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WELLBEING, YOUTH AND SURVEY MODE:
COMPARISONS ACROSS 23 COUNTRIES USING THREE INTERNATIONAL DATASETS

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Wellbeing, Youth and Survey Mode: Comparisons across 23 Countries Using Three International Datasets

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ABSTRACT

Although there is growing evidence that the subjective wellbeing among the young declined in recent years, the evidence is not consistent across surveys. We examine the relationship between age and various measures of wellbeing and illbeing across three major surveys – the Gallup World Poll (GWP), Global Minds (GM) and the Global Flourishing Survey (GFS). The GWP is conducted via face-to-face and telephone surveys; GM surveys are web-based; and GFS uses both telephone and web-based surveys. We focus on 23 countries appearing in all three surveys. The clearest evidence that wellbeing rises with age and illbeing declines with age comes from the web-based surveys in both GM and GFS. The age profiles look very different when surveys are conducted by telephone: the higher rates of illbeing among the young are far less apparent in these surveys. Because survey mode is not randomly assigned, we cannot be sure differences in age profiles of wellbeing and illbeing are causally affected by survey mode. Selection into survey mode, both across and within country, plus differential non-response by survey across the age range, may be playing a role. However, the evidence indicates very different age patterns in wellbeing and illbeing emerge across different survey modes.

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1. Introduction

Our focus here is on the well-being of the young in the years since COVID. We examine the international evidence from three surveys- 1) the Global Flourishing Study, 2022-2024, 2) the Gallup World Poll, 2020-2025 and 3) Global Minds, 2020-2026. Each survey collected data differently and the findings are sensitive to how the data is collected, whether by interviewer or online.

There has been increasing evidence globally that there has been a deterioration in the well-being of the young. In the past decade the well-being of children and young adults has plummeted globally. Recently it seems that young workers have also seen rapid declines in their happiness such that the well-documented U-shape in happiness [8] has disappeared. For example, ([15][16] find the U-shape in life satisfaction has gone in six English speaking countries and [17] finds similarly in Western Europe.

There are various suggestions as to why this might have happened, with some arguing that new technologies (the internet and smartphones) and social media content propagated by them has played a key role ([18][19][20][21][22]. A growing literature in economics suggests this relationship is causal see [23] for a review of this literature and various papers using the quasi-random spread of fast broadband across several countries to identify causal effects ([24] [25] [26] [27] [28] [29]. [30] finds for the negative impacts of the spread of Facebook in US colleges.

However, the evidence of declining wellbeing among the young is not consistent across all surveys. In particular, the evidence is stronger when young people provide self-reports of their health than when interviewers are involved [31]. In this paper we contribute to the literature by examining the relationship between age and various measures of wellbeing and illbeing across three major surveys – the Gallup World Poll (GWP), Global Minds (GM) and the Global Flourishing Survey (GFS). The GWP is conducted via a telephone survey; GM surveys are web-based; and GFS uses both telephone and web-based surveys. We focus on 23 countries appearing in all three surveys: Argentina, Australia, Brazil, China, Egypt, Germany, Hong Kong, India, Indonesia, Israel, Japan, Kenya, Mexico, Nigeria, Philippines, Poland, South Africa, Spain, Sweden, Tanzania, Türkiye, the UK and the USA.

The clearest evidence that wellbeing rises with age and illbeing declines with age comes from the web-based surveys in both GM and GFS. The age profiles look very different when surveys are conducted by telephone: the higher rates of illbeing among the young are far less apparent in these surveys. Because survey mode is not randomly assigned, we cannot be sure that differences in age profiles of wellbeing and illbeing are causally affected by survey mode. Selection into survey mode, both across and within country, together with differential non-response by survey across the age range, may be playing a role. However, the evidence indicates that very different age patterns in wellbeing and illbeing emerge across different survey modes.

This journal has recently published 25 papers on various well-being and ill-being measures, from 2025-2026 by the same two authors, Tyler VanderWeele and Brandon R. Johnson on every one of these papers, along with fifty co-authors using a single dataset – the Global Flourishing Survey of 2022-2024. This relatively small datafile with around 210,000 observations, contains information on 23 countries and most of the papers reported on the relationship between age on well-being.

This file is not unique in providing international well-being data across countries. Other surveys, many of which go back many years, contain well-being data including the following.

- 1). International Social Survey Programme, 1985-2023 (<https://issp.org/>).
- 2). World Values Surveys, 1981-2022 (<https://www.worldvaluessurvey.org/>).
- 3). European Social Survey, 2002-2023 (<https://www.europeansocialsurvey.org/>).
- 4). Eurobarometers, 1972-2025 (<https://europa.eu/eurobarometer/screen/home>).
- 5). Latino Barometers (<https://www.latinobarometro.org>).
- 6). Afro Barometers (<https://www.afrobarometer.org>).
- 7). Gallup World Poll, 2005-2025 (<https://www.gallup.com/178667/gallup-world-poll-work.aspx>).
- 8). Global Minds, 2020-2026 (<https://sapienlabs.org/>).

The data file obtained its information via interviewers as well as online. In 16/23 countries both methods were used. In the remainder data was only collected online. The papers used broadly similar methods and essentially the same approach is simply repeated numerous times. Indeed, in a couple of cases there are two papers on the exact same variable in this journal. Also, there are many other published papers by the same authors in other journals often with the same variables. These fourteen papers use the identical data files and variables by the same authors as in papers published in this journal discussed here, [1] Dispositional forgiveness - *npj Mental Health Research*, [2] Social relationship quality - *Social Indicators Research*, [3] Social support - *International Journal of Applied Positive*, [4] Inner peace - *Journal of Happiness Studies*, [5] Balance in life - *Applied Research in Quality of Life*, [6] Purpose and meaning - *npj Mental Health Research*, [7] Physical pain - *Communications Medicine* and seven on flourishing [8][9][10][11][12][13][14].

We examine the findings on age in each of these papers and show how the results vary by survey mode in the majority of papers. The results vary little by well-being variable. The papers do not compare with the findings from the other surveys we do that with two surveys here. We then compare the results by survey mode to those in two other datasets listed above, one that used CATI methods – the Gallup World Poll of 2020-2025 and another Global Minds 2020-2026 that only used CAWI methods. Young people are more optimistic when they give answers to interviewers than online. We discuss the literature that suggests that there is social desirability bias by young people when responses are given to interviewers.

2. Methods

We examine the association between youth and a range of well-being metrics focusing on a series of variables relating to positive affect but primarily Cantril's life evaluation measure but also measures of life satisfaction plus an MHQ score which aggregate measures of wellbeing, as well as measures of negative affect including loneliness, depression, feeling anxious, and worry. We also examine composite indexes for flourishing and not flourishing used previously in [25] as well as several variables specific to the GFS including mastery, balance of life and pain. A full list of our dependent variables and their definitions are presented in [Appendix 2](#).

We start with the GFS1 data and regress these well-being variables on an age 18-24 variable along with a female dummy and year dummies where appropriate. We use unweighted data. When we group countries together, we include country dummies. We exploit the fact that the GFS has three groups of countries a) CAWI only (7 countries), b) both modes with a CAWI majority, c) both

modes with a CATI majority. We show that a) and b) produce similar results on twenty variables whilst c) is different. We repeat the exercise using the GFS2 data and find similarly.

We note that there are very different youth effects with variables where young people report their emotions. This includes happiness, life satisfaction, flourishing not flourishing. We find for these emotional variables in the sample of respondents that respond using interviewers the sign on the age 18-24 variable is significantly positive. In the case of respondents reporting online the sign is significantly negative. We find this to be the case for variables. Such differences between CATI and CAWI respondents is not observed using objective measures such as drinking, smoking, being in pain and the quality of physical health. Results are very similar whether we account for childhood variables on wellbeing that approximately a half of the papers published in this journal of the prior papers examined see [6][7][39][48][55].

We next examine data on the same countries from the GWP 2020-2025 derived from interviews. We show that the results for the countries in the GFS sampled with CAWI or a CAWI majority are not replicated when the survey is CATI. Evidence of low youth well-being is only found in 14/150 countries.

