The Hologic Global Women's Health Index

Appendices

Global Women's Health Index
HEALTH

HOLOGIC

MEASURED BY GALLUP®

Developing the Hologic Global Women's Health Index

The goal of the Hologic Global Women's Health Index is to contribute to extending the life expectancy of women around the world and improving their quality of life. The ultimate outcome of the partnership with Gallup is to create a global measure to track progress in key aspects of women's health and well-being that informs change to improve women's health in the future.

The Gallup World Poll has collected data since 2005 in more than 160 countries and territories and over 140 languages. To consistently and accurately collect data on the same indicators from a wide range of respondents in different countries and territories, questions are rigorously tested to ensure clarity and precision so that they are easily translated, well understood and interpreted across cultures.

Why an Index?

An Index provides the opportunity to summarize the multidimensional construct we are measuring — factors contributing to women's health — in an easy-to-interpret way. This produces a tool to assess progress over time and captures the interest of both the public and policymakers. This means that it will be easier to communicate complex ideas and promote accountability.

It is important to clearly communicate what the Index captures to not oversimplify complex issues and topics and to avoid overstating policy conclusions. We are transparent with our methodology and what the Index does and does not measure, including the weighting process used to combine the variables.

Development of the Hologic Global Women's Health Index

1   Theoretical framework development

In consultation with a wide and growing list of experts, Hologic and Gallup set out to understand which key metrics would be most salient to a women-reported Index of health at the national level.

The World Health Organization (WHO) listed the top 10 issues for women's health 20 years after countries signed pledges in the 1995 Beijing Declaration and Platform for Action, adding that women still face many health problems, which we must recommit to address (Bustreo, 2015).

These included:

- cancer
- reproductive health
- maternal health
- HIV
- sexually transmitted diseases (STDs) and sexually transmitted infections (STIs)
- violence against women
- mental health
- noncommunicable diseases
- age-related issues (teenage pregnancies; older women may have fewer pensions and benefits, less access to healthcare and social services, and greater risk of poverty, compounded by the more widespread health challenges associated with old age)

An additional list put forth by the WHO in 2020 indicates top health checks for women, which include: blood pressure, blood glucose tests, body mass index, bone density screening, breast cancer detection, colon cancer detection, dental checkups, lipid profile checks and screening for cervical cancer (Pap smears and HPV testing) (WHO, 2020b).

While not all of these issues can accurately be measured in a non-epidemiological social science survey, they convey that women's health is a combination of physical, social, economic and political factors (culture, poverty, discrimination, violence, system of provision of health services, geographical location, etc.).

This process of working with experts and existing knowledge sources identified three key objectives of the survey:

1) Capture knowledge, attitudes and behaviors (KAB model) related to health, which is a common framework for health surveys across many cultures and languages (Bhattacharya et al., 2018; Fan et al., 2018; Mustafa et al., 2008; Okobia et al., 2006; Zhang et al., 2020).

2) Focus on female-specific health issues:

   a. prenatal health, pregnancy and delivery

   b. health consequences of gender-based violence: sexual and physical violence

   c. increasingly common causes of death: heart and lung disease, cervical, lung and breast cancer, and obesity

   d. aging-related and noncommunicable diseases, which are increasing while infectious diseases are decreasing — making preventive care essential

3) Bring attention to actionable areas to increase female longevity:

   a. increasing years of education to improve the life expectancy, independence and earning power of women

   b. reducing domestic violence, sexual assault and femicide

   c. diagnosing conditions early so they are effectively treated and having services to provide care on an ongoing basis

   d. decreasing neonatal and infant mortality, as well as maternal mortality

2 Indicator and data selection

The Gallup World Poll already includes items that cover general health and quality of life, opinions of general health, safety and victimization, food and shelter insecurity, and emotional health and well-being. Because the Gallup World Poll creates nationally representative samples in each country, the survey is intended for both male and female respondents. Accordingly, the survey questions should be as broadly applicable as possible.

Building on these existing items, Gallup and Hologic developed the following module to field starting in 2020. These items were cognitively tested in seven countries: Nigeria (Yoruba and English), Kyrgyzstan (Russian), Vietnam (Vietnamese), United States (English), United Kingdom (English), Peru (Spanish) and Tunisia (Arabic). This process helped refine the final survey questionnaire and ensured that questions are well interpreted and understood across different countries, cultures and languages.

These questions are also discussed in greater detail in the subsequent section.

Hologic Survey Module Included in the Gallup World Poll

Topic	Question	Why It Matters
Value of preventive care	• *Do you think going to a healthcare professional, such as a medical doctor or a nurse, at least once every 12 months for a checkup, can help people improve their health, or not?*	Knowledge and attitudes toward preventive healthcare are the first two dimensions of "knowledge, attitudes and behaviors theory" (KAB). KAB is a health behavior theory of change wherein the change in human behavior is divided into three successive processes, namely, acquisition of the right knowledge, generation of attitudes and adoption of behaviors (or practices) (Bhattacharya et al., 2018; Fan et al., 2018; Mustafa et al., 2008; Okobia et al., 2006; Zhang et al., 2020).
Experience of preventive care	• *In the past 12 months, have you talked to a healthcare professional, such as a medical doctor or nurse, about your own health?*	Knowledge and attitudes need to lead to concrete behaviors, which are shaped by individual and social barriers.
	• *To the best of your knowledge, were you tested for any of the following in the past 12 months? [High blood pressure, cancer, diabetes, STDs/STIs]?*	• Heart disease is the leading cause of death in both men and women (CDC, 2020b). • Men and women are susceptible to different types of cancer, and testing is crucial to early diagnosis and increasing the odds of successful treatment (CDC, 2020a). • Obesity and diabetes-related diseases are a growing concern around the world and are associated with heart disease, as well as increased incidence of certain cancers (CDC, 2021b). • STDs/STIs have an outsized impact on women's reproductive health and fertility (compared to men) (CDC, 2021a).

Topic	Question	Why It Matters
Prenatal care	• *Do you think most pregnant women in the city or area where you live receive high-quality healthcare during their pregnancies, or not?*	Perceptions of the quality of prenatal care are lacking in global statistics — a critical dimension of women's healthcare experiences throughout their lives.
Pregnancy	• *How many children do you, personally, have?* • *How old were you the first time you were pregnant?*	A woman's age of first pregnancy and number of children have a strong relationship with years of education, employability, household income, time available to manage personal health, mental health, etc. (PRB, 2011; UNFPA, 2021a; UNICEF, 2021; World Bank, 2021).
Domestic violence	*Now I would like to ask you a question regarding domestic violence. Domestic violence can be physical, psychological, or involve sexual acts done to someone against their will by a person they live with. In your opinion, is domestic violence a widespread problem in [country name], or not?*	Perceptions of widespread domestic violence can vary for different groups (e.g., men vs. women). In addition, the psychological burden of believing domestic violence is widespread could be tied to negative well-being outcomes.

Value of Preventive Care

Do you think going to a healthcare professional, such as a medical doctor or a nurse, at least once every 12 months for a checkup, can help people improve their health, or not?

Rationale

Preventive health screenings and yearly primary care consultations have been found to significantly increase life expectancy, particularly among the 30- to 75-year-old age group, but recommendations vary greatly depending on the disease, level of resources in the community and gender.

The framing of this item specifically addresses people's knowledge and attitudes ("do you think") toward preventive care and provides a specific time frame ("at least once every 12 months") to aid with recall.

The question is also framed neutrally and the final clause "or not" allows respondents to answer based on personal opinions, reducing the chance of social desirability bias as much as possible. This framing may appear odd in English, but Gallup has found it to be highly successful in reducing acquiescence bias, especially in other languages.

Implications

• Inform where preventive care is not occurring systematically.

• Earlier detection of chronic illnesses and deadly diseases helps decrease mortality rates. Many of the top risk factors leading to illness and premature death can be prevented.

• Reduce medical expense through early detection.

Experience of Preventive Care

In the past 12 months, have you talked to a healthcare professional, such as a medical doctor or nurse, about your own health?

Rationale

This item is a follow-up to the previous question about knowledge and attitudes and seeks to uncover whether respondents have taken action to seek annual preventive care (behavior or practice).

The concept of a visit to a healthcare professional is described in simple and broad terms ("have you talked to a healthcare professional [...] about your own health") to capture unscheduled, informal consultations as well as annual health examinations. The question echoes the specific time frame used in the previous question ("the past 12 months") to aid with recall and yield more precise responses.

The question also defines who is considered a medical professional. In some countries, a nurse may be considered "less than" a doctor and therefore their checkup and medical advice could be given less credence. Specifying who is considered a medical professional also helps eliminate any informal sources of health advice, such as local healers or family members credited with health knowledge, especially in countries with less access to medical infrastructure.

Implications

- Highlight potential differences and service inequities between populations.
- Educate the public regarding personal care behaviors.

To the best of your knowledge, were you tested for any of the following in the past 12 months?
[High blood pressure, cancer, diabetes, STDs/STIs]?

Rationale

The framing of this question lets us survey participants on four different issues using a common stem, which makes the overall time involved in asking the questions shorter and allows respondents to move through the battery quickly, reducing the overall cognitive burden of the survey.

The item is being framed as a yes/no question to simplify the process of answering.

In addition, the inclusion of STDs/STIs — a highly sensitive topic — occurs at the end of the list to allow respondents to gain confidence in answering questions about less sensitive diseases before disclosing their answer.

The question provides a specific time frame to aid with recall and precision in the responses.

The diseases themselves are described in the simplest terms possible and translated into local languages using the commonly used terminology.

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Following the question about discussing health with a healthcare professional, the four types of specific screenings were chosen because they include the most frequent, fastest growing and/or most damaging diseases for women:

- Heart disease is the leading cause of death in both men and women (CDC, 2020b).
- Cancer is the second-leading cause of death globally and was responsible for an estimated 10 million deaths in 2020. Globally, about one in six deaths is due to cancer (CDC, 2020a; WHO, 2021c).
- Obesity and diabetes-related diseases are a growing concern around the world and are associated with heart disease, as well as increased incidence of certain cancers (CDC, 2021b; WHO, 2021b, 2021g).
- STDs/STIs have an outsized, potentially devastating impact on women's reproductive health and fertility (compared with men) (CDC, 2021a).

Implications

- Earlier detection of chronic illnesses and deadly diseases helps decrease mortality rates.
- Underscores the importance of understanding the role of annual screenings in improving health and curtailing expenses.
- The COVID-19 pandemic may have an amplifier effect on already worrying trends:
    - Between 2000 and 2016, there was a 5% increase in premature mortality from diabetes (WHO, 2021g).
    - Diabetes is one of the fastest-growing health challenges of the 21st century, with the number of adults living with diabetes having more than tripled over the past 20 years (IDF, 2019).

Maternal Care

Do you think most pregnant women in the city or area where you live receive high-quality healthcare during their pregnancies, or not?

Rationale

Perceptions of the quality of maternal care are lacking in global statistics. This item is inviting an opinion of prenatal care based on personal experience and knowledge of local institutions.

The geographical delimitation to the local vicinity ("city or area where you live") helps respondents express an opinion more confidently since they are more likely to know about the situation locally rather than in their region or country.

By asking about "most pregnant women," respondents are encouraged to consider a broad majority of women, regardless of their socioeconomic status and beyond their own social circle.

Implications

- Most maternal deaths are preventable with timely management by a skilled healthcare professional working in a supportive environment (WHO, 2021a).
- Every day in 2017, approximately 810 women died from preventable causes related to pregnancy and childbirth. Ninety-four percent of all maternal deaths occur in low- and lower-middle income countries (WHO, 2019).
- Maternal conditions are the top cause of mortality among girls aged 15 to 19 globally (UNICEF, 2021). Adolescent pregnancy is common and high risk for the neonate and mother.

Pregnancy

How many children do you, personally, have?

How old were you the first time you were pregnant? [Question only asked of female respondents who said they had children in the previous question.]

