeing Assessment [14], was “I am free to pursue what is most important.” However, in CIs, respondents differed widely on what the question is asking about freedom from (i.e., the type of constraints); some said life circumstances, family responsibilities, demands of work or school, COVID-19 restrictions, financial restrictions, social restrictions including restrictions on women, etc. Consequently, after the CIs the wording was revised somewhat to improve clarity.
- [I3, A24] Is there any one special person you know that you feel very close to? For example, someone you can confide in and share your feelings with. [Y / N]. Initial phrasing, from the Nurses’ Health Study II [51]: “Is there any one special person you know that you feel very close to; someone you feel you can share confidences and feelings with?” [Y / N]. In CIs, the phrase “share confidences and feelings” seemed difficult for a few respondents. As a result, the wording was revised slightly.
- [A31] How often do you feel very capable in most things you do in life. [Always, often, rarely, never]. Initial phrasing [52]: “In my life, I feel very capable in what I do” [0=Completely Disagree; 10=Completely Agree]. In CIs, some respondents saw the question as

vague (e.g., saying they feel capable in some areas of life but not others). Nevertheless, the modified question was retained.

- [A37] To what extent are you suffering? This can be any type of physical or mental suffering. [A lot, some, not very much, not at all]. The initial item [53], involving a 10-point scale (0=Not suffering at all, 10=Suffering terribly), was simply the first question. In CIs, several respondents asked for clarification about the meaning of “suffering,” especially whether the question referred to physical or mental/emotional suffering. As a result, a clause was added for clarification (“This can be any type of physical or mental suffering.”).
- [A19] How would you describe your sense of belonging in your country? [0=Very weak, 10=Very strong]. Initial phrasing [54]: “How would you describe your sense of belonging to your local community?” [0=Very weak, 10=Very strong]. In CIs, as noted above, respondents in many countries were unsure what type of “community” the question referred to; when probed by interviewers, they gave varying definitions. After CIs, the question wording was changed to ask about respondents’ country rather than community.
- [A45] How often do you participate in groups that are not religious, such as book clubs, sports, or political organizations? [More than once a week, once a week, one to three times a month, a few times a year, never]. Initial phrasing [14]: “In the last year, how often have you participated in community groups that are not religious (e.g., book clubs, sports, political organizations, etc.)?” [More than once per week; weekly; a few times a month; a few times a year; never]. In CIs, again, several respondents asked for clarification about the meaning of “community groups.” After CIs, the word “community” was removed to avoid confusion. After the pilot surveys, the phrase “In the last year, how often have you” was altered to “How often do you” to ensure consistency with the religious service attendance question.
- [A34] How much do you approve or disapprove of the job performance of the national government of this country? [Strongly approve, somewhat approve, neither approve nor disapprove, somewhat disapprove, strongly disapprove]. Initial phrasing, from the Gallup World Poll: “How much do you approve of the job performance of the leadership of this country?” [0=Completely disapprove, 10=Completely approve]. In CIs, several respondents sought clarification about the level of leadership the question was asking about. After CIs, wording was changed to ask more specifically about the national government.