We then go to Global Minds, a CAWI survey, and show that the results are consistent in all 23 countries and in a further 177 non-GFS countries – the young do badly. Survey mode we conclude matters.

2.1 Data

2.1.1 The Global Flourishing Survey (GFS), Sweeps 1 & 2, 2022-2024

The first survey is the GFS fielded between March 2022 and April 2024 that was conducted in these 23 countries - Australia, Brazil, China, Egypt, Germany, Hong Kong, India, Indonesia, Israel, Japan, Kenya, Mexico, Nigeria, Philippines, Poland, South Africa, Spain, Sweden, Tanzania, Turkey, UK and USA. In total there are 207,919 observations in the first sweep. The second sweep of the panel was conducted between January and December 2024, with 128,868 observations (GFS2).

Three survey modes were used to collect data in this survey. First, Nigeria had 550 observations from a CAPI (Computer-Assisted Personal Interviewing) survey which is a face-to-face data collection method where an interviewer uses a tablet, smartphone, or laptop to record responses in real-time.

Second, data in the GFS was also collected online via Computer-Assisted Web Interviewing (CAWI) which is a self-administered, online survey methodology where, respondents, complete questionnaires via web browsers or mobile apps. It was used in every one of the 23 countries and was the only method of data collection in seven countries including the UK and the USA.

CAWI was also used in combination with Computer-Assisted Telephone Interviewing (CATI), which is a data collection method where interviewers use computers to conduct telephone surveys reading scripts and recording responses directly into software. It turns out that the evidence on the young varies markedly by survey mode.

In sixteen countries, both CATI and CAWI methods were used. In six of these countries, we call them 'Both – CAWI majority or same' – Argentina, Brazil, China, Japan, Mexico, Poland, the majority of observations were CAWI. In two they were approximately the same – Indonesia and Turkey. In a further eight countries – we call 'Both CATI majority; the majority of observations were CATI – Egypt, Kenya, India, Israel, Nigeria, the Philippines, South Africa and Tanzania.

The distribution of responses by the CATI and CAWI survey modes in the GFS is set out in [Table 1](#). There are 61,000 CATI observations and 146,000 CAWI observations. Overall sample sizes vary from a low in the GFS of 2,651 for South Africa to a high of 12,765 for India and 38,312 for the USA. The total sample size is just under 208,000 observations.

We have previously reported in several papers on this survey and noted the importance of survey mode. That is that respondents whose information is gleaned via an interviewer (CATI) tend to be more optimistic than those who self-report (CAWI) [26]. Despite the evidence that survey mode are correlated with well-being responses, this has had zero impact on the literature that has examined the GFS data. In 2025 and 2026 this journal published twenty-six papers using this data file. There are 53 different authors with TJ Vanderweele and BR Johnson co-authors on all 26. The areas covered are as below, and in the case of charitable giving and volunteering there are two papers on the same topic. The papers are as follows

[33] flourishing, [34] physical pain, [35] community participation, [36] mastery, [37] purpose and meaning, [38] social trust, [39] balance in life, [40] inner peace, [41] charitable giving (1), [42] charitable giving (2), [43] volunteering (1), [44] volunteering (2), [45] social support, [46] religious reading, [47] social relationship quality, [48] place satisfaction, [49] belief in life after death, [50] belief in God, [51] love and care, [52] promote good, [53] prayer and meditation, [54] faith sharing, [55] Cantril's life evaluation ladder, life satisfaction, happiness, [56] female flourishing, [57] dispositional forgiveness and [52] optimism. None of these papers considered survey mode. We examine the severe consequence of ignoring survey mode in ten of them [53][54][36][37][38][39][48][55][56][58].

Sample sizes are particularly small in South Africa (n=2,651), Turkey (n=1,473) and Hong Kong (n=3,012). In the second sweep they are even smaller – with South Africa (n=978), Turkey (n=500) and Hong Kong (n=707). Of note in the South African paper (Cowden et al, 2025) the authors admit “*we did not find definitive evidence of differences on most of the main health and well-being outcomes*” (p.1). The USA, Hong Kong and Sweden only used CAWI while the other five countries used both CATI and CAWI. In the case of Argentina, Poland and Turkey, the majority of respondents responded via CAWI while in the Philippines and South Africa the majority responded via CATI (see [Table 1](#)). This makes a difference as we show below especially in the countries that had both survey modes – Argentina, Philippines, Poland, South Africa, and Turkey. Of the remaining three countries that only used CAWI – Hong Kong, Sweden and the USA the authors found that well-being rose in age

Also, the unweighted number of young people in these samples is often small. For example, there are less than 300 young people in Hong Kong (282), USA (296), UK (245), Turkey (259) and Australia (175).

We also examine data from the second round of the GFS conducted in 2024, which we refer to as GFS2. Whichever survey mode was used in the first round was repeated in the second sweep. As shown in **Table 2** there was a total of 128,868 observations in GFS2, with a response rate of 62%. Response rates vary by country, from as low as 23% for Hong Kong and 90% for the USA. The response rate is especially low for the young at 44% for the age group 18-24. Of note is that in many countries the number of observations for the young is low, – 20 in Hong Kong, 40 in Turkey, 52 in Australia 71 in the UK and 143/38,312 observations in the USA.

At the outset we focus on Cantril but at the end of this paper we examine each of the various 'emotional' variables used in 10/26 papers described above and find similarities by survey mode. We find no differences when variables relate to more factual information such as pain, physical health, drinking and smoking.

2.1.2. The Gallup World Poll (GWP), 2020-2025

Data is available in the GWP over these years on 150 countries including for all 23 GFS countries. Data is drawn by interviewers using a mix of face-to-face and telephone interviews. Country samples are approximately 1000 a year, but some countries are not sampled in some years – Philippines and South Africa in 2022 and China in 2021 and Indonesia in 2020. The survey data are available also for the years 2005-2019 but we restrict ourselves to the years 2020-2025 to be comparable to the GFS sample. The data we obtained was through academic license through the Dartmouth library.

The number of observations is very similar approximately for very large countries such as the US (n=5,896) as they are for small countries like Hong Kong that in fact have more observations (n=5,956). They are then inevitably less representative in big countries than they are in smaller countries. Sample sizes for India and China are slightly bigger (28,933 and 12,896 respectively). Overall sample size for the 23 GFS countries is 172,338, split by year as follows 2020=31,385; 2021=34,648; 2022=25,524; 2023=27,279; 2024=26,230 and 2025=27,272. Sample size for the non-GFS countries is 676,724. For the period 2005-2019 sample size for GFS countries is 491,595 and for the non-GFS countries, is 1,685,919.

[53] notes that there is an issue of representativeness of large countries in an analysis of the US which compared GWP data with a much larger US Daily Tracker data. In large part this is because sample sizes are 1000 a year in both the US, Monaco, Slovenia, Latvia and Hong Kong, so it is harder to be representative in big countries. We make use here of the main Cantril life ladder variable used in the World Happiness Report ([54]. We also use a worry variable as used in [53]. We repeat the exercise by country.

2.1.3. Global Minds, 2020-2026

This survey has been conducted across more than 200 countries since 2020. Data is collected online and is continuing and is available on application. The dataset we examine was downloaded on March 1st, 2026. It has a total of 2,206,293 observations with 1,097,792 on the GFS 23 sample of countries and 1,108,501 on non-GFS countries. The annual split is as follows for GFS countries 2020=43460; 2021=134,816; 2022=209,582; 2023=232,694; 2024=246,269; 2025=205,440 and 2026=25,531.

In particular we focus on the Cantril life evaluation variable and how it varies by age as it is available in all three datasets. We back it up with evidence on other variables and the patterns are broadly similar. The young report poor mental health in self-reports but, less so when they speak to interviewers.

Overall, 12% of the respondents to the 23 countries in the GFS were aged 18-24 with 18% in the CATI surveys and 9.7% in the CAWI. In Global Minds 22% were ages 18-24 for these 23 countries while 15% were in the GWP.