Rationale

A lot can be learned about a woman and her socioeconomic status through her age at her first pregnancy and her number of children. A woman's age at first pregnancy and number of children can impact her overall health, number of years of education, employability, household income, time available to manage personal health and mental health (PRB, 2011; UNFPA, 2021a; UNICEF, 2021; WHO, 2020a; World Bank, 2021).

Notably, the question about the age at first pregnancy is the only question asked only of women in the survey as part of the Hologic survey module.

The questions are extremely simple, allowing respondents to answer accurately and easily.

Implications

- Adolescent mothers (aged 10 to 19 years) face higher risks of eclampsia, puerperal endometritis and systemic infections than women aged 20 to 24 years, and babies of adolescent mothers face higher risks of low birth weight, preterm delivery and severe neonatal conditions (UNFPA, 2021a; WHO, 2020a).
- Adolescent pregnancy takes an enormous toll on a girl's education and income-earning potential and longevity. Many girls who become pregnant are pressured or forced to drop out of school. Leaving school jeopardizes a girl's future economic prospects and excludes her from other opportunities in life (UNFPA, 2021a).

Domestic Violence

Now I would like to ask you a question regarding domestic violence. Domestic violence can be physical, psychological, or involve sexual acts done to someone against their will by a person they live with.

In your opinion, is domestic violence a widespread problem in [Country], or not?

Rationale

Domestic violence has dramatic health and safety consequences for women of all socioeconomic backgrounds around the world. The belief that domestic violence is widespread and thus negatively affects health and safety could potentially lead to the deconstruction of harmful norms, such as victim-blaming, and could optimistically lead to a cultural awakening, as seen during the #MeToo movement. Cultural movements and grassroots initiatives focusing on domestic violence can be strong forces in calling for social and legislative change, putting pressure on leaders to act.

This question allows respondents to express their view on the incidence of domestic violence without having to discuss their own victimization or that of loved ones.

The item intentionally asks how "widespread" the problem is, rather than how "serious" or "important," given that the question of gravity elicited high levels of agreement due to desirability bias during cognitive testing.

Answers to this question framed at the national level may be based on personal contact with domestic abusers and survivors, but also on awareness of the national debate on the issue.

Implications

- Domestic violence against women is a major public health and education problem globally and can damage physical, mental and financial well-being (UNFPA, 2021b; UNHCR, 2021; WHO, 2021e; World Bank, 2019).

- Across their lifetime, one in three women — around 736 million — are subjected to physical or sexual violence by an intimate partner or sexual violence from a non-partner, a number that has remained largely unchanged over the past decade (WHO, 2021d, 2021f).

- The WHO lists a series of commitments countries can honor to reduce violence against women and girls:

  - sound gender transformative policies, from policies on childcare to equal pay, and laws that support gender equality

  - a strengthened health system response that ensures access to survivor-centered care and referral to other services as needed

  - school and educational interventions to challenge discriminatory attitudes and beliefs, including comprehensive sexuality education

  - a targeted investment in sustainable and effective evidence-based prevention strategies at local, national, regional and global levels

  - strengthening data collection and investing in high-quality surveys on violence against women and improving measurement of the different forms of violence experienced by women, including those who are most marginalized (WHO, 2021e)

- The provision of assistance, including in humanitarian settings and to mitigate secondary impacts of the COVID-19 pandemic, such as food insecurity and gender-based violence (National Security Directive (sec 2. (b)(iii)(B))).

Determining the Dimensions of Health and Calculating the Hologic Global Women's Health Index

Approaching analysis in Year 4 of the Index

In the fourth year of fielding the Index, researchers replicated the process to test for robustness in the Years 1, 2 and 3 analysis and to confirm that the assumptions from these years remained true. We found that assumptions remained valid, and the process of calculating the Index is described in more detail in the following sections.

The Year 4 analysis result shows that:

- All the selected variables used for Index creation cluster in the same way as in Year 1, Year 2 and Year 3. That is, the Year 4 Index is made up of the same five sub-indexes and each sub-index includes the same elements as in the previous studies.

- The weights associated with each dimension calculated based on Year 4 data are within 2% of their corresponding values in all previous years of the study. The changes are minor, allowing one to directly compare the Index score across years.

Factor analysis

The Gallup and Hologic research team initially hypothesized that 18 items would be usable for the Index.

Items considered for inclusion in the Hologic Global Women's Health Index

Note: Items marked in blue are from the Hologic World Poll module. All other items are Gallup historical items collected since 2005.

Topic	Question
Attitudes and behaviors regarding preventive care	• Do you think going to a healthcare professional, such as a medical doctor or a nurse, at least once every 12 months for a checkup, can help people improve their health, or not? • In the past 12 months, have you talked to a healthcare professional, such as a medical doctor or nurse, about your own health? • To the best of your knowledge, were you tested for any of the following in the past 12 months? [High blood pressure, cancer, diabetes, STDs/STIs]?
Domestic violence	• Now I would like to ask you a question regarding domestic violence. Domestic violence can be physical, psychological, or involve sexual acts done to someone against their will by a person they live with. In your opinion, is domestic violence a widespread problem in [country name], or not? • Do you feel safe walking alone at night in the city or area where you live?
Access to quality maternal care and personal experience of childbirth	• Do you think most pregnant women in the city or area where you live receive high-quality healthcare during their pregnancies, or not? • How many children do you, personally, have? • How old were you the first time you were pregnant?
General quality healthcare access	• In the city or area where you live, are you satisfied or dissatisfied with the availability of quality healthcare?
Food and shelter accessibility	• Have there been times in the past 12 months when you did not have enough money to buy food that you or your family needed? • Have there been times in the past 12 months when you did not have enough money to provide adequate shelter or housing for you and your family?
Overall health (quality of life, daily pain levels)	• Do you have any health problems that prevent you from doing any of the things people your age normally can do? • Did you experience the following feelings during a lot of the day yesterday? How about physical pain?
Emotional well-being issues	• Did you experience the following feelings during a lot of the day yesterday? How about worry? • Did you experience the following feelings during a lot of the day yesterday? How about sadness? • Did you experience the following feelings during a lot of the day yesterday? How about stress? • Did you experience the following feelings during a lot of the day yesterday? How about anger? • Life Evaluation Index (Thriving, Struggling, Suffering)

In preparation for running a factor analysis of the listed items, the following two tests were used to check correlation and sampling adequacy:

- **Bartlett Test:** If the p-value is less than 0.05, this shows the significance of the test and indicates a factor analysis may be useful for our dataset.

- **Kaiser-Meyer-Olkin Test:** If the test score is above 0.8, it indicates the sample is adequate for factor analysis.

Tetrachoric correlation (instead of Pearson's correlation) was used to measure the association between variables since all variables are binary.

- After testing, the following variables were dropped:

  - Two items — the questions about the number of children and age of first pregnancy — were excluded due to scaling and issues with directionality.

  - The question regarding whether going to a healthcare professional improves health was excluded due to low variance.

Researchers then used factor analysis to determine which factors emerged and which items were most highly loaded.

- Factor analysis is limited to female respondents only since we are trying to predict the health and safety status of women, rather than the general population. Female cases without missing values in the selected items were included in the analysis.

- Before running factor analysis, many of the variables were recoded.

- The question regarding domestic violence and the Life Evaluation Index were dropped due to not being highly loaded (with factor loadings above 0.4) on any factor.

A statistically good factor analysis solution was achieved by setting the number of factors to five and using "Varimax" rotation (orthogonal). The eigenvalues of all five factors are greater than one. The eigenvalue is used to measure the amount of variance of variables that a factor explains. The logic is that only factors that explain at least the same amount of variance as a single variable are worth keeping.

- **Factor 1 is about preventive care**, including having been tested for high blood pressure, cancer, diabetes and STDs/STIs.

- **Factor 2 is about emotional issues**, including experiencing worry, sadness, stress and anger for a lot of the day prior (all items reverse scored).

- **Factor 3 is about health and safety**, including receiving high-quality care during pregnancy, satisfaction with quality healthcare in general and feeling safe walking alone at night.

- **Factor 4 is about basic needs**, including having trouble affording food and shelter in the past 12 months (all items reverse scored).

- **Factor 5 is about individual health**, including having health problems and experiencing pain for a lot of the day prior (all items reverse scored).

The extracted five factors explain 61.9% of the total variance of the selected items for any year.

To achieve a valid score, a respondent needs to answer "Yes" or "No" to at least three of the four items for factor 1, three of the four items for factor 2, two of the three items for factor 3, two of the three items for factor 4 and two of the two items for factor 5.

3 Missing data

Given the global nature of the Gallup World Poll, all national surveys are subject to the relevant government approvals and restrictions.

The following exclusions apply:

- **Yemen:** Values are missing for the questions regarding domestic violence and testing for STIs and HIV.
- **Iran:** Values are missing for the question regarding testing for STIs and HIV.
- **Jordan:** Values are missing for the question regarding testing for STIs and HIV.
- **Pakistan:** Values are missing for the question regarding testing for STIs and HIV.
- **Saudi Arabia:** Values are missing for the question regarding testing for STIs and HIV.
- **Bahrain:** Values are missing for the questions regarding domestic violence, testing for STIs and HIV, and having enough money for food.
- **Kuwait:** Values are missing for the question regarding testing for STIs and HIV.

4 Rounding

The numbers in the Hologic Global Women's Health Index use many observations and are calculated first to the infinite decimal place. Then, to display the scores, they are rounded to the nearest whole number.

- To calculate a country's rank, Hologic and Gallup researchers use the full score with multiple digits to avoid ties.

  - If two countries have a score of 56 but one is 56.1 and one is 56.4, the country with 56.4 has a higher rank.

- However, to calculate change the standard way, scores are rounded first, then subtracted.

  - If a country has a rounded final score of 54 in Year 1 and a score of 52 in Year 4, the change will be 54-52, or a decrease of 2.

Differences in Countries Surveyed in Year 4

In Year 4, one country — Somalia — was surveyed for the first time. Some countries that were surveyed in Year 3 were not surveyed in Year 4 and others not surveyed since Year 1 or 2 returned. For a comparison to the baseline countries surveyed in Year 1, please see the Year 2 report.

Year Wave	Global Coverage	Number of Countries	New Countries and Territories	
Year 2	94%	122		
Year 3	97%	143	Azerbaijan	Liberia
			Botswana	Libya
			Chad	Luxembourg
			Comoros, The	Madagascar
			Congo, The Democratic Republic of the	Mauritania
			Eswatini	Montenegro
			Ethiopia	Niger
			Gambia	Northern Cyprus
			Guatemala	Palestine, State of
			Kuwait	Puerto Rico
			Lesotho	Yemen
Year 4	97%	142	Algeria*	Lesotho*
			Bahrain***	Puerto Rico*
			Burkina Faso**	Somalia
			Jamaica*	

*Not surveyed in Year 4. **Not surveyed since Year 2, added in Year 4. ***Not surveyed since Year 1, added in Year 4.

