2020 GLOBAL REPORT

The Hologic Global Women's Health Index

Pathways to a Healthy Future for Women

Global Women's Health Index

HOLOGIC

MEASURED BY GALLUP

Table of Contents

3 A Letter From Hologic's CEO

5 Introduction

6 Key Findings

9 The Hologic Global Women's Health Index

14 Global Results

19 Regional Rankings

26 The Building Blocks for Improving Women's Health

28 Relatively Few Women Tested for Serious Diseases

40 Stress, Worry Are Major Challenges for Women

46 Healthcare, Safety Contribute to Longer Lives for Women

56 Food, Shelter Are Necessities Many Women Cannot Afford

60 The World Needs to Help Women Manage Pain

64 Conclusion

65 Index Scores by Country and Territory

70 Appendix 1: About the Hologic Global Women's Health Index

89 Appendix 2: Hologic Global Women's Health Index: Methodology and Data Analysis

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Critical data for global, regional and national development policymaking is still lacking. Many governments still do not have access to adequate data on their entire populations. This is particularly true for the poorest and most marginalized.

UNITED NATIONS

FOREWORD:

A Letter From Hologic's CEO

Healthy women are the cornerstones of healthy economies and societies. But women's health rarely gets the attention that it deserves.

By focusing on women's health and working together to address key issues, we can not only improve women's lives, we can also realize social and economic progress globally.

To accomplish this, we need robust data on women's health, and the ability to benchmark and track it over time on a global level. As a science-based company, Hologic knows that having quality data is important to making good decisions. The challenge is that in most of the world, these data are at best lacking, or at worst, nonexistent.

This is why we are partnering with Gallup to create a data roadmap that helps leaders and policymakers give women's health the priority that it deserves.

The Hologic Global Women's Health Index, which we launched amid the COVID-19 pandemic, is a multiyear, comprehensive global survey about women's health. Through it, we can listen to women and men in their own words, and track progress on key women's health issues globally and by country.

As part of its World Poll, Gallup interviewed more than 120,000 women and men in 116 countries and territories in more than 140 languages. The aggregate results of those discussions are shared in this report, which is also being distributed to global leaders and policymakers around the world.

Our goal is to call to action world leaders — in and out of government — to improve women's health. This, in turn, will change lives, support greater development and address longstanding inequalities.

Hologic's passion is to be a global champion for women's health. Through our Index, our ambition is to work with world leaders to improve women's quality of life, and ultimately life expectancy. Women's health is tied to economic performance, productivity and overall well-being; improving it will benefit all of us, as well as future generations.

We look forward to sharing information with national, corporate and non-profit leaders, working with them to develop tailored solutions that address women's health, and providing them with more data in the future.

Through this report, women are telling us what they need. We all need to listen. Then act, together.

Stephen P. MacMillan
Chairman, President and Chief Executive Officer of Hologic

Introduction

Women's health and health equity are arguably in a better place today than they were more than 25 years ago when 189 countries adopted the 1995 Beijing Declaration and Platform of Action, the first global policy framework for achieving gender equality in critical areas including women's health.

However, progress on many of the objectives set for women's health in Beijing has been uneven. For example, while the global maternal mortality rate dropped by 38% between 2000 and 2017, the use of contraceptives has increased slowly and unevenly over that same period, and as recently as 2019, as many as 270 million women of reproductive age had an unmet need for modern contraception.[1]

Today, many women still face these and other fundamental health challenges, including cancer, reproductive health issues, sexually transmitted diseases and violence against them.[2,3] To keep moving forward, and save more women's lives, leaders and policymakers need to understand the realities of these women's healthcare experiences. And to do that, they need access to robust, quality data that disaggregates this information by gender and exposes the inequities and what's driving them.

The Hologic Global Women's Health Index — a multiyear, globally comparative survey of women's health — strives to fill the critical gap in what the world knows about the health and well-being of the world's women and girls. But more than that, it aims to identify the keys to help them live longer, safer and healthier lives.

The findings in this report offer a glimpse into what Hologic learned about women's health from the first year of this survey, which is based on interviews Gallup conducted throughout 2020 with just over 120,000 women and men aged 15 and older in 116 countries and territories.

The results in this report focus primarily on women's answers, and serve as a baseline of their knowledge, attitudes and behaviors regarding their health, specifically in vital areas such as prenatal care and preventive testing. Future administrations of the study will track changes in women's health and safety and monitor whether women's health is improving at the country, regional and global levels.