3. Results

3.1 The Global Flourishing Survey (GFS), 2022-2024

An earlier paper [49] published in this journal, used these GFS1 data to examine the influences of a variety of factors on Cantril's life ladder, life satisfaction and happiness. It should be noted that this is very similar to another paper [55] including four of the same authors - Lomas, Padgett, Johnson and Vanderweele plus six different co-authors. The authors in [49] find well-being is U-shaped in age. Higher well-being they argue, *"is associated with: older age, though levels are fairly high at 18–24 ... falling to their lowest at 40–49.... then peaking at 80+"*. We find something quite different.

Tables 3 and 4 report a set of estimates for Cantril's Ladder by country with countries split into the three survey mode groupings. **Table 3** uses GFS1 and **Table 4** uses GFS2 data. What is reported, by country, is the coefficient and t-statistic on an age 18-24 dummy with an equation that also includes gender and immigrant dummies (not reported). In the fifteen cases where a country sampled data using both CATI and CAWI methods separate estimates are provided for each. For comparison purposes we report equivalent estimates using a not flourishing variable in the **Appendix Tables**.

In part 1) of **Table 3** using GFS1 5/8 CAWI only countries have significant negatives with Germany, Hong Kong and Spain having insignificant coefficients. In part 2) for the CAWI majority 4/7 have significant negatives – Brazil, Japan, Mexico and Poland with none having significant negatives in the CATI sample. None of these countries have significant negatives in the CATI samples. In the case of Japan, the immigrant variable was dropped in the CATI regression as there were no immigrants in the sample. In part 3) for the CATI majority there are significant positives in the CATI samples for 6/8 with insignificant coefficients for Nigeria and South Africa.

In **Table 4** using GFS2 the results are similar. Among the CAWI majority countries 6/8 had significant negatives with Germany and Spain the exceptions. For the group of countries with 'majority CAWI' respondents 3/8 had significant negatives – Japan, Mexico and Poland and all had insignificant effects in their CATI samples. In the majority CATI sample 3/8 had significant positives for CATI samples – Israel, Kenya and Tanzania.

The evidence was stronger in **Appendix 2 Tables 1 and 2** using the not-flourishing variable. In the CAWI only and CAWI majority sample that used CAWI all had positive youth coefficients except

Poland. Indeed, even in the CATI majority countries the majority had positive coefficients in contrast to the negatives in the CATI sample. South Africa had positives in both.

Table 5 examines correlations between the youth dummy and a range of illbeing and wellbeing metrics in GFS by survey mode across the three groups of countries used in **Table 4**. In column 2 we see that for the CATI majority countries the young are less likely to report illbeing on all 6 negative affect metrics, report higher wellbeing on Cantril, life satisfaction and happiness, and report higher flourishing on the flourishing index and all its subcomponents in rows 11-20. The results for the CAWI majority countries in column 3 are diametrically opposite on all 20 metrics, and this is also the case in column 4 for the seven countries using CAWI only.

It seems there are sharp differences in all of these twenty variables between the CATI majority samples and the two CAWI samples.

3.2. The Gallup World Poll (GWP, 2020-2025)

Table 6 reports regressions for the 11-step Cantril ladder and then a (1,0) worry variable on an age 18-24 dummy variable, a gender dummy and year dummies. The left-hand panel presents results for the period 2020-2025 and the right-hand panel presents results for 2005-2019. Again, we separate results into the three-country survey mode groupings. In addition to separate country estimates we present grouped country estimates for the GFS countries (first row) then the non-GFS countries (second row).

In a sample of 150 countries in the period 2020-2025 we only found significant negative youth coefficients in a total of *fourteen* countries including three GFS countries – Australia, Sweden and USA - and six advanced Western countries – Canada, Denmark, Finland, Netherlands, New Zealand and Norway along with five developing countries – Laos, Mongolia, Oman, Saudi Arabia and Singapore. In the period 2005-2019 we only saw significant negatives for Cantril in Sweden and New Zealand. There were significant positives on worry in Australia, Canada, Denmark, Finland, Japan, New Zealand, Norway and Sweden.

In part 2 of Table 6 for the 'Both CAWI majority' country grouping we defined above using the GFS see no significant negatives and only one significant positive for worry in Japan. In part 3 for the CATI majority countries there are no significant negatives for Cantril or positives for worry. We show significant negatives in part 4) for eleven other countries that were the only ones in the non-GFS sample that had significant negative youth coefficients. They include Canada, Denmark, Finland, New Zealand and Norway, consistent with the findings of [10][11].

In **Table 7** we explore the question of whether the well-documented U-shape in age has actually disappeared in the GFS and GWP samples as found in [62] and [63]. We do so by running Cantril Ladder equations again but replace the youth dummy variable with age and age squared terms with the former sign on the coefficient expected to be negative and the latter positive. Differentiating with respect to zero and solving determines the minimum. The top half of the table presents results for majority CATI countries. In both datasets there is evidence of U-shapes for 6/8 of the majority CATI countries – Egypt, India, Indonesia, Kenya, Philippines and Tanzania. The bottom half of the table shows few other GFS countries have U-shapes.

The GFS survey found strong evidence for low well-being of the young, especially from the CAWI samples, in eighteen countries – Argentina, Australia, Brazil, China, Germany, Hong Kong, Indonesia, Israel, Japan, Mexico, Nigeria, Philippines, South Africa, Spain, Sweden, Turkey, UK and the USA. In the GWP which used CATI methods equivalent evidence was only found for 3/23 GFS countries Australia, Sweden and the USA. Overall, significantly lower well-being of the young was found in only 14/150 GWP countries. The next dataset Global Minds finds it in all 23 countries using a variety of measures. Survey mode seems to matter.

3.3. Global Minds, 2020-2026

For comparability purposes we start off examining the same 11-step Cantril variable used in both the GFS and the GWP. This question was only asked in October and November 2024 with a total of just over 20,000 observations including just over 12,000 in the GFS 23 countries.

Table 8 shows the youth coefficient is negatively correlated with Cantril overall and for both GFS and non-GFS countries. It also shows lower youth life evaluations for twelve of the fourteen GFS countries for which we have sufficient observations. There are insignificant effects for South Africa and Tanzania. We also report significant negative effects for a further 22 countries from around the world, including Chile, Colombia, Honduras, Pakistan, Paraguay, Uruguay, and Venezuela.

We provide consistent evidence in **Table 9** from four other variables with much bigger sample sizes.

1) A 9-step life satisfaction question, which was collected in 2020 (n=48,521), 2021 (n=231,036) and 2022 (n=470). Sample sizes in the 23 GFS countries by year are 43,460 in 2021, 134,816 in 2022 and 184 in 2023. Sample sizes by country for this life satisfaction variable in some countries are small including Tanzania (5), Hong Kong (43), Kenya (15), which is why we are unable to provide separate estimates in **Table 10**.

We then move to examine three further variables that are available for every year from 2020. The total sample size is 2,206,293 with 1,097,792 observations on GFS countries. Sample sizes by year are as follows with the GFS 23 sample size in parentheses 2020=48,521 (43,460); 2021=231,03 (134,816); 2022=466,83 (209,582); 2023=496,84 (232,694); 2024=479,31 (246,269); 2025=430,85 (205,440); 2026=52,882 (25,531). Sample sizes are very small in three countries – Indonesia (n=760), Poland (n=500), Sweden (n=638) and Turkey (697) but more than 100,000 in India (247,337), Egypt (115,837) and Mexico (108,805) and the USA (140,273).

2) An MHQ variable coded from -100 to + 200. The MHQ is an aggregate mind health or mental health score that integrates ratings across 27 mental capacities and 20 problem items. The score is on a negative-positive scale, where negative scores indicate a likely clinical diagnosis and typically 5 or more symptoms, while overall scores across the scale relate linearly to productive days. The MHQ algorithm is not a simple summation or averaging across its components but rather involves a nonlinear algorithm that is described in [64] Newsom, Sukhoi and Thiagarajan (2024)

3) Two 9-step negative affect variables for fear and anxiety and feeling sad and hopeless. Sample sizes here are just under 1.1 million.