Countries included in the Year 4 Hologic Global Women's Health Index
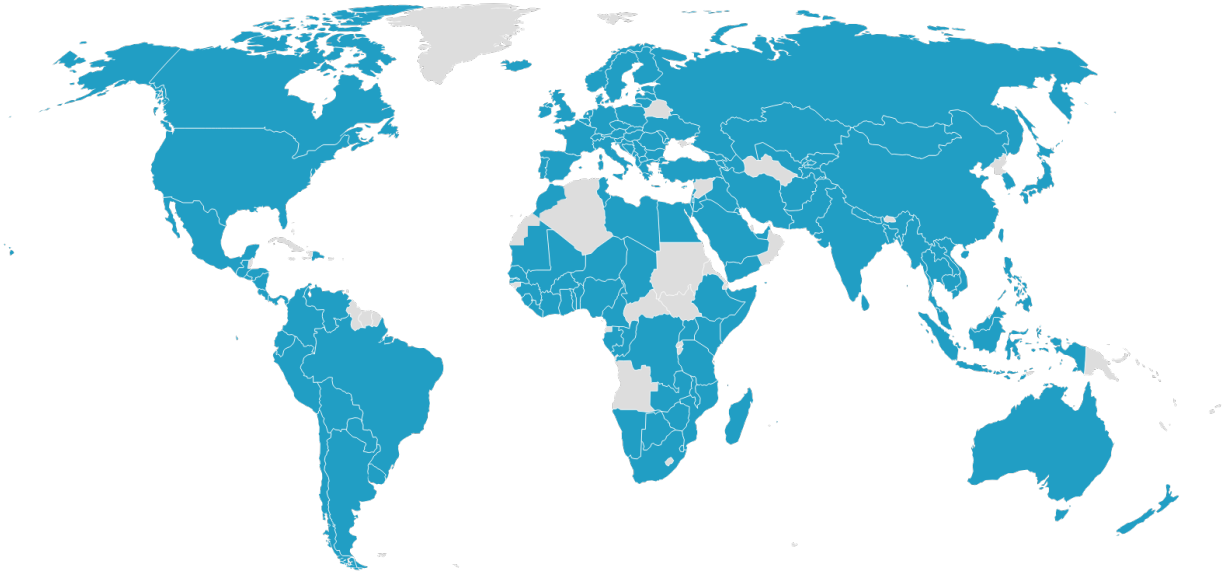
Each sub-index score is calculated for each factor by taking the simple average of its corresponding recoded items. The Hologic Global Women's Health Index score is calculated by taking a weighted sum of the five sub-index scores, with weights proportional to each factor's eigenvalue (amount of variance of variables that a factor explains). The weights are shown in Figure 1.

FIGURE 1

Index Weights Based on Eigenvalues
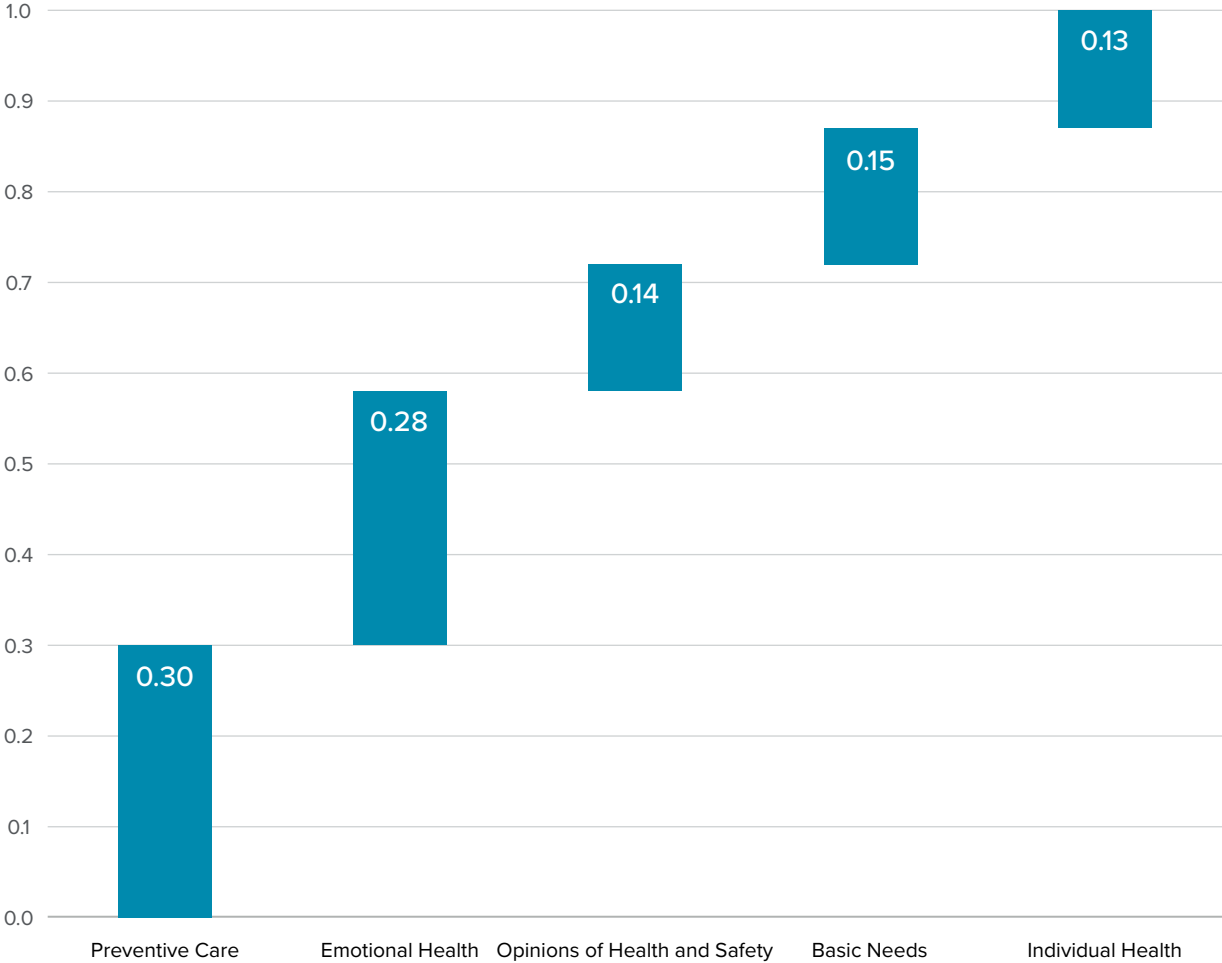
6   Data normalization

Variables were recoded for inclusion in the Hologic Global Women's Health Index as follows:

For a list of variable codes, please see Section 9: Survey module.

- TEST_FOR_HBP: Set to 1 if H4A. = 1, 0 if H4A. = 2 OR H3. = 2, NA for any other value.
- TEST_FOR_CANCER: Set to 1 if H4B. = 1, 0 if H4B. = 2 OR H3. = 2, NA for any other value.
- TEST_FOR_DIABETES: Set to 1 if H4C. = 1, 0 if H4C. = 2 OR H3. = 2, NA for any other value.
- TEST_FOR_STD: Set to 1 if H4D. = 1, 0 if H4D. = 2 OR H3. = 2, NA for any other value.

- WORRY_REVERSE: Set to 1 if WP69 = 2, 0 if WP69 = 1, NA for any other value.
- SADNESS_REVERSE: Set to 1 if WP70 = 2, 0 if WP70 = 1, NA for any other value.
- STRESS_REVERSE: Set to 1 if WP71 = 2, 0 if WP71 = 1, NA for any other value.
- ANGER_REVERSE: Set to 1 if WP74 = 2, 0 if WP74 = 1, NA for any other value.

- PREGNANT_HEALTHCARE: Set to 1 if H2. = 1, 0 if H2. = 2, NA for any other value.
- QUALITY_HEALTHCARE: Set to 1 if WP97 = 1, 0 if WP97 = 2, NA for any other value.
- SAFE_NIGHT_WALKING: Set to 1 if WP113 = 1, 0 if WP113 = 2, NA for any other value.

- NO_FOOD_REVERSE: Set to 1 if WP40 = 2, 0 if WP40 = 1, NA for any other value.
- NO_SHELTER_REVERSE: Set to 1 if WP43 = 2, 0 if WP43 = 1, NA for any other value.

- HEALTH_PROBLEM_REVERSE: Set to 1 if WP23 = 2, 0 if WP23 = 1, NA for any other value.
- PHYSICAL_PAIN_REVERSE: Set to 1 if WP68 = 2, 0 if WP68 = 1, NA for any other value.

- DOMESTIC_VIOLENCE: Set to 1 if H7. = 1, 0 if H7. = 2, NA for any other value.

7 Multivariate analysis

To understand the interactions of the individual dimensions and their relationship to health outcomes, the Gallup and Hologic research team ran correlations among the variables and regression analysis using life expectancy as the dependent variable.

Correlations reveal low collinearity between the individual dimensions. In addition, all the dimensions and GDP 2019 are relatively highly correlated with the life expectancy of women.

The regression analysis reveals that the five factors of the Hologic Global Women's Health Index explain approximately 70% of the female life expectancy at birth at the country level. Note: Gallup identified an error in the regression analysis in Year 1 and Year 2. Previously, Gallup found that these factors accounted for more than 80% of the variance in why some women live longer than others. After further testing and rigorous analysis, Gallup still found extremely strong relationships in all four years of data collection, including the present study.

FIGURE 2

Correlation Table
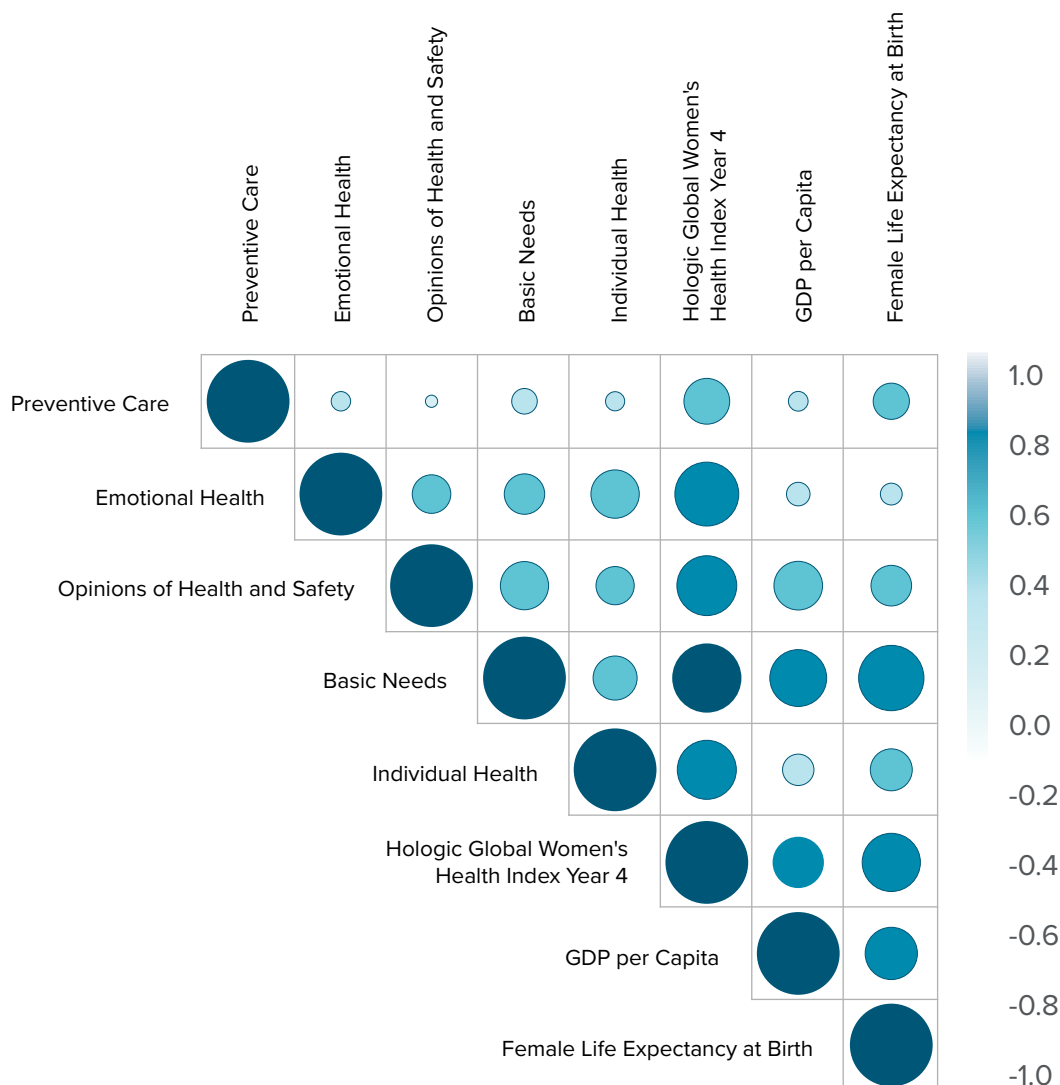
Regression analysis

Call: lm(formula = LifeExpect ~ Preventive_2023 + Emotional_2023 + Opinions_2023 + Basic_2023 + Individual_2023, data = dat.m1, weights = dat.m1$weight)