- [A33] How often do you feel discriminated against because of any group you are a part of? This might include discrimination because of your religion, political affiliation, race, gender, social class, sexual orientation, or involvement in civic organizations or community groups. [Always, often, rarely, never]. Initial phrasing, modified from the original [55]: “I feel that I am often discriminated against because of my identity.” [0=Strongly disagree, 10=Strongly agree]. Prior to CIs, the question wording and response were revised: “I feel that I am often discriminated against because of the groups I am a part of.” [Strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree]. In CIs, some respondents in a few countries were confused because they did not perceive that they belonged to any group. After CIs, the response scale was revised, and a sentence added to illustrate the range of “groups” respondents might consider.
- [A69] How often do you attend religious services? [More than once a week, once a week, one to three times a month, a few times a year, never]. Initial phrasing, from the BMMRS: “How often do you attend religious services? [Never, a few times a year, a few times a month, weekly, more than once per week]. In CIs, the phrase “religious services” was confusing to several respondents in different countries, some of whom said it would be more appropriate to ask how often they visited their place of worship; some wondered if “services” included certain activities like volunteering; in Japan, for example, the translation of “religious services” connotes a serious rare occasion (like a funeral) rather than a weekly service. No changes were made after CIs due to concerns that adding other examples of worship would cause respondent confusion; modifications in specific countries were not adopted to achieve as much consistency in question wording across countries as possible.
- [A58] Approximately how many drinks of any kind of alcoholic beverages did you drink in the past seven days? Please enter the number below. A full drink is a glass of wine, a can or bottle of beer, or a shot of hard liquor. [Open-ended response]. Item from Gallup Health Behaviors. Prior to CIs, the question wording was changed to provide some sense of what was meant by a drink. In CIs, many respondents across countries were unsure about what constituted a “full drink”; vendors in several countries also recommended a change to avoid seeming to assume that respondents drank some amount of alcohol in the past seven days. After CIs, wording was further revised for additional clarification, and “if any” was added.
- [A57] About how many cigarettes do you smoke each day, if any? [Open-ended response]. Initial phrasing, from Gallup Health Behaviors: “About how many cigarettes do you smoke each day.” Prior to CIs, “if any” was added to soften language and avoid the appearance of presuming the respondent is a smoker, as per the question about alcohol.
- [A59] On how many days did you exercise or engage in vigorous physical activities for 30 minutes or more in the past week? [0=0 days, 7=7 days]. Initial phrasing, from Gallup Health Behaviors: “In the last seven days, on how many days did you exercise for 30 or more minutes?” Prior to CIs, the question wording was changed to make the definition of exercise more inclusive.
- [A36] Do you agree or disagree with the following statement? People like me have a say about what the government does. [Agree, disagree, unsure]. Initial phrasing [56]: “People like me don’t have any say about what the government does.” [0=Strongly disagree, 10=Strongly agree]. Feedback from CIs: since the statement itself is negative, “agree” is a negative (unfavorable) response, which seemed to cause confusion at times. Subsequently, the wording was reframed as positive.
- [A53] I feel loved or cared for by God, the main god I worship, or the spiritual force that guides my life. [Agree, disagree, unsure, not relevant]. Initial phrasing, modified from original [57]: “I feel loved or cared for by God or a higher power.” [0=Strongly disagree, 10=Strongly agree]. Prior to CIs, wording revised to be more inclusive: “I feel loved or cared for by God, the main god I worship, or the force that guides my life.” [Strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree]. In CIs, some respondents in Islamic countries struggled with the question, noting that they view God’s love as something that is not guaranteed, but which

### Improving sensitivity

Besides seeking to improve clarity and comprehension, as outlined above, another key aim of the CIs and pre-testing was to ensure that items were suitably culturally sensitive, with 12 items modified as a result. Some modifications were more about avoiding certain presumptions that may not apply across cultures, as featured in the first few questions below, such as revising A58 to avoid implying an assumption that respondents drank alcohol. Other modifications were around sensitivities pertaining to differences among religious and political traditions across various countries.

they continually strive for. After pretesting, a slight modification was made to the question wording with the addition of the word “spiritual.”