Table 9 reports the sign and significance, of an age 18-24 dummy in models that also control for gender and year. The patterns are consistent across all 23 countries with all four variables. The young have significantly worse well-being with significant negative coefficients in the two positive affect variables (life satisfaction and MHQ), consistent with the Cantril results above. Also, consistently there are significant positive youth coefficients for the fear and anxiety and sad and hopeless variables. In Tanzania, Israel, Kenya and Hong Kong, we don't report results due to small sample sizes for life satisfaction.

In the bottom row we report similar results in a pooled sample of 175 non-GFS countries from a pooled regression with gender, year and country dummies. Indeed, [59] has reported that the age 18-24 variable is significantly negative in an MHQ equation in 200 countries using the GM dataset.

4. Discussion

The young in the three samples across multiple countries from around the world we study report on their wellbeing using a variety of measures. These include measures of positive affect such as flourishing, life satisfaction, life evaluation, happiness and an aggregate MHQ score. Respondents also report on a number of negative affect variables including not flourishing, feeling depressed, not interested, worried feeling fear and anxiety and/or sad and hopeless. We also examine how these have changed over time and focus primarily on how the world looks in the years since the onset of the COVID pandemic in 2020.

Across all three surveys we have data on 23 countries. We also have a single wellbeing outcome - Cantril's 11-step life ladder – which is asked in all three surveys. We are able to explore correlations between age coefficients and survey mode because the GWP was collected using interviewers while GM used only self-reports. However, the GFS survey used both methods: 8 of the 23 GFS countries only used CAWI; 8 used both but the majority of responses were CATI; and a further eight used both, but the majority were CAWI.

The concern here is that young people in particular tell interviewers what they want to hear. This is the basis for the argument that such responses are subject to social desirability bias. In their study of two Australian surveys conducted in 2020 and 2022 [65] suggest this bias leads to underestimates of mental health issues particularly for young adults. They note that *"social desirability bias has a greater impact on sensitive questions, particularly those that are related to, or perceived to be related to, social norms. Sensitive questions include mental health measures, as mental health is a socially relevant construct with strong normative expectations and where deviation from these norms incurs social stigma. Consequently, the presence of an interviewer when these questions are asked may have a significant impact, whereby participants in an interviewer-administered survey mode will be motivated to comply more closely with social norms, which include appearing to be mentally healthy."* (p.2)

Their work builds on earlier work that indicates that people completing interviewer-administrated questionnaires are more likely to provide socially desirable responses than those completing self-administered questionnaires. Examples are [66] [67] [68][69]. [70], for example showed that in

interviews respondents are more likely to provide socially desirable responses to the Kessler K10, with online self-administered surveys showing much higher rates of psychological distress than respondents in face-to-face interviews.

[53] also noted that non-sensitive questions are not impacted by social desirability bias. This is consistent with the findings of [27] using the GFS data on a study of seven countries in the Middle East and Asia - Hong Kong, India, Indonesia, Israel, Japan, the Philippines and Turkey. They examined the coefficient on an age 18-24 dummy for these countries in pooled country regressions and found (their Table 4) the young were happier in 18 well-being questions (e.g. depressed, happy, suffering etc.) in telephone surveys and less happy in internet-based surveys. There was no difference in responses among 22 more objective questions including ones relating to bodily pain, physical health, smoking, drinking and exercising.

We repeat the same exercise in [Table 10](#) where we report regressions for the two subsamples of CAWI and CATI and pooled across all 23 countries. We include flourishing and nine of its sub-components [56, 61]– *life satisfaction*, *Cantril*, *happiness* [65], *worthwhile*, *satisfied with relationships*, *promote good* [52], *purpose and meaning* [37] and physical health [61]. We also include *mastery* [36], *balance in life* [39], *social trust* [38], *optimism* [58] and *bodily pain* [34] used in six of the papers published in this journal. We also examine not-flourishing [25] and one of its components, feeling *anxious*, *plus loneliness*. In addition, we report age effects for *Cantril's life evaluation in five years*, as well as the number of *drinks* and taken in the prior week and the number of cigarettes *smoked* daily [65]. [Appendix 2. Table 3](#). Reports the sign and significance of age 18-24 variable for the same 20 variables but also includes six childhood controls plus income, education and labor force status as controls and the results are similar.

Equations include country fixed effects and gender and immigrant dummies. In the first fifteen rows of [Table 10](#) 14/15 variables from the CATI sample show significantly lower youth wellbeing. This is shown in 11 of the first 12 rows with a significant ($T > 1.5$) and positive coefficient for positive affect variables. It is shown in rows 13-15 with a significant negative coefficient for the three negative affect variables in rows 13-15 on the youth variable. The only exception is *satisfaction with relationships*. In contrast in the second column the signs are in 15/15 rows the exact opposite in the CAWI equations as found in [71].

In contrast, there is no difference in signs between any of the five more “objective” variables by survey mode. The young in both survey modes say they have less pain and better physical health than other age groups. They drink and smoke less and are equally optimistic about the future than other age groups. The differences by survey mode appear with variables where respondents report on their emotions and they appear more optimistic when telling their answers to interviewers than online.

Of note though is that Cantril and life satisfaction are different from the other variables look different to the other variables in that overall, in the final column, the young have higher well-being than other age groups. The positive from the CATI sample dominates.

5. Conclusions

In this paper we examine the relationship between age and various measures of wellbeing and illbeing across three major surveys – the Gallup World Poll (GWP), Global Minds (GM) and the Global Flourishing Survey (GFS). The GWP is conducted via face-to-face and telephone surveys; GM surveys are web-based; and GFS uses both telephone and web-based surveys. We focus on 23 countries appearing in all three surveys. The clearest evidence that wellbeing rises with age and illbeing declines with age comes from the web-based surveys in both GM and GFS. The age profiles look very different when surveys are conducted by telephone: the higher rates of illbeing among the young are far less apparent in these surveys. Because survey mode is not randomly assigned, we cannot be sure that differences in age profiles of wellbeing and illbeing are causally affected by survey mode.

However, there is a growing body of objective evidence from around the world that suggests that there has been a rise in hospitalizations for children and young adults in a number of countries including the US [72] (Arakelyan et al, 2023) and the UK [73]. Australia and Canada have seen rises in emergency room visits for self-harm for the young [74].

Suicide rates for the young have risen in recent years in the United States [75]. For example, the suicide rate for those ages 18-24 for females rose from 3.6/100000 in 2009 to 5.8 in 2022 and 16.1 and 21.1 for young males. This contrasts with changes among the group with the highest rates age 45-64 for females from 8.5 to 8.6 and for males from 27.9 to 29.5. The suicide rate of young people in Brazil has also climbed sharply and continuously since 2013 [76], aligning with CAWI results from Brazil showing lower youth well-being rather than CATI results which tend to have either a positive or insignificant coefficient for well-being of the young. Similarly, data on youth suicide rates from India also suggests a sharp rise starting in 2014. The crude suicide rate in India of children and adolescents was 5.70 per 100,000 people in 2013 and it increased to 21.90 in 2021 [77]. This is not consistent with CATI results from India from the GFS and GWP where young people report higher Cantril scores than other age groups, but it is consistent with CAWI results from GM where young people have worse well-being.

Jean Twenge [78] noted that

"After remaining stable during the early 2000s, the prevalence of mental health issues among U.S. adolescents and young adults began to rise in the early 2010s. These trends included sharp increases in depression, anxiety, loneliness, self-harm, suicidal ideation, suicide attempts, and suicide, with increases more pronounced among girls and young women." (p.19)

Selection into survey mode, both across and within country, together with differential non-response by survey across the age range, may be playing a role. However, the evidence indicates that very different age patterns in wellbeing and illbeing emerge across different survey modes and that the differences may reflect social desirability biases since the sign and significance of the youth coefficients only switches by survey mode in relation to variables relating to one's emotional state. The youth coefficients are constant across survey mode when the question asks for a response about a more objective or factual issue such as drinking alcohol and cigarette smoking. The young in the years since COVID, globally, have worse mental health than other age groups.