Dependent variable: Female life expectancy at birth

Regression Output for Female Life Expectancy at Birth

Variable	Std. Error	Coefficient
Preventive Care	(3.636)	18.034***
Emotional Health	(4.946)	-13.491***
Opinions of Health and Safety	(2.547)	5.656**
Basic Needs	(2.097)	26.612***
Individual Health	(3.778)	7.488**
Constant	(2.555)	55.513***

Observations = 133
R^2 = 0.7548   Adjusted R^2 = 0.745
Residual Std. Error = 13540 (df = 127) F Statistic = 78.19*** (df = 5; 127)

Note: *p<0.1; **p<0.05; ***p<0.01

8   Relationship with other measures

Adding to the relationships that the Hologic Global Women's Health Index has with a woman's life expectancy at birth, as well as a country's GDP per capita, researchers tested the following Sustainable Development Goals (SDGs):

- **SDG 1.1**
  - population pushed below a relative poverty line by household health expenditures (60% of median daily per capita consumption or income) (%)

- **SDG 2.2.3**
  - prevalence of anemia in pregnant women (aged 15 to 49) (%)

- **SDG 3.1.1**
  - maternal mortality ratio (MMR) (per 100,000 live births)

- **SDG 3.1.2**
  - births attended by skilled health personnel (%)

- **SDG 3.8.1**
  - universal health service coverage (UHC)

- **SDG 5.2.1**
  - proportion of ever-partnered women and girls aged 15 to 49 years subjected to physical and/or sexual violence by a current or former intimate partner in the previous 12 months

- **10.4.1**
  - labor share of GDP

FIGURE 3

Pearson Correlation Coefficients

- ■ Dark Magenta = Strong Negative Relationship (-.7 to -1)
- ■ Light Magenta = Negative Relationship (-.3 to -.7)
- ■ Light Teal = Positive Relationship (.3 to .7)
- ■ Dark Teal = Strong Positive Relationship (.7 to 1)

	Predicted Relationship With Women's Health	HGWHI Year 4	Preventive Care	Emotional Health	Opinions of Health and Safety	Basic Needs	Individual Health	Healthcare Professional (12 month)	Domestic Violence	Access to High-Quality Pregnancy Healthcare
Female Life Expectancy at Birth	+ (High = Good)	0.70	0.44	0.26	0.49	0.79	0.51	0.69	0.15	0.36
SDG 1.1 (poverty from health)	− (High = Bad)	-0.23	-0.20	-0.25	-0.22	-0.05	-0.14	-0.18	0.06	-0.29
SDG 2.2.3 (anemia in pregnancy)	−	-0.66	-0.52	-0.26	-0.38	-0.69	-0.48	-0.68	-0.26	-0.29
SDG 3.1.1 (MMR)	−	-0.60	-0.45	-0.28	-0.40	-0.57	-0.41	-0.55	-0.17	-0.27
SDG 3.1.2 (skilled health at birth)	+	0.53	0.44	0.26	0.29	0.54	0.32	0.52	0.22	0.19
SDG 3.8.1 (UHC)	+	0.76	0.57	0.33	0.48	0.78	0.55	0.76	0.19	0.38
SDG 5.2.1 (domestic violence past 12 months)	−	-0.65	-0.28	-0.38	-0.52	-0.68	-0.42	-0.53	-0.07	-0.33
SDG 10.4.1 (labor share of GDP)	+	0.47	0.17	0.18	0.31	0.56	0.29	0.43	0.14	0.29

9 Survey module

H1 *Do you think going to a healthcare professional, such as a medical doctor or a nurse, at least once every 12 months for a checkup, can help people improve their health, or not?*

Yes	No	(DK)	(Refused)
1	2	8	9

H2 *Do you think most pregnant women in the city or area where you live receive high-quality healthcare during their pregnancies, or not?*

Yes	No	(DK)	(Refused)
1	2	8	9

H3 *In the past 12 months, have you talked to a healthcare professional, such as a medical doctor or nurse, about your own health?*

Yes	No	(DK)	(Refused)
1	2	8	9

(If code 1 in H3., Continue;
Otherwise, Skip to H5.)

H4 *To the best of your knowledge, were you tested for any of the following in the past 12 months? (Read items)*

	Yes	No	(DK)	(Refused)
H4A. High blood pressure	1	2	8	9
H4B. Cancer	1	2	8	9
H4C. Diabetes	1	2	8	9
H4D. Sexually transmitted diseases or infections	1	2	8	9

(If code 1 in H4D, Continue;
Otherwise, Skip to H5.)

H4E *Were you tested for HIV/AIDs?*

	Yes	No	(DK)	(Refused)
	1	2	8	9

H5 *How many children do you, personally, have? (Interviewer: Respondent should include all children even if they are now adults or have died.)*

	Circle One Response
Write in:	_____
None	00
97+	97
(DK)	98
(Refused)	99

(If [respondent is a woman and has children], Continue; Otherwise, Skip to Read before H7.)

H6 *How old were you the first time you were pregnant? (Open-ended and code actual age)*

	Circle One Response
Write in:	_____
96+	96
(Never pregnant/has only adopted children or stepchildren)	97
(DK)	98
(Refused)	99

Now I would like to ask you a question regarding domestic violence. Domestic violence can be physical, psychological, or involve sexual acts done to someone against their will by a person they live with.

H7 *In your opinion, is domestic violence a widespread problem in [Country], or not?*

Yes	No	(DK)	(Refused)
1	2	8	9

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Hologic Global Women's Health Index: Methodology and Data Analysis

Introduction

The Hologic Global Women's Health Index is the world's most comprehensive, globally comparative survey about women's health. This appendix provides key methodological details related to the Year 1 through Year 4 surveys and further information about the data analysis presented in this report.

Report	Data Collection Year
Year 1	2020
Year 2	2021
Year 3	2022
Year 4	2023

Methodology

The Hologic Global Women's Health Index was included as a module within the Gallup World Poll beginning in 2020.

Since 2005, the World Poll has regularly surveyed people in more than 160 countries using mixed methods of telephone and face-to-face interviewing. In a typical year, the poll results represent more than 95% of the world's population aged 15 and older, using randomly selected, nationally representative samples.

Data collection in 2020

2020 was far from a typical year. The unprecedented challenges presented by the COVID-19 pandemic forced Gallup to pause its global data collection in March 2020 to thoroughly assess risk and prepare contingency plans for collecting data. By May, the continued prevalence of COVID-19 made it clear there was too much risk of community transmission to conduct face-to-face data collection in 2020.

Nonetheless, Gallup recognized the importance of finding a way to collect representative, high-quality data during this critical period and prepared a contingency methodology. This new methodological approach was driven by several key considerations, including the safety of Gallup World Poll interviewers and respondents and retaining high levels of representativity.

Ultimately, the Year 1 Hologic Global Women's Health Index survey was conducted primarily by phone (via computer-assisted telephone interviewing, or CATI) in nearly all of the 116 countries and territories — representing more than 93% of the global aged 15 and older population — with the exception of The Republic of the Congo, Mali, Pakistan and Senegal. As a standard practice, Gallup and its partners complied with all government-issued guidance from local authorities and took this guidance into account throughout the interviewing process, including following social distancing measures for telephone interviews conducted in a call center (however, most CATI data collection was done remotely).

Changing modes in 2021

The Gallup World Poll returned to face-to-face interviewing in many countries in 2021 (see dataset details). The change in mode is reflected in the design effect — thus, larger percentage differences are required for significant change.

Data collection in 2022

The Gallup World Poll returned to face-to-face interviewing in most countries where respondents had been interviewed this way prior to 2020 (see dataset details). The exceptions were a handful of Eastern European countries, where respondents continued to be interviewed by telephone.

Because the Hologic Global Women's Health Index was not fielded in China in 2022, the Year 3 report used the most recent data from 2021. The data for China were weighted to 2022 population estimates.

Data collection in 2023

The Gallup World Poll returned to face-to-face interviewing in most countries where respondents had been interviewed this way prior to 2020. The exceptions were a handful of Eastern European countries, where respondents continued to be interviewed by telephone.

With the exception of China and a subset of 26 countries, the 2023 results are based on telephone or face-to-face surveys of approximately 1,000 or more respondents.

2023 data for China were collected using a web self-administered mode (computer-aided web interviewing, or CAWI). Gallup adopted a hybrid approach to data collection in 26 countries that are typically surveyed by telephone. The countries Gallup identified for this hybrid approach all have high levels of access to the internet among the adult population.

Gallup used high-quality third-party panels that are commercially available as the sample source for the portion of World Poll data collected via web in 2023. Many of these panels are put together using opt-in methods, although where there was access to high-quality probability-based panels, we incorporated it into our design.

To ensure adequate representation of the adult (aged 15 and older) population among panel members, Gallup set interview quotas on age, gender, region and education. There is no such quota requirement for the telephone random-digit-dial part because it is expected to fall out naturally according to population proportions.

From a questionnaire design perspective, the web survey instrument closely matched the telephone survey instrument, with the item format adapted slightly for self-administered mode and to capture high-quality data via web. Gallup implemented best practices on web-survey design to minimize item nonresponse, illogical responses and incomplete responses.

Questionnaire Translation

The questionnaire was translated into the major conversational languages of each country and area (autonomous or semi-autonomous regions or territories that are not recognized as sovereign states). The Hologic Global Women's Health Index was originally developed in English. From this starting point, Gallup translators produced several major-language questionnaires in French, Spanish, Portuguese, Russian and Arabic (using one of the two translation methods described below, as deemed appropriate by the Gallup World Poll Regional Directors).

Then, local language translations were performed from the major-language versions. For example, the Russian major-language questionnaire was created first (translation from English to Russian), then translated from Russian into other languages, such as Ukrainian, Kyrgyz and Uzbek. As a key component of quality assurance, one of the following two methods was used in each country as an independent check of every questionnaire translation:

Method 1: Two independent translations are completed. An independent third party with some knowledge of survey research methods adjudicates the differences. A professional translator translates the final version back into the source language.

Method 2: A translator translates into the target language, and an independent translator back-translates into the source language. An independent third party with knowledge of survey methods reviews and revises the translation as necessary.

Professional translators — experienced in translating survey questionnaires and who have typically worked for years with Gallup's local data collection network (local translators) — were selected. All translators received the same set of notes and guidance regarding the meaning of specific items. Interviewers were instructed to follow the interview script and not to deviate from the translated language.

Interviewer Training and Quality Control

As a standard practice, Gallup and its data collection partners were mindful of complying with all government-issued guidance from local authorities and took this guidance into account throughout the interviewing process, including following social distancing measures for telephone interviews. Gallup selects and retains in-country partners based on their experience in nationwide survey research studies in the mode that is typically appropriate for that country, and Gallup continued to use data collection partners when fielding the Hologic Global Women's Health Index.

Gallup conducted all training remotely using available technologies such as e-learning and video conferencing. The changes were largely necessary to address the lack of telephone data collection experience, technical and infrastructural limitations, and compressed timelines.

Gallup provided a standardized training manual to assist the fieldwork team with training and ensure consistency and structure.

Topics covered in training included:

1   Standards for conducting a quality interview

- how to ask closed-ended questions
- how to ask open-ended questions
- rotation of survey questions or response options
- how to follow or implement skip patterns
- probing

2   Respondent selection and disposition coding (i.e., recording the results of each contact)

- within-household selection for those reached on landline and mobile in countries where telephone coverage is low
- coding practices for each telephone attempt
- sample release and management

3   Recruitment and retention of interviewers and field quality control

- characteristics of a successful interviewer/motivation for retention
- requirements for setting up remote data collection
- monitoring sample performance and interviewer productivity

Sampling and Data Collection Methodology

All samples were probability-based — meaning respondents were selected randomly — and nationally representative of the aged 15 and older population. As all eligible landline exchanges and valid mobile service providers were included, coverage area is an entire country, including rural areas. The sampling frame represents adults aged 15 and older with access to a phone (either landline or mobile). Gallup used random digit dialing (RDD) or a nationally representative list of phone numbers.