- [A54] I feel God, a god, or a spiritual force is punishing me. [Agree, disagree, unsure, not relevant]. Initial phrasing, modified from the BMMRS: “I feel God or a higher power is punishing me.” [0=Strongly disagree, 10=Strongly agree]. Prior to CIs, wording was changed to make it more inclusive: “I feel God, a god, or a spiritual force is punishing me.” In CIs, respondents in a few countries, including Germany, Indonesia, and Turkey, were confused by this question, saying they saw the idea that God delivers “punishment” as inappropriate. Nevertheless, the item was retained as important.
- [I18] How often did your mother attend religious services or worship at a temple, mosque, shrine, church, or other religious building when you were around 12 years old? Did she attend at least once a week, one to three times a month, less than once a month, or never? Initial phrasing: “How often did your mother attend religious services when you were around 12 years old?” [Never, a few times a year, a few times a month, weekly, more than once per week]. In CIs, several respondents noted that attending “religious services” may not be as relevant in some religious traditions such as Buddhism; additionally, several respondents had trouble with the list of time-period response options, leading interviewers to suggest simplifying it to four options. Subsequently, the wording was changed to be more inclusive (e.g., “... or worship at a temple, mosque, shrine, church, or other religious building...”).
- [I25] [Major religion of the country] is the most common religion in this country. To what extent do you agree or disagree with the following statement: The teachings of [major religious figure for major religion in country] are very important in my life. Please use a 0 to 10 scale where 10 means “strongly agree” and 0 means “strongly disagree.” [0=Strongly disagree, 10=Strongly agree]. Modified from original [58]. Prior to CIs, the modified version of the question was adapted from a set of questions asking specifically about several major religious figures or texts. In CIs, some respondents were unsure how to respond if they followed a faith tradition other than country’s most common religion. After CIs, no changes were made to the original question; however, an additional preceeding question was added to capture the importance respondents placed on the teachings of their own religion as well if different from the most common religion, namely I24: “To what extent do you agree or disagree with the following statement: The teachings of [insert major religious figure, according to response to previous questions] are very important in my life.”
- [A30] In general, how often do you feel connected to a religion or a form of spirituality? [Always, often, rarely, never]. Initial phrasing, from the BMMRS: “To what extent do you consider yourself a religious person? [0=Not at all religious, 10=Very religious].” Following CIs, a new item was adopted from a 2021 survey module by the Global Wellbeing Initiative in the Gallup World Poll [26].
- [A49] How often do you pray or meditate? [More than once a day, about once a day, sometimes, never]. Initial phrasing, modified from original [59]: “How often do you pray by yourself, alone?” [Never, occasionally, daily, more than daily]. Prior to CIs, wording changed to be more inclusive, and the response scale was slightly altered: “How often do you pray or meditate?” [More than once a day, about once a day, sometimes, never]. A few respondents across countries asked for clarification on which aspect of the question they should answer, saying there was a big difference between prayer and meditation. Nevertheless, no changes were made after CIs.
- [A50] Do you believe in one God, more than one god, an impersonal spiritual force, or none of these? [I believe in one God, I believe in more than one god, I believe in an impersonal spiritual force, none of the above, unsure]. Initial phrasing, modified from the National Consortium on Psychosocial Stress, Spirituality, and Health [60]: “I believe that a god or higher power exists.” [Y/ N / Unsure]. Prior to CIs, wording revised to be more inclusive: “Do you believe in one God, more than one god, an impersonal spiritual force, or none of the above?” [I believe in one God, I believe in more than one god, I believe in an impersonal spiritual force, none of the above, unsure]. No changes were made after the CIs, but in Muslim-majority countries the options “more than one god” or “impersonal spiritual force” were omitted because they were deemed highly sensitive in those contexts. This holds for similar references in other religious questions.
- [A51] My religious beliefs and practices are what really lie behind my whole approach to life. [Agree, disagree, unsure, not relevant]. Initial phrasing [61]: “My religious beliefs are what really lie behind my whole approach to life.” [0=Strongly disagree, 10=Strongly agree]. Prior to CIs, wording modified slightly to include “practices.”

### Changing response format

Finally, 17 items had their response formats altered, either before the CIs or as a result of them, usually to make the format simpler by producing a scale with fewer options. Some of these items include those in the two categories above (improving clarity and sensitivity). Two items involved reducing a 10-point scale to a five-point scale:

- A34 (approve of government): [0=Completely disapprove, 10=Completely approve] to [Strongly approve, somewhat approve, neither approve nor disapprove, somewhat disapprove, strongly disapprove]
- A35 (people in the country trust each other): [0=Strongly disagree, 10=Strongly agree] to [All, most, some, not very many, none]

Ten items involved reducing a 10-point scale to a four-point scale:

- A29 (life in balance): [0=Completely disagree, 10=Completely agree] to [Always, often, rarely, never]
- A31 (feeling capable): [0=Completely disagree; 10=Completely agree] to [Always, often, rarely, never]
- A32 (forgive people): [0=Strongly disagree, 10=Strongly agree] to [Always, often, rarely, never]
- A37 (suffering): [0=Not suffering at all, 10=Suffering terribly] to [A lot, some, not very much, not at all]
- A38 (pain): [0=None, 10=Very severe] to [A lot, some, not very much, not at all]
- A51 (religious beliefs/practices behind the whole approach to life): [0=Strongly disagree, 10=Strongly agree] to [Agree, disagree, unsure, not relevant]
- A52 (find strength/comfort in religion/spirituality): [0=Strongly disagree, 10=Strongly agree] to [Agree, disagree, unsure, not relevant]
- A53 (loved or cared for by God or spiritual force): [0=Strongly disagree, 10=Strongly agree] to [Agree, disagree, unsure, not relevant]
- A54 (God or spiritual force punishing me): [0=Strongly disagree, 10=Strongly agree] to [Agree, disagree, unsure, not relevant]
- A55 (people in religious community critical of me): [0=Strongly disagree, 10=Strongly agree] to [Agree, disagree, unsure, not relevant]

One item involved reducing a five-point scale to a four-point scale:

I18 (mother attending religious services): [Never, a few times a year, a few times a month, weekly, more than once

per week] to [At least once a week, one to three times a month, less than once a month, never]

Finally, two items had the same number of response options, but the wording was altered:

- A45 (participating in non-religious groups): [More than once per week; weekly; a few times a month; a few times a year; never] to [More than once a week, once a week, one to three times a month, a few times a year, never]
- [A49] (pray/meditate): [Never, occasionally, daily, more than daily] to [More than once a day, about once a day, sometimes, never]

### Lessons, recommendations, and conclusions

This paper has shed detailed light on the development of a cross-national research endeavor that is arguably unique in its combination of longitudinal design, international coverage, and breadth of conceptual focus. While other laudable comparable projects might arguably be more comprehensive in one of these factors individually (e.g., the Gallup World Poll has a more extensive international coverage, featuring many more countries, but without the longitudinal design or breadth of coverage on wellbeing), in combination the GFS is a unique research challenge and opportunity.

Our goal in presenting detailed information regarding the development process and items of the GFS-Q is threefold. First, it serves as a contemporary and transparent record of the creation of this important project. Second and significantly, this type of account is typically not available with comparable projects. Records of the development of similar projects tend to be either given in extremely condensed form in the methods sections of relevant papers, or else are not systematically reported in a peer-reviewed paper at all, with the narrative history instead just surviving in various internal records and working documents of the relevant organization. With the Gallup World Poll, for instance, there does not appear to be any academic papers focusing specifically and systematically on their choice of items or the evolution of the survey over the years. Third, besides being informative vis-à-vis the GFS-Q itself, we hope the paper may be useful for people who are developing similar research projects. Thus, we finish in this concluding section by reflecting on some broader recommendations and lessons learned.

- A globally representative understanding of human flourishing requires not only research that is more inclusive and generalizable to the global human population, but must also embrace a philosophy of



inclusivity and representativity in the research development process itself by engaging scholars across different disciplines and cultural contexts at key stages. Speaking reflexively though, there will always be limitations in this regard, which should also be acknowledged. In the present case, for example, while efforts were made to involve scholars from across the globe, the majority were nevertheless either from and/or were working in Western nations.