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Data availability. All data used in this paper is publicly available on application

Data for Wave 1 and 2 of the Global Flourishing Study is available through the Center for Open Science (COS) upon submission of a preregistration (<https://doi.org/10.17605/OSF.IO/3JTZ8>)

Global Minds data is available on application at <https://sapienlabs.org>

Gallup World Poll data available here <https://www.gallup.com/analytics/318923/world-poll-public-datasets.aspx>

Disclosure statement

No potential conflict of interest was reported by the author(s).

Competing interests

No competing interests

Author contributions. Both were involved in conceptualization and writing. DGB did the data analysis.

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Table 1. Number of responses by CATI and CAWI in three surveys, 2020-2026

	GFS CATI	GFS CAWI	GFS	GWP CATI	GM CAWI
1) CAWI only					
Australia	0	3,844	3,844	4,991	31,530
Germany	0	9,506	9,506	4,992	30,801
Hong Kong	0	3,012	3,012	5,024	1,178
Spain	0	6,290	6,290	5,000	54,587
Sweden	0	15,068	15,068	5,011	638
United Kingdom	0	5,368	5,368	4,998	69,501
United States	0	38,312	38,312	5,013	140,273
2) Both - CATI majority					
Egypt	4,508	221	4,729	4982	115,837
India	12,549	216	12,765	27,542	247,337
Israel	2,743	926	3,669	6,146	20,789
Kenya	9,917	1,472	11,389	4,996	14,187
Nigeria	5,609	668	6,827	4,928	34,324
Philippines	4,174	1,118	5,292	4,987	36,495
South Africa	2,010	641	2,651	5030	48,385
Tanzania	8,790	285	9,075	4,952	10,173
3) Both - CAWI majority or same					
Argentina	1,451	5,273	6,724	5,010	98,953
Brazil	1,265	11,938	13,203	4,956	24,593
China	844	4,178	5,022	10,110	2,751
Indonesia	3,620	3,372	6,992	5,141	760
Japan	542	20,001	20,543	5,024	4,698
Mexico	1,559	4,217	5,776	5,021	108,805
Poland	625	9,764	10,389	4,968	500
Turkey	840	633	1,473	4,975	697
All	61,046	146,323	207,919	143,797	1,097,792
Non GFS				562,381	1,108,501

Nigeria also has 550 CAPI observations. Table 3. Responses to GFS1 and GS2

Table 2. Responses to GFS1 and GFS2 for age 18-24 and response rates

	GFS1 #18-24	GFS2 #18-24	Response rates		GFS1 N	GFS2 N
			18-24 %	18+ %		
Argentina	868	184	21	44	6,724	2,932
Australia	175	52	30	67	3,844	2,582
Brazil	2,587	367	14	32	13,203	4,274
China	536	421	79	90	5,022	4,544
Egypt	706	357	51	64	4,729	3,040
Germany	698	209	30	58	9,506	5,529
Hong Kong	282	20	7	23	3,012	707
India	2335	928	40	50	12,765	6,374
Indonesia	1,182	339	29	38	6,992	2,684
Israel	575	286	50	68	3,669	2,490
Japan	1,584	418	26	68	20,543	13,972
Kenya	3,657	1,744	48	68	11,389	7,698
Mexico	1,126	204	18	39	5,776	2,278
Nigeria	1,699	600	35	46	6,827	3,146
Philippines	861	327	38	51	5,292	2,682
Poland	836	394	47	62	10,389	6,478
South Africa	497	160	32	37	2,651	978
Spain	630	114	18	46	6,290	2,924
Sweden	1,824	736	40	77	15,068	11,609
Tanzania	1,781	711	40	62	9,075	5,583
Türkiye	259	40	15	34	1,473	500
United Kingdom	245	71	29	67	5,368	3,619
United States	296	143	48	84	38,312	32,245
N	25,239	8,825	44	56	207,919	128,868

Table 3. Youth Coefficients for Cantril by country, by survey mode, GFS1

	CAWI		CATI	
All				
1) CAWI only				
Australia	-.9359 (7.18)	3,828		
China	-.3343 (4.09)	4,175		
Germany	-.0334 (0.45)	9,451		
Hong Kong	-.1614 (1.26)	2,962		
Spain	.0184 (0.22)	6,241		
Sweden	-.4638 (10.07)	14,924		
UK	-.4464 (3.41)	5,328		
USA	-1.0376 (10.92)	37,810		
2) Both - CAWI majority				
Argentina	.0278 (0.35)	5,237	-.0739 (0.26)	1449
Brazil	-.3013 (5.86)	11,386	-.1435 (0.47)	1262
Indonesia	.0909 (1.01)	3,347	.0187 (0.13)	3605
Japan	-.2762 (4.64)	19,769		
Mexico	-.2117 (2.79)	4,028	.3089 (1.28)	1553
Poland	-.1826 (3.25)	9,732	.4591 (1.60)	622
Türkiye	-.1338 (0.64)	632	.3258 (1.24)	839
3) Both - CATI majority				
Egypt	-.2357 (0.51)	221	.5932 (5.04)	4475
India	-.0397 (0.10)	215	.6123 (7.42)	12389
Israel	.0875 (0.58)	917	.6925 (7.11)	2739
Kenya	.4525 (3.24)	1,453	.6738 (9.29)	9903
Nigeria	-.0053 (0.03)	1,216	.0130 (0.15)	5592
Philippines	.2991 (2.24)	1,102	.1931 (1.62)	4174
South Africa	.1856 (0.82)	632	.1769 (1.02)	1998
Tanzania	-.4027 (1.06)	281	.7603 (8.70)	8778

All equations include gender and immigrant dummies

Table 4. Youth Coefficients for Cantri by country, by survey mode, GFS2

	CAWI		CATI	
1) CAWI only				
Australia	-.8333 (3.54)	2576		
China	-.4144 (4.49)	3775		
Germany	.0863 (0.65)	5508		
Hong Kong	-.8127 (2.07)	707		
Spain	.2400 (1.30)	2912		
Sweden	-.2397 (3.55)	11587		
UK	-.1852 (0.79)	3607		
USA	-.4888 (3.48)	32126		
2) Both - CAWI majority				
Argentina	-.0889 (0.57)	2152	.3121 (0.73)	774
Brazil	-.0887 (0.75)	3732	.2315 (0.43)	538
Indonesia	-.0462 (0.32)	1332	.2458 (0.84)	1347
Japan	-.3994 (3.63)	13,625	.3677 (0.77)	291
Mexico	-.4282 (2.91)	1571	.7025 (1.45)	699
Poland	-.2472 (3.39)	6042	-.3342 (0.74)	426
Türkiye	-.1615 (0.32)	199	.4484 (0.82)	300
3) Both - CATI majority				
Egypt	-.1714 (0.26)	107	.6873 (4.19)	2927
India	-.0136 (0.02)	63	.1702 (1.42)	6306
Israel	.5387 (1.78)	242	.9909 (9.50)	2244
Kenya	-.1431 (0.88)	1014	.6313 (6.68)	6675
Nigeria	-.2096 (0.97)	846	-.3594 (2.37)	2297
Philippines	.0953 (0.45)	494	.2448 (1.41)	2177
South Africa	-.4377 (1.22)	266	.3722 (1.11)	711
Tanzania	-.1833 (0.37)	165	.8674 (6.51)	5417

Table 5. Coefficient and t-statistics on 18-24 dummy in a regression that includes two gender dummies and full sets of country dummies - source: Global Flourishing Study, 2022-2023