How the sample generation and selection process works

Gallup uses telephone surveys in countries where telephone coverage represents at least 80% of the population or is the customary survey methodology. In countries where telephone interviewing is employed, Gallup uses RDD or a nationally representative list of phone numbers. Telephone methodology is typical in such areas as the U.S., Canada, Western Europe, Japan and Australia. Gallup purchases telephone samples from various sample providers located in each region, including Sample Answers and Sample Solutions.

In the developing world, including much of Latin America, the former Soviet Union countries, nearly all of Asia, the Middle East and Africa, Gallup uses an area frame design for face-to-face interviewing in randomly selected households.

Face-to-face interviews are approximately one hour, while telephone interviews are about 30 minutes.

With some exceptions, all samples are probability based and nationally representative of the resident population aged 15 and older. The coverage area is the entire country including rural areas, and the sampling frame represents the entire civilian, noninstitutionalized adult population of the country. Exceptions include areas where the safety of the interviewing staff is threatened and scarcely populated islands in some countries. Sampling procedures include the following stages:

- 1) **Selecting primary sampling units (PSUs)**: In countries where Gallup conducts face-to-face surveys, the first stage of sampling is the identification of PSUs, consisting of clusters of households. PSUs are stratified by population size and/or geography and clustering is achieved through one or more stages of sampling. Where population information is available, sample selection is based on probabilities proportional to population size; otherwise, Gallup uses simple random sampling. In countries where telephone interviewing is employed, Gallup uses RDD or a nationally representative list of phone numbers. In select countries where cellphone penetration is high, Gallup uses a dual sampling frame. Gallup makes at least three attempts to reach a person in each household.

- 2) **Selecting households**: Gallup uses random-route procedures to select sampled households. Unless an outright refusal occurs, interviewers make up to three attempts to survey the sampled household. To increase the probability of contact and completion, interviewers make attempts at different times of the day and, when possible, on different days. If the interviewer cannot obtain an interview at the initial sampled household, they use a simple substitution method.

- 3) **Selecting respondents**: In face-to-face and telephone methodologies, random respondent selection is achieved by using either the latest birthday or the Kish grid method. In a few Middle Eastern and Asian countries, gender-matched interviewing is required, and probability sampling with quotas is implemented during the final stage of selection. Gallup implements quality control procedures to validate the selection of correct samples and that the interviewer selects the correct person in each household.

Response Rates

As is the case with Gallup World Poll surveys more generally, response rates for the Hologic Global Women's Health Index vary considerably across countries. In general, response rates are lower in countries where interviewing is conducted by telephone than in countries where interviewing is conducted in person. However, in many countries and territories where telephone interviewing is used, response rates are comparable to those of other polling firms. The Gallup World Poll does not publish individual country response rates.

Data Weighting

Data weighting is used to minimize bias in survey estimates and is intended for use in generating nationally representative estimates within a country. The weighting procedure was formulated based on the sample design and performed in multiple stages. Gallup constructed a probability weight factor (base weight) to account for selection of telephone numbers from the respective frames and correct for unequal selection probabilities that result from selecting one adult in landline households and for dual users coming from both the landline and mobile frame. For instance, an individual in a five-person household will have a lower probability selection than someone who lives alone, holding everything else equal. The data weighting process seeks to address this type of imbalance.

Next, the base weights were post-stratified to adjust for nonresponse (where selected respondents are never reached or refuse to participate) and to match the weighted sample totals to known target population totals obtained from country-level census data. Gallup made calibration adjustments for gender, age and, where reliable data were available, education. In many nontraditional telephone countries, weights were also adjusted on an additional set of demographic factors, including employment status (whether employed for an employer/self or not employed), urbanicity, region or some combination of these factors. In general, countries with lower coverage of the target population required a larger set of weighting variables than countries with a minimum amount of coverage error.

Where necessary, Gallup implemented procedures to limit or reduce the number and size of extreme sampling weights. This process was done in both stages of the data weighting process. In any given country, the unweighted demographic profile (including but not limited to characteristics such as gender, age group, educational attainment level, employment status and region) was compared against reliable statistics (typically census data from the national government); Gallup also compared the final weighted sample to these statistics.

Finally, approximate study design effect and margin of error were calculated (calculations are presented in Table 1). The design effect calculation reflects the influence of weighting on sampling variance compared to a simple random sample of the same size.

Sampling Error and Precision of Estimates

When interpreting survey results, all sample surveys are subject to various types of potential errors. For example, errors may occur due to nonresponse (where selected respondents are never reached or refuse to participate), interviewer administration error (where a response can be mistyped or misinterpreted by the interviewer), or incomplete or inaccurate answers from the respondent.

The sampling design employed in this study was used to produce unbiased estimates of the stated target population. An unbiased sample will have the same characteristics and behaviors as those of the total population from which it was drawn. In other words, with a properly drawn sample, we can make statements about the target population within a specific range of certainty. Sampling errors can be estimated, and their measures can help interpret the final data results. The size of such sampling errors depends largely on the number of interviews and the complexity of the sampling design.

The margin of error (MOE), or the level of precision used in estimating the unknown population proportion 'P,' can be derived based on the following formula:

$$MOE = 1.96 * \sqrt{P*(1-P)/n}$$

where 'n' is the sample size (i.e., the number of completed surveys). Under the most conservative assumption (P = 0.5), the MOE for a sample size of 1,000 will be $1.96 * \sqrt{0.25/1000}$ = 3.1 percentage points under the assumption of simple random sampling.

Table 1 shows the size of the MOE associated with the 95% confidence interval for various sample sizes under the assumption of simple random sampling. They may be interpreted as indicating the approximate range (plus or minus the figure shown) around the point estimate within which the results of repeated sampling in the same time period could be expected to fall 95% of the time, assuming the same sampling procedures, interviewing process and questionnaire.

For any given sample size, the estimated precision is lowest when P = 0.5 (or 50%). For example, the sample size needed to ensure a sampling error (or half-width of confidence interval) of 0.05 at 95% confidence level is around 400 cases when P = 0.5 (or 50%). A sample size of 300 will produce a sampling error close to 0.057 at 95% level of significance when P = 0.5 (or 50%). With P = 0.4 (or 40%), a sample size of 300 will produce a sampling error of 0.056.

Table 1 shows estimated precision levels for different values of P and sample sizes under the assumption of simple random sampling.

TABLE 1

Margin of Error Associated With 95% Confidence Interval for Percentages for Entire Sample or Subgroups, in Percentage Points

Sample Sizes Near	For Percentages Near					
	5/95% ±	10/90% ±	20/80% ±	30/70% ±	40/60% ±	50/50% ±
400	2.1	2.9	3.9	4.5	4.8	4.9
500	1.9	2.6	3.5	4.0	4.3	4.4
600	1.7	2.4	3.2	3.7	3.9	4.0
800	1.5	2.1	2.8	3.2	3.4	3.5
1,000	1.4	1.9	2.5	2.8	3.0	3.1
1,500	1.1	1.5	2.0	2.3	2.5	2.5
2,000	.96	1.3	1.8	2.0	2.1	2.2
2,500	.85	1.2	1.6	1.8	2.0	2.0
3,000	.78	1.1	1.4	1.6	1.8	1.8
4,000	.68	.93	1.2	1.4	1.5	1.5
5,000	.60	.88	1.2	1.3	1.3	1.4

While the above table reflects precision assuming simple random sampling (i.e., respondents within a target population have an equal probability of being selected for the survey), World Poll surveys rely on more complex designs, even for telephone samples (which was the sole mode of data collection in 2020). In addition to design complexities, data are weighted to correct for unequal probabilities of household selection and post-stratification adjustments. This weighting process introduces a design effect that needs to be considered while computing the sampling error (or precision) of the estimates.

The design effect is defined as the ratio of the complex, design-based sample variance to the sample variance obtained from a simple random sample of the same size. To calculate the precision of an estimate using the complex sampling design with a design effect, one must multiply the precision under the assumption of simple random sampling by the square root of the design effect associated with this estimate.

In other words, the precision of an estimate (p) of an unknown population proportion 'P' may be approximated as:

$$\text{Precision (p)} = \{\text{SQRT (Deff)}\} \times \text{SE(p)}$$

where 'Deff' is the design effect associated with the estimate (p)

$$\text{SE(p)} = \text{SQRT}\{p*(1-p)/(n-1)\}$$

n = the unweighted sample size

For purposes of simplicity, an estimate of 'Deff_wt' is provided for each country, taking into consideration only the variability of weights. A design effect of 1 means the effective sample size is the same as the nominal sample size, which is 1,000 for most countries in the World Poll. For proportions close to 50%, a design effect of 2 reduces the effective sample size by 50% or increases margin of error by 41% compared to a simple random sample size of 1,000.

Meaningful change

Researchers developed a standardized definition of meaningful change in a country's score from one year to the next — a threshold of +/- 5 points. This definition allows researchers to establish best practice when comparing country scores from year to year, while considering a country's sample size and margin of error estimates (defined in Table 1).

A 5-point change is the smallest standard number where researchers can be certain that change cannot be explained by sampling random fluctuations or by measurement error, no matter the percentage or the country's particular design effect. This number is defined as a meaningful change because, while complex survey sampling methods to test for significant change were not individually applied (Cohen, 1988), this is the upper limit of change where researchers can be certain there is a statistically significant difference between the two groups.

Researchers seek to avoid confusion by setting this threshold, so in all instances, a change of +/- 5 or more points is highlighted throughout the report.

Hologic Global Women's Health Index Country Dataset Details

Data Analysis Methodology

The analysis in this report sought to answer the critical research questions that motivated this study. In some instances, this entailed reporting on the topline results for each country and area in the study; however, more complex data analysis techniques often were required to better understand why and how attitudes toward science and health differed across the world or parts of the world, or within a certain population. This section explores the analytical tools and techniques employed in this analysis.

Country groupings

The Index was fielded in 116 countries and territories in Year 1, 122 countries and territories in Year 2, 143 countries and territories in Year 3 and 142 countries and territories in Year 4. The survey findings are often reported in various cross-national groupings to help illustrate the global variation of results without overburdening the reader by presenting data points from more than 140 different countries and territories. This report analyzes results for the G20, which includes 19 countries that are members of the bloc individually, as well as the countries that make up the European Union and African Union.

The major types of country groupings used in this report are by country-income breakdowns described in following sections.

Presentation of cross-country results

All results presented at a combined-country level — such as by region, country-income level or at the overall (i.e., 'global') level — were weighted by the aged 15 and older population size of the countries included in the analysis. This process gives more populated countries more weight than less populated countries.

For example, in Year 1, China had the largest population of the 116 countries included in the Hologic Global Women's Health Index. China's aged 15 and older population represented about 22% of the total 15 and older population across the countries and areas surveyed, according to the national census figures Gallup used in its sampling and weighting processes. Thus, when presenting global estimates in the report, respondents from China were given a greater weight — corresponding to their share of the population — in determining the final calculation.

Because data for the Hologic Global Women's Health Index were not collected in China in 2022, data collected in 2021 were used in Year 3 report calculations. The 2021 data were weighted to the 2022 population estimates for China.

TABLE 2

Gallup Worldwide Research Methodology

Country Data Set Details

Gallup Worldwide Research Data Collected From 2023

[a] The design effect calculation reflects the weights and does not incorporate the intraclass correlation coefficients. Design effect calculation:
n*(sum of squared weights)/[(sum of weights)*(sum of weights)]

[b] Margin of error is calculated around a proportion at the 95% confidence level. The maximum margin of error was calculated assuming a reported percentage of 50% and takes into account the design effect. Margin of error calculation:
√(0.25/N)*1.96*√(DE)

[c] Areas with disproportionately high number of interviews in the sample.

[d] Reasons for these differences could include household sampling, respondent sampling in the household, errors in self-reports of actual attainment or dated population information.

*Handheld data collection.