- Insights from the cognitive interviews show that there can be considerable cross-country variation in how participants comprehend different questionnaire items, and the potential implications of such variation should be considered as scholars plan, interpret, and disseminate the findings of their work with large-scale multinational data such as the GFS.
- There are very real trade-offs between breadth and depth in surveys of this nature. The conceptual coverage of the GFS-Q, and the number of countries and participants included, is indeed extremely broad. However, most constructs are assessed with a single item. Some of the very real disadvantages of using single-item assessments can be partially mitigated by the use of large sample sizes and by drawing upon prior research and expert knowledge concerning which individual items perform best in longitudinal research, and which single indicators are most strongly correlated with all others within multi-item assessments. Nevertheless, large sample sizes in no way mitigate issues of reliability or conceptual coverage, though they do partially mitigate issues of statistical power. However, that many of the single-item assessments were drawn from existing scales, and were in part chosen according to strong correlations with other indicators, allows for some assessment of reliability, but this is unquestionably a limitation of the items in the GFS-Q. While psychometric assessment has tended to favour scales with multiple items, doing so here would obviously severely constrain the scope of the research, meaning that only select aspects of flourishing could be included. As such, the choice was made here to achieve greater breadth at the expense of further depth. However, we should also emphasize that single-item assessments have been very successfully used in myriad research endeavours – not least the Gallup World Poll – and are perhaps even becoming increasingly favoured as their validity becomes more widely accepted. A good example is Cantril's life evaluation "ladder" [62], used in the Gallup World Poll. Data on this single item is the basis for the annual World Happiness Report [63], founded and edited by eminent economists, which since 2012 has ranked nations on this item, achieving considerable impact and influence. While it may be possible to obtain more nuanced data, and greater precision and power, through a multi-item measure such as the Satisfaction With Life Scale [64], Cantril's ladder has nevertheless been widely accepted as indeed providing valuable information about people's life appraisals. A related trade-off involved negotiating the practicalities of administering a global survey, with Gallup being particularly conscious of length-of-interview and respondent comprehension. This meant having to remove several questions that the researchers would have *liked* to have asked, thereby making the GFS-Q slightly more limited in scope. However, this was a necessity demanded not only by the nature of Gallup's involvement, which included having the final say – in consultation with the GFS's Principal Investigators Byron Johnson and Tyler VanderWeele, and on the basis of scientifically-informed best practice when it comes to cross-cultural survey design and implementation – on what items to include and their wording, but also by the self-evident pressing need to make sure retention is bolstered as much as possible (given that if respondents become frustrated by long interviews, they are less likely to take the survey in subsequent years).
- Given differences in translation and in interpretation of items and scales across countries and cultures, the population samples in each country might be best viewed as constituting separate but closely related cohort studies. The items might likewise be understood as constituting very closely related, but not necessarily identical, assessments. Viewed as such, analyses aggregating over the various countries that respect the potential heterogeneity in the assessments might be more appropriate, such as, for example, analyzing data separately in each country and summarizing via random effects meta-analysis (rather than treating all of the countries as a single cohort in multi-level analysis which effectively presumes the items are functioning identically in each country). Indeed, this analytic approach of treating the GFS as 22 closely related cohorts has been adopted by the GFS core team as they seek to analyze and disseminate the results through an extensive collection of papers (most of which focus on a single item as the outcome variable of interest).
- Good communication is fundamental to good decision-making, and to state the obvious, a project of the scope and scale of the GFS absolutely requires effective communication, about which the team has learned a great deal over the last several years. For example, on average the project leaders Johnson and VanderWeele have met nearly weekly with Gal-

lup throughout the five years of the project to date, with almost daily e-mail communications. Additionally, the coordination of a diverse research team, including more than 50 scholars in the core team, has required regular meetings since the inception of the project in September 2021. Keeping scholars informed of progress with data collection as well as the organizing of a systematic strategy for analyzing data and writing papers has required significant coordination. Meetings with researchers have occurred regularly throughout the project, but the length (60 to 90 minutes) and frequency of full team meetings (monthly or bi-monthly) has naturally ebbed and flowed, with more frequent meetings in the beginning of the project and then again as data collection for Wave 1 approached completion. The project leaders tried to strike the appropriate balance of keeping the research team informed of important developments, as well as seeking input, but without creating too much of a time burden. The GFS also benefited from the input of an advisory board of leaders from around the world in academia, policy, philanthropy, and a number of professional associations.