	16 countries with CATI and CAWI			
	GFS 23 (n=207,919)	CATI majority (n=56,085)	CAWI majority (n=61,527)	CAWI seven (n=80,544)
1. Not flourishing	.5747 (26.63)	-.2763 (8.35)	1.1137 (27.68)	1.6432 (34.61)
2. Depressed	.1409 (21.81)	-.0791 (7.38)	.3017 (25.97)	.3653 (26.72)
3. Anxious	.1524 (23.15)	-.0796 (7.43)	.2934 (24.55)	.4697 (33.42)
4. Worried	.1511 (22.77)	-.0618 (5.58)	.2808 (23.67)	.4399 (31.18)
5. Interest	.1286 (19.14)	-.0584 (5.18)	.2373 (19.71)	.3713 (26.49)
6. Lonely	.3597 (17.30)	-.1047 (2.91)	.5279 (14.61)	11.1263 (26.17)
7. Cantril	.1088 (6.77)	.5092 (16.07)	-.2064 (7.98)	-.3615 (12.48)
8. Life satisfaction	.0313 (1.81)	.4601 (13.88)	-.2483 (8.82)	-.5281 (15.87)
9. Happy	.1048 (6.58)	.5188 (17.03)	-.1416 (5.46)	-.4775 (15.69)
10. Flourishing	-.0222 (1.99)	.2973 (17.42)	-.2146 (10.44)	-.4611 (18.57)
11. Worthwhile	-.1048 (6.41)	.2762 (9.17)	-.3456 (12.86)	-.6836 (20.38)
12. Good mental health	-.2535 (16.25)	.3163 (12.63)	-.6029 (21.70)	-1.0292 (29.81)
13. Purpose	-.2737 (16.43)	.1317 (5.01)	-.5473 (19.09)	-.8399 (21.53)
14. Promote	-.1608 (11.83)	.1041 (4.14)	-.3835 (16.64)	-.4664 (17.50)
15. Content	-.0523 (3.19)	.1778 (6.33)	-.1263 (4.43)	-.4501 (12.79)
16. Satisfied relationships	-.1480 (8.52)	.0580 (1.98)	-.1942 (6.57)	-.5107 (13.29)

CAWI majority 8 - Argentina, Brazil, China, Indonesia, Japan, Mexico, Poland and Türkiye.

CATI majority 8 - Egypt, India, Israel, Kenya, Nigeria, Philippines, South Africa and Tanzania.

Table 6. Cantril life evaluation and a 1,0 worry variable. Sign and significance of age 18-24 dummy. Gallup World Poll, 2005-2025. Age 18 and over

	2020-2025				2005-2019		
	Cantril	Worry	N		Cantril	Worry	N
All 23 GFS	+	-	165,273		+	-	462,261
All non-GFS	+	-	642,551		+	-	1,566,093
<i>1) CAWI majority</i>							
Australia	-	+	5,949		0	+	13,832
Germany	0	0	6,065		+	0	38,022
Hong Kong	0	0	5,956		+	+	9,294
Spain	0	0	6,003		+	-	15,709
Sweden	-	+	5,964		-	+	14,250
UK	0	0	5,973		0	0	34,833
USA	-	+	5,896		0	0	16,062
<i>2) Both - CAWI majority</i>							
Argentina	+	-	5,867		+	-	13,491
Brazil	0	-	5,736		+	-	16,108
China	0	-	12,896		+	-	59,461
Indonesia	+	-	5,855		+	-	16,374
Japan	+	+	5,996		+	+	17,852
Mexico	+	-	5,886		+	-	14,272
Poland	0	-	5,878		+	-	13,506
Türkiye	0	-	5,748		+	-	16,235
<i>3) Both - CATI majority</i>							
Egypt	+	-	5,598		+	-	23,566
India	+	-	28,933		+	-	46,824
Israel	+	-	6,804		+	-	12,448
Kenya	0	-	5,726		+	-	14,298
Nigeria	0	-	5,600		+	-	13,885
Philippines	+	-	5,582		+	-	15,083
South Africa	+	-	5,782		+	-	14,116
Tanzania	+	-	5,580		+		12,900
<i>4) Eleven other countries</i>							
Canada	-	+	6,026		-	+	16,081
Denmark	-	+	5,927		0	+	14,371
Finland	-	+	5,994		+	+	12,646
Laos	-	+	5,138		+	0	8259
Mongolia	-	0	5,650		+	-	11,167
Netherlands	-	0	5,982		+	-	15,588
New Zealand	-	+	5,923		-	+	11,313
Oman	-	0	980		0	0	1,780
Saudi Arabia	-	-	6,014		0	-	18,566
Singapore	-	0	4,989		0	-	14,056
Norway	-	+	5,967		-	+	10,690

Signs on coefficient on an age 18-24 variable in a regression with controls for gender and year based on an absolute t-value >1.5. N refers to Cantril samples. 145 non-GFS countries pre-2020 and 126 post-2020.

Table 7. U-shapes in Cantril coefficients and t-statistics

	GFS			GWP		
	Age	Age ²	Minimum	Age	Age ²	Minimum
Egypt	-.1254 (6.95)	.0015 (6.87)	43	-.0711 (6.45)	.0008 (6.16)	44
India	-.0978 (7.64)	.0001 (6.82)	49	-.0352 (6.19)	.0003 (4.24)	59
Indonesia	-.03329 (2.55)	.00038 (2.37)	44	-.0673 (6.50)	.0006 (4.82)	67
Israel	-.0079 (0.86)	-.0001 (0.93)		-.0227 (3.81)	.0000 (0.76)	
Kenya	-.1037 (8.69)	.0010 (6.87)	52	-.1171 (7.57)	.0011 (5.75)	53
Nigeria	-.0117 (0.80)	.0002 (0.84)		.0192 (1.33)	-.0002 (1.17)	
Philippines	-.0502 (3.96)	.0006 (3.90)	46	-.0727 (6.88)	.0008 (6.44)	45
South Africa	-.0325 (1.51)	.0004 (1.42)		-.0344 (2.90)	.0003 (2.21)	57
Tanzania	-.0733 (6.13)	.0006 (4.13)	66	-.0816 (6.77)	.0007 (5.47)	58
Argentina	-.0111 (1.28)	.0001 (1.73)		-.0598 (6.39)	.0005 (4.94)	60
Australia	.0053 (0.57)	.1601 (1.88)		-.0074 (0.99)	.0002 (2.64)	
Brazil	.0082 (1.11)	.0006 (0.70)		-.0423 (4.27)	.0004 (4.12)	53
China	.0270 (2.54)	-.0019 (1.59)		-.0431 (5.57)	.0006 (6.69)	36
Germany	-.0324 (4.51)	.00031] (4.27)	52	.0066 (0.79)	-.0001 (1.34)	
Hong Kong	-.0170 (0.96)	.0005 (0.96)		.0045 (0.58)	-.0000 (0.60)	
Japan	-.0804 (14.38)	.00111 (20.31)	36	-.0121 (1.44)	.0001 (1.26)	
Mexico	.0064 (0.65)	.0000 (0.15)		-.0284 (2.97)	.0002 (1.46)	
Poland	.0133 (2.14)	-.0001 (1.31)		+.0155 (1.97)	-.0003 (3.39)	
Spain	-.0138 (1.47)	.0001 (1.24)		-.0094 (0.99)	.0001 (0.97)	
Sweden	-.0206 (4.55)	.0004 (9.51)	24	.0459 (6.62)	-.0004 (5.43)	
Türkiye	-.0199 (0.86)	.0003 (1.21)		.0030 (0.29)	-.0001 (1.02)	
UK	-.0495 (5.07)	.0006 (6.37)	42	-.0056 (0.66)	.0001 (1.11)	
USA	+.0095 (2.69)	.0002(4.85)		-.0278 (3.61)	.0005 (6.19)	30

Table 8. Cantril life evaluation. Global Minds, October and November 2024 coefficient of age 18-24 dummy