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Afghanistan	18.1	Jul 1 – Jul 19, 2023	1,000	1.26	3.5	Face-to-Face (HH)*	Dari, Pashto		
2023	Albania	18.1	Jul 28 – Nov 13, 2023	1,000	2.03	4.4	Face-to-Face (HH)*	Albanian		People living in remote or difficult-to-access rural areas were excluded. The excluded areas represent approximately 2% of the population.
2023	Argentina	18.1	Aug 5 – Oct 12, 2023	1,007	1.42	3.7	Face-to-Face (HH)*	Spanish		Those living in dispersed rural population areas were excluded. This represents about 4% of the population.
2023	Armenia	18.1	Jul 7 – Aug 21, 2023	1,000	1.69	4.0	Face-to-Face (HH)*	Armenian		Settlements near territories disputed with Azerbaijan were not included for insecurity reasons. The excluded area represents approximately 3% of the population.
2023	Australia	18.1	Phone: Apr 15 – Jun 4, 2023 Web: Jun 9 – Jul 8, 2023	Phone: 802 Web: 200 Total: 1,002	Phone: 1.53 Total: 1.56	Phone: 4.3 Total: 3.9	Landline and Mobile Telephone/ Web	English		

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Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Austria	18.1	Phone: Apr 24 – May 19, 2023 Web: Jun 9 – Jul 9, 2023	Phone: 800 Web: 200 Total: 1,000	Phone: 1.69 Total: 1.84	Phone: 4.5 Total: 4.2	Landline and Mobile Telephone/ Web	German		
2023	Azerbaijan	18.1	Aug 7 – Oct 12, 2023	1,000	1.28	3.5	Face-to-Face (HH)*	Azeri, Russian		Nakhichevan and East Zangezur territories not included. These areas represent approximately 8% of the total population. (Nagorno-Karabakh not included in sampling frame and not counted in exclusion percent.)
2023	Bahrain	18.1	Jul 20 – Aug 20, 2023	1,009	1.34	3.6	Mobile Telephone	Arabic, English, Hindi		Includes only Bahrainis, Arab expatriates and non-Arabs who were able to complete the interview in Arabic, English or Hindi.
2023	Bangladesh	18.1	Aug 5 – Sep 18, 2023	1,000	1.23	3.4	Face-to-Face (HH)*	Bengali		
2023	Belgium	18.1	Phone: Apr 5 – May 26, 2023 Web: Jun 9 – Jul 7, 2023	Phone: 800 Web: 200 Total: 1,000	Phone: 1.34 Total: 1.38	Phone: 4.0 Total: 3.6	Landline and Mobile Telephone/ Web	French, Dutch		
2023	Benin	18.1	Aug 19 – Sep 3, 2023	1,000	1.77	4.1	Face-to-Face (HH)*	Bariba, Fon, French		
2023	Bolivia	18.1	Aug 5 – Oct 12, 2023	1,000	1.45	3.7	Face-to-Face (HH)*	Spanish		Some distant, small locations were excluded due to accessibility and/or security issues. The exclusions represent approximately 7% of the population.
2023	Bosnia and Herzegovina	18.1	May 11 – Jul 4, 2023	1,000	1.44	3.7	Face-to-Face (HH)*	Bosnian		
2023	Botswana	18.1	Sep 4 – Sept 30, 2023	1,005	1.61	3.9	Face-to-Face (HH)*	English, Setswana		Sampling units of population size less than 50 are excluded from the sampling frame. This exclusion is approximately 4% of the population of Botswana.
2023	Brazil	18.1	Sep 11 – Nov 5, 2023	1,000	1.29	3.5	Face-to-Face (HH)*	Portuguese		

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Bulgaria	18.1	Jul 21 – Oct 8, 2023	1,000	1.70	4.0	Face-to-Face (HH)*	Bulgarian		
2023	Burkina Faso	18.1	Oct 1 – Oct 29, 2023	1,000	1.69	4.0	Face-to-Face (HH)*	Dioula, French, Fulfulde, Moore		Some communities across regions were excluded due to security reasons. The areas excluded represent approximately 18% of the population.
2023	Cambodia	18.1	Sep 20 – Oct 24, 2023	1,000	1.67	4.0	Face-to-Face (HH)*	Khmer		Koh Kong, Stueng Treng, Otdor Meanchey and Kep provinces were excluded. These excluded areas represent approximately 3% of the population of Cambodia.
2023	Cameroon	18.1	Jun 3 – Jun 27, 2023	1,000	1.41	3.7	Face-to-Face (HH)*	French, English, Fulfulde		Some arrondissements in the East, North, Extreme North, Northwest and Southwest regions were excluded due to insecurity. Neighborhoods with less than 50 households were also excluded from the sampling. The exclusion represents 21% of the total population.
2023	Canada	18.1	Phone: Apr 12 – Jun 7, 2023 Web: Jun 9 – Jul 7, 2023	Phone: 804 Web: 200 Total: 1,004	Phone: 1.40 Total: 1.39	Phone: 4.1 Total: 3.6	Landline and Mobile Telephone/ Web	English, French		Northwest Territories, Yukon and Nunavut (representing approximately 0.3% of the Canadian population) were excluded.

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Chad	18.1	Oct 4 – Nov 2, 2023	1,000	1.62	3.9	Face-to-Face (HH)*	French, Chadian Arabic, Ngambaye		Because of security issues and difficult terrain, seven regions are excluded from the sampling: Lac, Ouaddaï, Wadi Fira, Bourkou, Ennedi, Tibesti, Salamat. In addition, the North Kanem and Bahr El Gazal North districts were excluded due to accessibility issues. Quartiers/villages with less than 50 inhabitants are also excluded from sampling. The excluded areas represent 23% of the population.
2023	Chile	18.1	Aug 12 – Dec 20, 2023	1,000	1.65	4.0	Face-to-Face (HH)*	Spanish		
2023	China	18.1	Nov 15 – Dec 23, 2023	2,221	1.99	2.9	Web	Chinese		
2023	Colombia	18.1	Sep 9 – Nov 14, 2023	1,003	1.34	3.6	Face-to-Face (HH)*	Spanish		Ten departments and an additional 19 municipalities were excluded since they are located in areas of low population or with extreme insecurity issues. The excluded areas represent approximately 5% of the population.
2023	Comoros, The	18.1	Sep 18 – Nov 23, 2023	1,001	1.81	4.2	Face-to-Face (HH)*	French, Comorian		
2023	Congo, The Republic of the	18.1	Jun 29 – Aug 19, 2023	1,000	1.77	4.1	Face-to-Face (HH)*	French, Kituba, Lingala		
2023	Congo, The Democratic Republic of the	18.1	Aug 3 – Sep 24, 2023	1,000	2.17	4.6	Face-to-Face (HH)*	French, Lingala, Swahili		Parts of Bandundu, Bas Congo, Equateur, Kasai Occidental, Maniema, Province Orientale, Nord Kivu, Sud Kivu and Katanga were excluded due to insecurity. Geographic exclusions represent 19% of the population.
2023	Costa Rica	18.1	Sep 27 – Dec 30, 2023	1,000	1.49	3.8	Face-to-Face (HH)*	Spanish		

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Côte d'Ivoire	18.1	Jul 8 – Jul 29, 2023	1,000	2.05	4.4	Face-to-Face (HH)*	French, Dioula		PSUs with populations below 100 were excluded prior to sampling, corresponding to 9.2% of the population.
2023	Croatia	18.1	Sep 14 – Nov 14, 2023	1,004	1.94	4.3	Face-to-Face (HH)*	Croatian		
2023	Cyprus	18.1	Mar 30 – Jun 9, 2023	1,022	2.39	4.7	Landline and Mobile Telephone	Greek, English		
2023	Czech Republic	18.1	Phone: May 12 – Jul 19, 2023 Web: Jul 13 – Jul 28, 2023	Phone: 803 Web: 200 Total: 1,003	Phone: 1.22 Total: 1.27	Phone: 3.8 Total: 3.5	Landline and Mobile Telephone/ Web	Czech		
2023	Denmark	18.1	Phone: Jun 27 – Aug 3, 2023 Web: Jul 28 – Aug 3, 2023	Phone: 800 Web: 208 Total: 1,008	Phone: 1.77 Total: 1.66	Phone: 4.6 Total: 4.0	Mobile Telephone/ Web	Danish		
2023	Dominican Republic, The	18.1	Jul 19 – Aug 9, 2023	1,000	1.50	3.8	Face-to-Face (HH)*	Spanish		
2023	Ecuador	18.1	Jul 26 – Aug 31, 2023	1,000	1.64	4.0	Face-to-Face (HH)*	Spanish		
2023	Egypt	18.1	Sep 11 – Sep 26, 2023	1,001	1.37	3.6	Face-to-Face (HH)*	Arabic		Frontier governorates (Matruh, Red Sea, New Valley, North Sinai and South Sinai) were excluded, as they are remote and represent a small proportion of the population of the country. The excluded areas represent less than 2% of the total population.
2023	El Salvador	18.1	Oct 4 – Dec 22, 2023	1,000	1.86	4.2	Face-to-Face (HH)*	Spanish		
2023	Estonia	18.1	Jun 13 – Jul 27, 2023	1,006	1.53	3.8	Mobile Telephone	Estonian, Russian		
2023	Eswatini	18.1	Oct 13 – Dec 24, 2023	1,000	2.11	4.5	Face-to-Face (HH)*	Siswati, English		

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Ethiopia	18.1	Jun 26 – Aug 10, 2023	1,000	1.52	3.8	Face-to-Face (HH)*	Amharic, Oromo		Due to ongoing conflict and security issues, the Tigray, Gambella and Harari regions were excluded. The excluded areas represent approximately 7% of the total population.
2023	Finland	18.1	Phone: May 8 – Jul 6, 2023 Web: Jun 26 – Jul 8, 2023	Phone: 801 Web: 210 Total: 1,011	Phone: 1.50 Total: 1.47	Phone: 4.2 Total: 3.7	Mobile Telephone/ Web	Finnish		
2023	France	18.1	Phone: Apr 24 – May 27, 2023 Web: Jun 9 – Jun 30, 2023	Phone: 800 Web: 200 Total: 1,000	Phone: 1.52 Total: 1.47	Phone: 4.3 Total: 3.8	Landline and Mobile Telephone/ Web	French		
2023	Gabon	18.1	Oct 20 – Nov 20, 2023	1,000	1.65	4.0	Face-to-Face (HH)*	French, Fang		
2023	Gambia	18.1	Oct 16 – Nov 28, 2023	1,000	1.38	3.6	Face-to-Face (HH)*	English, Pulaar, Wolof, Malinke		
2023	Georgia	18.1	Jul 14 – Oct 28, 2023	1,000	1.51	3.8	Face-to-Face (HH)*	Georgian, Russian		South Ossetia and Abkhazia were not included for the safety of the interviewers. In addition, very remote mountainous villages or those with less than 100 inhabitants were also excluded. The excluded areas represent approximately 8% of the population.
2023	Germany	18.1	Phone: Apr 24 – May 27, 2023 Web: Jun 9 – Jul 12, 2023	Phone: 800 Web: 201 Total: 1,001	Phone: 2.37 Total: 2.16	Phone: 5.3 Total: 4.6	Landline and Mobile Telephone/ Web	German		
2023	Ghana	18.1	Jun 29 – Jul 21, 2023	1,000	1.75	4.1	Face-to-Face (HH)*	English, Ewe, Twi, Dagbani, Hausa		Localities with less than 100 inhabitants were excluded from the sample. The excluded areas represent approximately 4% of the population.