- Relatedly, the GFS has benefited from the emergence of several important working groups, especially the cross-cultural group and the coding group. For example, among other contributions, the cross-cultural group has taken critical steps in identifying scholars around the world to partner with the GFS. The contributions of these research “satellites” to the project include each satellite group of scholars leading an analytic paper focusing on the scholars’ particular country of origin or employment, bringing their local and contextual expertise about that country to bear on the findings. As a result, the cross-cultural working group is preparing a special issue for the *International Journal of Wellbeing* which will feature 22 papers, one for each of the countries involved in the GFS. Likewise, the coding group has invested months developing code for four different software packages (SPSS, STATA, SAS, and R). This remarkable contribution has greatly benefited the entire team and has helped to fast-track the production of forthcoming scholarship. These working groups have been enormously helpful to the overall success of the project. It is quite possible that other working groups could have been assembled. However, as mentioned before, it is not an easy task to strike the proper balance in terms of time expectations for more than 50 scholars already active in research, teaching, and service activities.
- Finally, with eight different foundations supporting the GFS, it has been vitally important to keep the

communication lines open with these organizations and provide timely updates on the status of the project (and in hindsight more work could have been done in communicating project developments to these funding organizations). Additionally, the GFS continues to maintain weekly contact with a number of project partners including Grey Matter Group (marketing and design firm), Gallup (conducting the field work), and the Center for Open Science (the repository for the GFS data as well as the preregistrations for the analyses and papers). These meetings have been crucial to the success of the project and will obviously continue to be a central focus throughout the life of the project.

## Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s44263-025-00139-9>.

Additional file 1. The GFS-Q with items ordered by thematic dimension, together with explanatory notes.

Additional file 2. The GFS-Q intake questionnaire as presented to participants.

Additional file 3. The GFS-Q annual questionnaire as presented to participants.

Additional file 4. The first iteration of the GFS-Q in the questionnaire development process.

Additional file 5. The second iteration of the GFS-Q in the questionnaire development process.

Additional file 6. The third iteration of the GFS-Q in the questionnaire development process.

Additional file 7. A select list of experts involved in the GFS-Q development.

Additional file 8. A summary of cognitive interviews undertaken in Phase 7.

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#### Authors' contributions

M.B., S.C., C.E., A.F., K.A.J., Z.R., B.R.J. and T.J.V. were all centrally involved in developing the GFS as a whole, with B.R.J. and T.J.V. as PIs, and all supplying all relevant details for inclusion in the manuscript. The manuscript was mainly prepared and written by T.L., with assistance from B.C. and R.C., with all authors reviewing and editing the finalized version.

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#### Data Availability

This paper reports on the development of the questionnaire used in the Global Flourishing Study. The questionnaire and accompanying materials are provided in the Additional Files. Although this article does not report on the GFS data per se, it should be noted that Wave 1 non-sensitive GFS global data are available through the Center for Open Science website (<https://osf.io/sm4cd/>) from February 2024 – March 2026 via preregistration and publicly from then onwards. Subsequent waves of the GFS will similarly be made available. Please see <https://www.cos.io/gfs-access-data> for more information about data access. Code in multiple software is openly available for both the GFS demographic variation analyses (<https://doi.org/10.17605/osf.io/vbype>) and GFS childhood predictor analyses (<https://doi.org/10.17605/osf.io/vbype>).

#### Declarations

##### Ethics approval and consent to participate

This project was ruled EXEMPT by the Baylor University Institutional Review Board (#1841317–2). Gallup Inc. IRB approved the study on November 16, 2021 (#2021–11–02). All data collection was performed in accordance with the ethical standards of Gallup and with the 1964 Helsinki Declaration and its later amendments. Informed consent is obtained during the respondent recruitment stage of fieldwork before starting the survey. The exact wording varies across countries depending on the local laws and regulations governing data protection. Subsequent surveys include a consent statement that reminds respondents that participation in the survey is optional and their personal information will not be shared by anyone outside of Gallup.

##### Consent for publication

The manuscript contains no individual person's data, nor any information that could lead to the identification of participants. Gallup collected personally identifiable information but subsequently removed it from all public release data.

##### Competing interests

Tyler J. VanderWeele reports partial ownership and licensing fees from Gloo, Inc. Cynthia English and Zacc Ritter work for Gallup, and Gallup is the

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