		N			N
All	-1.3191 (37.30)	20,224	Bolivia	-1.2652 (6.11)	477
All GFS	-1.3921 (30.60)	12,341	Canada	-1.3466 (5.42)	335
All non-GFS	-1.2005 (21.34)	7,883	Chile	-1.3075 (4.14)	3,402
Argentina	-1.0548 (9.45)	2,24	Colombia	-0.8951 (6.61)	1,098
Australia	-.8402 (2.27)	204	Costa Rica	-1.6398 (3.18)	98
Brazil		16	Dominican Rep	-.7468 (2.02)	164
China		6	Ecuador	-1.3297 (4.87)	251
Egypt		1	El Salvador	-1.4529 (3.58)	140
Germany	-2.1111 (2.32)	21	Guatemala	-1.0130 (2.67)	156
Hong Kong		2	Honduras	-1.0584 (2.29)	1496
India	-1.5901 (17.52)	3,096	Ireland	-1.9017 (1.80)	82
Indonesia		7	New Zealand	-3.0494 (2.77)	62
Israel	-2.6035 (3.25)	63	Nicaragua	-1.7335 (4.93)	189
Japan		6	Pakistan	-.8818 (5.31)	1,075
Kenya	-.8411 (2.97)	307	Paraguay	-.7198 (2.37)	3,021
Mexico	-1.9148 (17.99)	1,72	Peru	-1.8319 (8.84)	452
Nigeria	-1.0020 (4.52)	501	Singapore	-2.2976 (2.82)	72
Philippines	-2.0877 (8.66)	780	Sri Lanka	-2.0000 (3.42)	115
Poland		3	Trinidad & Tobago	-2.4271 (2.16)	103
South Africa	.0073 (0.03)	399	Uruguay	-1.6958 (4.06)	1,798
Spain	-.8182 (6.25)	1,07	Venezuela	-1.1414 (8.91)	1,051
Sweden		6	Zimbabwe	-3.2882 (3.83)	113
Tanzania	.4454 (0.62)	70			
Türkiye		2			
UK	-1.6577 (5.57)	506			
USA	-1.3836 (9.64)	1,304			

Signs on coefficient on an age 18-24 variable in a regression with controls for with t-statistics in parentheses. 128 countries in the non-GFS sample

Table 9. Life satisfaction, MHQ, fear and anxiety, and sad and hopeless. Global Minds, 2020-2026

	Sign and significance of age 18-24 dummy				N
	Life satisfaction	MHQ	Fear and anxiety	Sad and hopeless	
1) Both - CATI majority					
Egypt	-	-	+	+	11,5837
India	-	-	+	+	247,337
Israel	n/a	-	+	+	20,789
Kenya	n/a	-	+	+	14,187
Nigeria	-	-	+	+	34,324
Philippines	-	-	+	+	36,495
South Africa	-	-	+	+	48,385
Tanzania	n/a	-	+	+	10,173
2) Both - CAWI majority					
Argentina	-	-	+	+	98,953
Brazil	-	-	+	+	24,593
China	-	-	+	+	2,751
Indonesia	-	-	+	+	760
Japan	-	-	+	+	4,698
Mexico	-	-	+	+	108,805
Poland	-	-	+	+	500
Türkiye	-	-	+	+	697
3) CAWI only					
Australia	-	-	+	+	31,530
Germany	-	-	+	+	30,801
Hong Kong	n/a	-	+	+	1,178
Spain	-	-	+	+	54,587
Sweden	-	-	+	+	638
UK	-	-	+	+	69,501
USA	-	-	+	+	140,273
All GFS	-	-	+	+	1,097,792
All non-GFS	-	-	+	+	1,108,501

Signs on coefficient on an age 18-24 variable in a regression with controls for gender and year based on an absolute t-value >1.5. Number of observations relates to MHQ.

Table 10. Sign and significance of age 18-24 variable with emotional and non-emotional variables

	16 CATI (n=60,806)	23 CAWI (n=146,357)	All
<i>(a) Emotional sign switchers</i>			
1. Flourishing	.3067 (17.64)	-.0819 (9.99)	-.0222 (1.99)
2. Cantril	.5078 (15.81)	-.2008 (11.30)	.1088 (6.77)
3. Satisfied with life	.4812 (14.32)	-.2646 (13.45)	.0313 (1.81)
4. Happiness	.5405 (17.35)	-.1927 (10.61)	.1048 (6.58)
5. Worthwhile	.3001 (9.84)	-.3752 (19.30)	-.1048 (6.41)
6. Satisfied with relationships	.0248 (0.83)	-.2533 (11.61)	-.1480 (8.52)
7. Promote good	.0824 (3.12)	-.3539 (22.15)	-.1608 (11.83)
8. Mastery	.0372 (3.93)	-.0882 (15.13)	-.0349 (7.01)
9. Purpose and meaning	.1375 (5.10)	-.5659 (26.25)	-.2738 (16.43)
10. Balance in life	.0381 (3.93)	-.0892 (14.96)	-.0328 (6.43)
11. Social trust	.0323 (3.06)	-.0541 (7.43)	-.0134 (2.27)
12. Optimism	.0932 (3.72)	-.1979 (10.69)	-.0974 (6.50)
13. Not flourishing	-.3418 (10.15)	1.1529 (40.79)	.5747 (26.63)
14. Anxious	-.0894 (8.12)	.3043 (36.38)	.1525 (23.15)
15. Lonely	-.1215 (3.25)	.6991 (27.86)	.3597 (17.30)
<i>(b) Non-emotional non-switchers</i>			
16. Life evaluation in five years	.6061 (20.85)	.3034 (17.31)	.4696 (30.95)
17. Physical health	.7351 (25.31)	.2358 (12.77)	.4494 (28.74)
18. Bodily pain	-.2274 (20.54)	-.0819 (9.99)	-.1414 (21.61)
19. #Drinks/day	-.1559 (3.81)	-.4883 (8.84)	-.3273 (8.63)
20. #Cigarettes/day	-.3308 (6.66)	-1.2091 (23.20)	-.8174 (21.83)

Source: Global Flourishing Study 1. Controls are age 18-24, female immigrant and country dummies

Appendix 1. Variables used in the Global Flourishing Study and Global Minds

1. Global Flourishing Study

Q1. *Life* - Overall, how satisfied are you with life as a whole these days? 0=not at all satisfied..10=completely satisfied.

Q2. *Happy* - In general, how happy or unhappy do you usually feel? 0=extremely unhappy ..10=extremely happy.

Q3. *Physical health* - In general, how would you rate your physical health? 0=poor...10=excellent.

Q4. *Mental* - How would you rate your overall mental health? 0=poor...10=excellent.

Q5. *Worthwhile* - Overall, to what extent do you feel the things you do in your life are worthwhile? 0=not at all...10=completely.

Q6. *Purpose and meaning* - I understand my purpose in life. 0=strongly disagree..10=strongly agree.

Q7. *Promote* - I always act to promote good in all circumstances, even in difficult and challenging situations. 0=not true at all...10=completely true of you.

Q8. *Give up* - I am always able to give up some happiness now for greater happiness later. 0=not true at all...10=completely true of you.

Q9. *Content* - I am content with my friendships and relationships. 0=strongly disagree..10=strongly agree.

Q10. *Satrel* – social relationships -My relationships are as satisfying as I would want them to be. 0=strongly disagree..10=strongly agree.

Q11. *Expenses* - How often do you worry about being able to meet normal monthly living expenses? 0=worry all the time..10=do not ever worry.

Q12. *Foodhse* - How often do you worry about safety, food or housing? 0=grateful all the time..10=do not ever worry.

Q13. *Flourishing* is the sum of (Life satisfaction+Happiness+Physical+Mental +Worthwhile+Purpose+Promote+Give up+Content+Satrel+Expense+Foodhse)/12

Q14. *Cantril Life evaluation* - today 0=worst possible 10=best possible.

Q15. *Lonely* - How often felt lonely – 10 always... 0 never.

Q16. *Nervous* - feeling nervous, worried or on edge – 1=not at all, 2=several days, 3=more than half, 4=nearly every day.

Q17. *Down* - feeling down, worried or hopeless– 1=not at all, 2=several days, 3=more than half, 4=nearly every day.

Q18. *Worry*- Not being able to stop or control worry– 1=not at all, 2=several days, 3=more than half, 4=nearly every day.

Q19. *No Interest* - little interest or pleasure in doing things– 1=not at all, 2=several days, 3=more than half, 4=nearly every day.

Q20. *Not flourishing* is (Worry+Nervous+Down+No interest)/4.