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Greece	18.1	Phone: Jun 27 – Jul 22, 2023 Web: Jun 9 – Jul 12, 2023	Phone: 803 Web: 203 Total: 1,006	Phone: 2.0 Total: 2.0	Phone: 4.9 Total: 4.4	Landline and Mobile Telephone/ Web	Greek		
2023	Guatemala	18.1	Aug 16 – Dec 22, 2023	1,000	1.95	4.3	Face-to-Face (HH)*	Spanish		
2023	Guinea	18.1	Sep 21 – Oct 10, 2023	1,000	1.76	4.1	Face-to-Face (HH)*	French, Malinke, Pular, Soussou		
2023	Honduras	18.1	Sep 4 – Dec 4, 2023	1,000	1.80	4.2	Face-to-Face (HH)*	Spanish		PSUs with populations below 50, and De La Bahía and Gracias a Dios, were excluded. The exclusion represents approximately 4% of the population.
2023	Hong Kong, S.A.R. of China	18.1	Phone: Aug 11 – Oct 9, 2023 Web: Aug 30 – Sep 25, 2023	Phone: 804 Web: 201 Total: 1,005	Phone: 1.43 Total: 1.49	Phone: 4.1 Total: 3.8	Landline and Mobile Telephone/ Web	Chinese		
2023	Hungary	18.1	Jun 5 – Jul 12, 2023	1,006	2.15	4.5	Landline and Mobile Telephone	Hungarian		
2023	Iceland	18.1	May 10 – Jun 23, 2023	507	1.36	5.1	Landline and Mobile Telephone	Icelandic		
2023	India	18.1	Sep 30 – Dec 27, 2023	3,009	1.41	2.1	Face-to-Face (HH)*	Assamese, Bengali, Gujarati, Hindi, Kannada, Malayalam, Marathi, Odia, Punjabi, Tamil, Telugu		Excluded population living in Northeast states and remote islands, and Jammu and Kashmir. The excluded areas represent less than 10% of the population.
2023	Indonesia	18.1	Aug 23 – Sep 20, 2023	1,000	1.29	3.5	Face-to-Face (HH)*	Bahasa Indonesia		
2023	Iran	18.1	Sep 20 – Sep 26, 2023	1,007	1.34	3.6	Landline and Mobile Telephone	Farsi		
2023	Iraq	18.1	Oct 3 – Nov 19, 2023	1,035	1.20	3.3	Face-to-Face and Face-to-Face (HH)*	Arabic, Kurdish		

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Ireland	18.1	Phone: Apr 24 – May 19, 2023 Web: Jun 9 – Jul 13, 2023	Phone: 800 Web: 202 Total: 1,002	Phone: 2.04 Total: 1.99	Phone: 5.0 Total: 4.4	Landline and Mobile Telephone/ Web	English		
2023	Israel	18.1	Oct 17 – Dec 2, 2023	1,001	1.14	3.3	Face-to-Face (HH)*	Hebrew, Arabic		The sample does not include the area of East Jerusalem. This area included in the sample of the State of Palestine. Unsafe or evacuated areas near the border with Gaza were excluded from the survey.
2023	Italy	18.1	Phone: Mar 16 – Apr 28, 2023 Web: Jun 9 – Jul 10, 2023	Phone: 800 Web: 200 Total: 1,000	Phone: 1.99 Total: 1.96	Phone: 4.9 Total: 4.3	Landline and Mobile Telephone/ Web	Italian		
2023	Japan	18.1	Phone: Jun 13 – Aug 11, 2023 Web: Jul 13 – Sep 14, 2023	Phone: 809 Web: 200 Total: 1,009	Phone: 1.35 Total: 1.39	Phone: 4.0 Total: 3.6	Landline and Mobile Telephone/ Web	Japanese		Landline RDD excluded 12 municipalities near the nuclear power plant in Fukushima. These areas were designated as not-to-call districts due to the devastation from the 2011 disasters. The exclusion represents less than 1% of the population.
2023	Jordan	18.1	Aug 19 – Sep 10, 2023	1,000	1.27	3.5	Face-to-Face (HH)*	Arabic		
2023	Kazakhstan	18.1	Aug 6 – Sep 17, 2023	1,000	1.50	3.8	Face-to-Face (HH)*	Russian, Kazakh		
2023	Kenya	18.1	Oct 16 – Nov 10, 2023	1,002	1.30	3.5	Face-to-Face (HH)*	English, Swahili/ Kishwahili		
2023	Kosovo	18.1	Jul 27 – Oct 13, 2023	1,001	1.64	4.0	Face-to-Face (HH)*	Albanian, Serbian		
2023	Kuwait	18.1	Aug 3 – Sep 3, 2023	1,071	1.33	3.5	Landline and Mobile Telephone	Arabic, Bengali, English, Hindi		Includes only Kuwaitis, Arab expatriates and non-Arabs who were able to complete the interview in Arabic, English, Bengali or Hindi.
2023	Kyrgyzstan	18.1	Aug 6 – Sep 19, 2023	1,000	1.27	3.5	Face-to-Face (HH)*	Kyrgyz, Russian		

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Lao People's Democratic Republic	18.1	Oct 2 – Oct 28, 2023	1,000	1.57	3.9	Face-to-Face (HH)*	Lao		Excluded Xaisomboun Province, Xayaboury Province and some communes that are unreachable and/or have security considerations. The excluded areas represent approximately 7% of the population.
2023	Latvia	18.1	May 17 – Jul 11, 2023	1,001	1.39	3.6	Mobile Telephone	Latvian, Russian		
2023	Lebanon	18.1	Jun 7 – Jul 11, 2023	1,000	1.22	3.4	Face-to-Face (HH)*	Arabic		Hermel, Baalbak and Bint Jbeil, under the strict control of Hezbollah, were excluded. The excluded areas represent approximately 10% of the population.
2023	Liberia	18.1	Aug 3 – Sep 12, 2023	1,000	1.40	3.7	Face-to-Face (HH)*	English, Pidgin English		
2023	Libya	18.1	Jul 16 – Sep 4, 2023	1,016	1.19	3.3	Mobile Telephone	Arabic		
2023	Lithuania	18.1	Jul 12 – Nov 10, 2023	1,000	1.40	3.7	Face-to-Face (HH)*	Lithuanian		Very small settlements (with less than 100 inhabitants) were excluded. The excluded areas represent approximately 9% of the total population.
2023	Luxembourg	18.1	Apr 24 – May 24, 2023	1,000	1.70	4.0	Landline and Mobile Telephone	French, German		
2023	Madagascar	18.1	Jun 24 – Aug 11, 2023	1,000	1.48	3.8	Face-to-Face (HH)*	French, Malagasy		Regions that were unsafe or unreachable were excluded from the sample. The excluded areas represent approximately 17% of the total population.
2023	Malawi	18.1	Sep 30 – Oct 15, 2023	1,002	1.37	3.6	Face-to-Face (HH)*	Chichewa, English, Tumbuka		
2023	Malaysia	18.1	Aug 21 – Nov 10, 2023	1,000	1.83	4.2	Face-to-Face (HH)*	Bahasa, Malay, Chinese, English		

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Mali	18.1	Aug 28 – Sep 16, 2023	1,000	1.40	3.7	Face-to-Face (HH)*	French, Bambara		The regions of Gao, Kidal, Mopti and Tombouctou were excluded because of insecurity. Quartiers and villages with less than 50 inhabitants were also excluded from the sample. The excluded areas represent 23% of the total population.
2023	Malta	18.1	April 11 – May 26, 2023	1,002	1.34	3.6	Landline and Mobile Telephone	Maltese, English		
2023	Mauritania	18.1	Jul 27 – Aug 22, 2023	1,000	1.38	3.6	Face-to-Face (HH)*	French, Poulaar, Hassanya		Some communes in Hodh Ech Chargui and Hodh El Gharbi were excluded due to increasing insecurity. The excluded areas represent approximately 4% of the population.
2023	Mauritius	18.1	Apr 27 – Jun 22, 2023	1,000	1.68	4.0	Landline and Mobile Telephone	Creole, English, French		
2023	Mexico	18.1	Aug 5 – Nov 7, 2023	1,000	1.40	3.7	Face-to-Face (HH)*	Spanish		
2023	Moldova, Republic of	18.1	Jul 5 – Sep 25, 2023	1,000	1.97	4.4	Face-to-Face (HH)*	Romanian/ Moldavian, Russian		Transnistria (Prednestrovie) excluded for safety of interviewers. The excluded area represents approximately 13% of the population.
2023	Mongolia	18.1	Jul 29 – Sep 22, 2023	1,000	1.27	3.5	Face-to-Face (HH)*	Mongolian		
2023	Montenegro	18.1	Aug 31 – Nov 16, 2023	1,000	1.33	3.6	Face-to-Face (HH)*	Montenegrin		
2023	Morocco	18.1	Sep 14 – Oct 18, 2023	1,015	1.33	3.5	Face-to-Face (HH)*	Moroccan Arabic		Excludes the Southern provinces. The excluded area represents approximately 3% of the population.
2023	Mozambique	18.1	Jun 14 – Sep 6, 2023	1,000	2.00	4.4	Face-to-Face (HH)*	Portuguese, Xichangana, Emakhuwa		Cabo Delgado province, as well as a small number of districts in other provinces, were excluded due to insecurity. The excluded areas represent 8% of the population.

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Myanmar	18.1	Jul 24 – Sep 9, 2023	1,000	2.75	5.1	Mobile Telephone	Myanmar, Burmese		
2023	Namibia	18.1	Sep 18 – Oct 18, 2023	1,000	1.60	3.9	Face-to-Face (HH)*	English, Oshivambo, Afrikaans		
2023	Nepal	18.1	Jun 10 – Jul 18, 2023	1,000	1.38	3.6	Face-to-Face (HH)*	Nepali		
2023	Netherlands	18.1	Phone: May 1 – May 31, 2023 Web: Jun 9 – Jul 7, 2023	Phone: 814 Web: 202 Total: 1,016	Phone: 1.55 Total: 1.65	Phone: 4.3 Total: 4.0	Landline and Mobile Telephone/ Web	Dutch		
2023	New Zealand	18.1	Phone: May 8 – Jun 19, 2023 Web: Jun 9 – Jul 4, 2023	Phone: 800 Web: 200 Total: 1,000	Phone: 1.67 Total: 1.68	Phone: 4.5 Total: 4.0	Landline and Mobile Telephone/ Web	English		
2023	Nicaragua	18.1	Sep 23 – Nov 1, 2023	1,000	1.60	3.9	Face-to-Face (HH)*	Spanish		
2023	Niger	18.1	Aug 15 – Sep 10, 2023	1,000	1.57	3.9	Face-to-Face (HH)*	French, Hausa, Zarma		Some communes in the Agadez region and Diffa region were excluded because of insecurity. In addition, PSUs with fewer than 25 households were also excluded. The excluded area represents approximately 8% of the population.
2023	Nigeria	18.1	Sep 13 – Oct 12, 2023	1,000	2.36	4.8	Face-to-Face (HH)*	English, Hausa, Igbo, Pidgin English, Yoruba		The three northeastern states of Adamawa, Borno and Yobe will be excluded due to insecurity and Boko Haram insurgency. In addition, disputed areas of Taraba state are also excluded. Together, these exclusions account for roughly 7% of the total population.
2023	North Macedonia	18.1	Jul 13 – Sep 30, 2023	1,000	1.46	3.8	Face-to-Face (HH)*	Macedonian, Albanian		
2023	Northern Cyprus	18.1	Sep 5 – Nov 14, 2023	609	1.92	5.5	Landline and Mobile Telephone	Turkish		

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Norway	18.1	Phone: Mar 20 – Apr 22, 2023 Web: May 26 – Jun 10, 2023	Phone: 800 Web: 204 Total: 1,004	Phone: 1.87 Total: 1.73	Phone: 4.7 Total: 4.1	Mobile Telephone/ Web	Norwegian		
2023	Pakistan	18.1	Sep 22 – Oct 25, 2023	1,001	1.70	4.0	Face-to-Face (HH)*	Urdu		Did not include AJK, Gilgit-Baltistan and parts of FATA. The excluded area represents approximately 5% of the population. Gender-matched sampling was used during the final stage of selection.
2023	Palestine, State of	18.1	Jul 12 – Sep 30, 2023	1,000	1.21	3.4	Face-to-Face (HH)*	Arabic		Areas with security concerns close to the Israeli borders, areas that are accessible only to special Israeli permit holders and areas with population concentrations less than 1,000 people were excluded. The excluded areas represent less than 2% of the population. The sample includes East Jerusalem.
2023	Panama	18.1	Oct 4, 2023 – Jan 11, 2024	1,000	1.83	4.2	Face-to-Face (HH)*	Spanish		
2023	Paraguay	18.1	Sep 11 – Oct 9, 2023	1,000	1.45	3.7	Face-to-Face (HH)*	Spanish, Jopara		
2023	Peru	18.1	Aug 10 – Oct 9, 2023	1,000	1.31	3.5	Face-to-Face (HH)*	Spanish		
2023	Philippines	18.1	Oct 3 – Dec 12, 2023	1,000	1.57	3.9	Face-to-Face (HH)*	Filipino, Iluko, Cebuano, Hiligaynon, Waray, Bicol		
2023	Poland	18.1	Aug 27 – Oct 29, 2023	1,002	1.31	3.5	Face-to-Face (HH)*	Polish		Low population areas were excluded. The excluded areas represent approximately 5% of the population.
2023	Portugal	18.1	Phone: Mar 20 – Apr 21, 2023 Web: Jun 9 – Jul 8, 2023	Phone: 803 Web: 200 Total: 1,003	Phone: 1.59 Total: 1.65	Phone: 4.4 Total: 4.0	Landline and Mobile Telephone/ Web	Portuguese		