Q21. *Balance in life* – the various aspects of your life are in balance 1=never 2=rarely 3=often 4=always

Q22. *Pain – bodily pain in the last four weeks* – 1=none at all 2=not very much 3=some 4=a lot

Q23. *Mastery* “How often do you feel very capable in most things you do in life?”: never=1 2=rarely 3=often 4=always

Q24. *Social trust* “How many people in this country trust one another?” Respondents answered this question on a five-point scale (5 = all, 4 = most, 3 = some, 2 = not very many, and 1=none).

Q25. *Life in five* "Life evaluation: five years from 0=worst possible 10=best possible

Q26. *Optimism* “Overall, I expect more good things to happen to me than bad” 0=strongly disagree...10=strongly agree

Q25. *Drinks* Number of alcoholic drinks you drank in past seven days 0-97

Q26. *Smoke*. Number of cigarettes smoked each day

2. Global Minds

Q27. *Life satisfaction* How satisfied are you with your life in general? 1 = not at all satisfied....9 = extremely satisfied

Q28. *Fear and anxiety* Being scared or worried and experiencing feelings and sensations of, nervousness or panic in your mind or body, 1= Is a real challenge and impacts my ability to function.. 5 = Sometimes I wish it was better but it's ok...9 = It is a real asset to my life and my performance

Q29. *Sad and hopeless* Experiencing overwhelming feelings of unhappiness, sorrow and hopelessness, or having spells of uncontrollable crying, 1= Is a real challenge and impacts my ability to function.. 5 = Sometimes I wish it was better but it's ok...9 = It is a real asset to my life and my performance

Q30. *MHQ* scored -100 to +200. -50 to -100=distressed; -50 to 0 struggling; 0-50 enduring; 50-100 managing; 100-150 succeeding and 150-200 thriving. See Newson. Sukhoi and Thiagarajan (2024)

Appendix 2 Table 1. Not flourishing by country, by survey mode, Global Flourishing Study 1

	CAWI		CATI	
All	1.1530 (40.79)	143,510	-.3417 (10.15)	59,556
1) CAWI only				
Australia	1.9881 (8.86)	3,808		
China	.5872 (4.89)	4,173		
Germany	1.6123 (14.09)	9,390		
Hong Kong	.8838 (4.67)	2,916		
Spain	1.0691 (7.84)	6,189		
Sweden	1.8027 (23.99)	14,755		
UK	1.9139 (8.67)	5,286		
USA	2.0322 (12.82)	37,537		
2) Both - CAWI majority				
Argentina	1.4361 (10.75)	5,197	.8246 (2.07)	1,412
Brazil	1.4907 (17.47)	11,265	1.1438 (2.76)	1,245
Indonesia	1.0695 (9.27)	3,346	.3382 (2.34)	3,570
Japan	1.1067 (12.81)	19,497	.9140 (2.46)	541
Mexico	.9945 (7.84)	3,989	.4962 (1.52)	1,501
Poland	-.2378 (2.65)	9,563	-.5307 (1.08)	610
Türkiye	.8347 (2.40)	627	1.3923 (3.77)	825
3) Both - CATI majority				
Egypt	-.4338 (0.73)	220	.0637 (0.47)	4,467
India	.3985 (0.80)	210	-.5772 (7.52)	12,223
Israel	.4242 (1.72)	904	-.7779 (5.24)	2,670
Kenya	-.3395 (1.92)	1,449	-.5683 (8.77)	9,840
Nigeria	.4324 (1.92)	1,191	-.0862 (0.86)	5,508
Philippines	.3387 (1.73)	1,091	.1723 (1.13)	4,169
South Africa	1.0612 (3.63)	628	.4174 (2.46)	1,977
Tanzania	.3361 (0.69)	279	-.6692 (7.53)	8,700

Appendix 2. Table 2. Not flourishing by country, by survey mode, Global Flourishing Study 2

	CAWI		CATI	
All				
1) CAWI only				
Australia	1.7496 (4.33)	2564		
China	.2499 (1.99)	3772		
Germany	1.0261 (4.99)	5473		
Hong Kong	1.1296 (1.88)	703		
Spain	1.3092 (4.21)	2900		
Sweden	1.6701 (15.00)	11419		
UK	1.1645 (2.93)	3559		
USA	2.1084 (9.38)	31842		
2) Both - CAWI majority				
Argentina	1.5610 (5.72)	2136	1.4782 (2.22)	747
Brazil	1.5130 (7.51)	3700	.3114 (0.42)	520
Indonesia	1.2680 (6.06)	1326	.7250 (2.42)	1331
Japan	.9327 (5.65)	13405	.2792 (0.45)	291
Mexico	1.8208 (7.17)	1563	.6773 (0.88)	685
Poland	-.4548 (4.03)	5953	-.4553 (0.65)	395
Türkiye	1.0956 (1.19)	198	.7430 (0.87)	298
3) Both - CATI majority				
Egypt	.6286 (0.79)	105	-.2150 (1.17)	2916
India	1.0146 (1.20)	62	-.5724 (4.91)	6257
Israel	-.2304 (0.44)	242	-1.1313 (6.39)	2164
Kenya	.0669 (0.30)	1013	-.5068 (5.71)	6668
Nigeria	-.2454 (0.89)	830	.1033 (0.62)	2281
Philippines	.4842 (1.52)	494	.5026 (2.12)	2175
South Africa	1.1984 (2.54)	265	.1657 (0.54)	708
Tanzania	-.1744 (0.26)	165	-.4215 (3.22)	5376

Appendix 2. Table 3. Sign and significance of age 18-24 variable with emotional and non-emotional variables plus childhood controls plus income, education and labor force status

	16 CATI (n=60,806)	23 CAWI (n=146,357)	All
<i>(a) Emotional sign switchers</i>			
1. Flourishing	.2719 (13.83)	-.0767 (4.93)	.0809 (6.67)
2. Cantril	.4391 (11.95)	-.0250 (1.26)	.1928 (10.63)
3. Satisfied with life	.4866 (12.70)	-.0621 (2.84)	.1785 (9.17)
4. Happiness	.5065 (14.31)	.0132 (0.66)	.2342 (13.09)
5. Worthwhile	.2786 (8.03)	-.1770 (8.19)	.0237 (1.29)
6. Satisfied with relationships	.0672 (1.98)	-.0413 (1.70)	.0021 (0.10)
7. Promote good	.0406 (1.39)	-.2132 (11.82)	-.1014 (6.55)
8. Purpose and meaning	.0671 (2.18)	-.2991 (12.40)	-.1343 (7.13)
9. Mastery	-.0005 (0.04)	-.0614 (9.25)	-.0354 (6.21)
10. Balance in life	.0152 (1.37)	-.0418 (6.26)	-.0146 (2.53)
11. Social trust	.0190 (1.57)	-.0262 (3.15)	-.0033 (0.49)
12. Optimism	.0141 (0.49)	-.0946 (4.40)	-.0382 (2.25)
13. Not flourishing	-.2594 (6.80)	.8116 (25.59)	.3599 (14.79)
14. Anxious	-.0700 (5.59)	.1972 (20.86)	.0853 (11.42)
15. Lonely	-.1370 (3.21)	.4220 (14.87)	.1681 (7.14)
<i>(b) Non-emotional non-switchers</i>			
16. Life evaluation in five years	.4438 (13.44)	.2461 (12.27)	.3517 (20.40)
17. Physical health	.5811 (17.62)	.2615 (12.77)	.4068 (23.20)
18. Bodily pain	-.1581 (12.56)	-.0459 (4.87)	-.0899 (12.06)
19. #Drinks/day	-.0891 (1.99)	-.4076 (6.24)	-.2492 (5.66)
20. #Cigarettes/day	-.2202 (3.94)	-1.1112 (18.23)	-.7121 (16.49)

Source: Global Flourishing Study 1. Controls are age 18-24, female immigrant and country dummies. Childhood controls include controls for health growing up (5), mother relation growing up (5), father relation growing up (5), parents marital status growing up (5), family income at 12 (4), outsider (1), attend religious services at 12 (4) with number of controls in parentheses. T-statistics in parentheses.