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Romania	18.1	Sep 10 – Dec 10, 2023	1,000	1.43	3.7	Face-to-Face (HH)*	Romanian		
2023	Russian Federation	18.1	May 23 – Jul 29, 2023	2,017	1.54	2.7	Mobile Telephone	Russian		
2023	Saudi Arabia	18.1	Jun 1 – Jun 19, 2023	1,021	1.07	3.9	Landline and Mobile Telephone	Arabic, English, Hindi, Urdu		Includes Saudis, Arab expatriates and non-Arabs who were able to complete the interview in Arabic, English, Urdu or Hindi.
2023	Senegal	18.1	Sep 30 – Oct 24, 2023	1,000	1.47	3.8	Face-to-Face (HH)*	French, Wolof		Sindian commune in Zinguichor region was excluded due to insecurity. PSUs (quartiers and villages) with household sizes less than 50 were excluded due to the small population size. The excluded areas represent 18% of the population.
2023	Serbia	18.1	May 24 – Sep 4, 2023	1,000	1.34	3.6	Face-to-Face (HH)*	Serbian		
2023	Sierra Leone	18.1	Dec 2 – Dec 26, 2023	1,000	1.26	3.5	Face-to-Face (HH)*	English, Krio, Mende		
2023	Singapore	18.1	Aug 11, 2023 – Jan 21, 2024	1,000	1.99	4.4	Mobile Telephone	Chinese, English		
2023	Slovakia	18.1	Jun 13 – Aug 3, 2023	1,001	1.27	3.5	Face-to-Face (HH)*	Hungarian, Slovak		
2023	Slovenia	18.1	Phone: Apr 12 – May 24, 2023 Web: Jun 13 – Jul 7, 2023	Phone: 800 Web: 200 Total: 1,000	Phone: 1.48 Total: 1.55	Phone: 4.2 Total: 3.9	Landline and Mobile Telephone/ Web	Slovene		
2023	Somalia	18.1	Oct 4 – Dec 27, 2023	1,001	1.27	3.5	Face-to-Face (HH)*	Somali		The regions of Hiraan, Bakool and Middle Juba were excluded due to the prevailing security situation, as well as some districts in other areas of the country. Excluded areas represent approximately 29% of the population.
2023	South Africa	18.1	Oct 19, 2023 – Feb 1, 2024	1,000	1.63	4.0	Face-to-Face (HH)*	Afrikaans, English, Sotho, Xhosa, Zulu		

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	South Korea	18.1	Phone: Jul 26 – Sep 1, 2023 Web: Aug 7 – Aug 29, 2023	Phone: 803 Web: 200 Total: 1,003	Phone: 1.35 Total: 1.39	Phone: 4.0 Total: 3.7	Landline and Mobile Telephone/ Web	Korean		
2023	Spain	18.1	Phone: Apr 24 – May 20, 2023 Web: Jun 9 – Jul 12, 2023	Phone: 800 Web: 202 Total: 1,002	Phone: 1.46 Total: 1.48	Phone: 4.2 Total: 3.8	Landline and Mobile Telephone/ Web	Spanish		
2023	Sri Lanka	18.1	Sep 23 – Nov 19, 2023	1,000	1.45	3.7	Face-to-Face (HH)*	Sinhala, Tamil		
2023	Sweden	18.1	Phone: May 26 – Jul 13, 2023 Web: Jul 11 – Jul 19, 2023	Phone: 801 Web: 200 Total: 1,001	Phone: 1.87 Total: 1.78	Phone: 4.7 Total: 4.1	Mobile Telephone/ Web	Swedish		
2023	Switzerland	18.1	Phone: Apr 24 – May 25, 2023 Web: Jun 9 – Jul 7, 2023	Phone: 800 Web: 201 Total: 1,001	Phone: 1.73 Total: 1.72	Phone: 4.6 Total: 4.1	Landline and Mobile Telephone/ Web	German, French, Italian		
2023	Taiwan, Province of China	18.1	Phone: Apr 17 – May 9, 2023 Web: Jun 9 – Jul 13, 2023	Phone: 800 Web: 203 Total: 1,003	Phone: 1.55 Total: 1.57	Phone: 4.3 Total: 3.9	Landline and Mobile Telephone/ Web	Chinese		
2023	Tajikistan	18.1	Oct 7 – Nov 15, 2023	1,001	1.37	3.6	Face-to-Face (HH)*	Tajik		The GBAO was excluded, as it was closed for any kind of surveys or field research by the national security service. The excluded region represents approximately 3% of the population.
2023	Tanzania	18.1	Dec 7 – Dec 23, 2023	1,004	1.52	3.8	Face-to-Face (HH)*	Swahili, Kishwahili		

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	Thailand	18.1	Sep 4 – Nov 30, 2023	1,000	1.76	4.1	Face-to-Face (HH)*	Thai		Three provinces in the South region (Pattani, Narathiwat and Yala) were excluded for security reasons; in addition, a few districts in other provinces were excluded. The excluded areas in total represent less than 4% of the population.
2023	Togo	18.1	Oct 5 – Oct 24, 2023	1,000	2.17	4.6	Face-to-Face (HH)*	French, Ewe		PSUs with populations below 100 were excluded prior to sampling. The excluded areas represent approximately 7% of the population.
2023	Tunisia	18.1	Jul 28 – Aug 26, 2023	1,000	1.28	3.5	Face-to-Face (HH)*	Arabic		
2023	Türkiye	18.1	Sep 7 – Dec 7, 2023	1,000	1.28	3.5	Face-to-Face (HH)*	Turkish		Gaziantep and Sanliurfa provinces, and portions of Adana, Hatay and Malatya provinces, were excluded due to an earthquake in February 2023. The excluded areas represent approximately 12% of the population.
2023	Uganda	18.1	Dec 27, 2023 – Feb 6, 2024	1,000	1.44	3.7	Face-to-Face (HH)*	English, Luganda, Runyankole		Three districts in the North region were excluded for security reasons — Kotido, Moroto and Nakapiripirit. The excluded areas represent 2% or less of the population.
2023	Ukraine	18.1	Jul 27 – Aug 3, 2023	1,000	1.83	4.2	Mobile Telephone	Russian, Ukrainian		Some occupied territories with entrenched Russian control are excluded due to lack of coverage by Ukrainian mobile operators. The exclusion represents approximately 10% of the population.
2023	United Arab Emirates	18.1	Jul 13 – Aug 6, 2023	1,000	1.16	3.3	Mobile Telephone	Arabic, English, Hindi, Urdu		Includes only Emiratis, Arab expatriates and non-Arabs who were able to complete the interview in Arabic, English, Hindi or Urdu.

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Over-Sample[c]	Exclusions (Samples are nationally representative unless noted otherwise)
2023	United Kingdom	18.1	Phone: Apr 24 – May 25, 2023 Web: Jun 9 – Jun 26, 2023	Phone: 800 Web: 200 Total: 1,000	Phone: 1.48 Total: 1.49	Phone: 4.2 Total: 3.8	Landline and Mobile Telephone/ Web	English		
2023	United States	18.1	Phone: May 16 – Jul 16, 2023 Web: Jun 9 – Jun 27, 2023	Phone: 805 Web: 200 Total: 1,005	Phone: 1.75 Total: 1.74	Phone: 4.6 Total: 4.1	Landline and Mobile Telephone/ Web	English, Spanish		
2023	Uruguay	18.1	Aug 30 – Oct 28, 2023	1,000	1.40	3.7	Face-to-Face (HH)*	Spanish		
2023	Uzbekistan	18.1	Jul 26 – Nov 5, 2023	1,000	1.46	3.7	Face-to-Face (HH)*	Uzbek, Russian		The entire Karakalpak region was excluded, which corresponds to 6% of the total population in Uzbekistan.
2023	Venezuela	18.1	Aug 2 – Aug 29, 2023	1,002	1.47	3.8	Face-to-Face (HH)*	Spanish		The federal dependencies are excluded due to remoteness and difficulty of access. Exclusions represent less than 1% of the population.
2023	Vietnam	18.1	May 30 – Jul 28, 2023	1,000	1.46	3.7	Face-to-Face (HH)*	Vietnamese		
2023	Yemen	18.1	Aug 26 – Oct 10, 2023	1,000	1.96	4.3	Face-to-Face and Face-to-Face (HH)*	Arabic		Al Baydaa, Al Jawf, Mareb, Sadah, the Island of Socotra and several districts in other governorates were excluded due to their small size, remoteness or security issues. The excluded areas represent approximately 20% of the population.
2023	Zambia	18.1	Dec 28, 2023 – Jan 31, 2024	1,000	1.59	3.9	Face-to-Face (HH)*	Bemba, English, Lozi, Nyanja, Tonga		
2023	Zimbabwe	18.1	Jul 19 – Aug 10, 2023	1,000	1.49	3.8	Face-to-Face (HH)*	English, Shona, Ndebele		

Standardization of income, education and employment groups

Personal information such as income, education and employment can be defined or measured differently across countries, which can create challenges when attempting to compare cross-country results.

For this reason, the Hologic Global Women's Health Index examined these characteristics using standardized definitions of income that have been developed by the Gallup World Poll. Additionally, employment status was defined in a manner consistent with the Bureau of Labor Statistics in the United States.

Country income level

Countries were divided into four income groupings, as defined by the World Bank:

The World Bank updates its classifications annually on July 1 based on the GNI per capita in current USD of the previous year.

In 2020 these categories were:

- **Low income:** Gross national income (GNI) per capita of $1,035 or less (in 2019)
- **Lower-middle income:** GNI per capita of $1,036 to $4,045
- **Upper-middle income:** GNI per capita of $4,046 to $12,535
- **High income:** GNI per capita above $12,535

In 2021 these categories were:

- **Low income:** GNI per capita of $1,035 or less (in 2019)
- **Lower-middle income:** GNI per capita of $1,046 to $4,095
- **Upper-middle income:** GNI per capita of $4,096 to $12,695
- **High income:** GNI per capita above $12,695

In 2022 these categories were:

- **Low income:** GNI per capita of $1,085 or less (in 2021)
- **Lower-middle income:** GNI per capita of $1,086 to $4,255
- **Upper-middle income:** GNI per capita of $4,256 to $13,205
- **High income:** GNI per capita above $13,205

In 2023 these categories were:

- **Low income:** GNI per capita of $1,135 or less
- **Lower-middle income:** GNI per capita of $1,136 to $4,465
- **Upper-middle income:** GNI per capita of $4,466 to $13,845
- **High income:** GNI per capita above $13,845

Note: The World Bank does not classify Venezuela in any of the categories. When the country averages are presented at their country income level breaks, Venezuela is not included.

Appendix 2 References

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). L. Erlbaum Associates.

Our purpose — to enable healthier lives everywhere, every day — is driven by **a passion** to become global champions for women's health. We succeed by fulfilling **our promise** to bring *The Science of Sure®* alive through product quality, clinical differentiation, customer relationships and our team's talent and engagement.

Hologic intends to conduct the Hologic Global Women's Health Index in partnership with Gallup for years into the future.

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