1 Kantorová, V., Wheldon, M. C., Ueffing, P., & Dasgupta, A. N. Z. (2020). Estimating progress towards meeting women's contraceptive needs in 185 countries: A Bayesian hierarchical modelling study. *PLOS Medicine, 17*(2), e1003026. https://doi.org/10.1371/journal.pmed.1003026

2 *Ten top issues for women's health.* (2015, February 20). World Health Organization. https://www.who.int/news-room/commentaries/detail/ten-top-issues-for-women%27s-health

3 *Women's Issues in Pandemic Times: How COVID-19 Has Exacerbated Gender Inequities for Women in Canada and around the World.* (2020, December 1). PubMed Central (PMC). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7528830/

Key Findings

Every country or territory has work to do.

- Higher scores on the Hologic Global Women's Health Index mean potentially healthier, safer and longer lives for women, but with a global score of just 54 out of 100, world leaders need to do better on women's health.
- Every country or territory has room to improve. Not one country or territory scores higher than a 69 on the Index.

And there is also extreme inequity in women's health.

- Only a fraction of the world's women have the highest Index scores. Women in high-income economies — which make up just 17% of women surveyed — score a 61 on the Index.
- Scores on the Index drop with each subsequent country-income group level after that, eventually widening to a 12-point gap between women living in high-income economies (61) and low-income economies (49).

Five dimensions of women's health can change — and lengthen — their lives.

- Together, the five dimensions of the Hologic Global Women's Health Index — Preventive Care, Opinions of Health and Safety, Emotional Health, Individual Health and Basic Needs — explain more than 80% of women's average life expectancy at birth.

The world is weak on preventive care.

Sixty-one percent — or more than 1.5 billion women — did not get tested for any of the most damaging diseases for women in the past 12 months.

- On average, one in three women worldwide had their blood pressure tested in the previous 12 months — despite heart disease being the leading cause of death globally for women and men.
- Worldwide, just 12% of women said in 2020 that they have been tested for any type of cancer in the past 12 months.
- Worldwide, about one in five (19%) women reported being tested in the previous 12 months for diabetes, the sixth leading cause of death for women globally.
- Fewer than one in nine women had been tested for sexually transmitted diseases or infections — all of which are risk factors for HIV, cancer and infertility — in the previous 12 months.

Most women (88%) believe checkups help improve people's health, but many (40%) haven't seen a healthcare professional in the past 12 months.

- Majorities of women in all the countries and territories surveyed believe regular medical checkups help improve people's health. Worldwide, the percentages of women who believe this range from a low of 72% in Hungary to a high of 100% in Tanzania.
- However, in the majority of countries, there were significant gaps between women's perceptions and actions.

Women are generally satisfied with healthcare quality.

In their communities, most women are satisfied with the quality of their healthcare and prenatal care.

- Most women are satisfied with the availability of quality healthcare where they live (68%) and think most pregnant women in their communities receive high-quality prenatal care (69%).

A women's age at her first pregnancy sharply differentiates her health outcomes.

- In almost every part of the world, women who report first becoming pregnant at an age younger than 19 score worse in every area of their health than those who first became pregnant at a later age.

But well over half a billion women do not feel safe walking alone at night.

- More than 800 million women do not feel safe walking alone. Women are also less likely than men to feel safe.

Most women and men identify domestic violence as a widespread problem where they live.

- Two in three women worldwide — or about 1.7 billion women — say domestic violence is a widespread problem in their country. And nearly six in 10 men agree.

Women's emotional health suffered.

Women in 2020 were more worried and stressed, sad and angry, along with the rest of the world.

- About four in 10 women in 2020 say they experienced worry (40%) and stress (38%) during a lot of the day before the survey, while about one in four say they experienced sadness (26%) and anger (23%).
- Women — along with the world in 2020 — were feeling the worst they had in 15 years. Global experiences of worry, stress, sadness and anger continued to rise in 2020 and set new records.

Women are living with pain.

- Three in 10 (30%) women in 2020 — or more than 750 million worldwide — report experiencing physical pain during a lot of the previous day.
- One in five (20%) women in 2020 — or more than 500 million women — say they have health problems that prevent them from doing things people their age normally do.

Millions struggling with basic needs.

Hundreds of millions of women worldwide cannot afford the food and shelter that they or their families need.

- In 2020, 34% of women — or nearly 900 million women — struggled to afford food in the past year.
- Nearly three in 10 (29%) women — or nearly 700 million — say there had been times in the past year when they were unable to afford adequate shelter.

Money is just part of the solution.

- Countries and territories that spend more per capita on healthcare tend to earn higher scores on the overall Index.
- This is true everywhere except the U.S., which spends the most of any country — $10,623 per person in 2018 — and scores a 61.

The Hologic Global Women's Health Index

What is the Hologic Global Women's Health Index?

Harnessing the statistical power and global reach of Gallup's World Poll, the Hologic Global Women's Health Index is a multiyear, globally comparative survey that tracks multiple health issues essential to improving the health, quality of life and life expectancy of the world's women and girls.

Based on women's responses in the first year of this survey, Hologic and Gallup developed the Hologic Global Women's Health Index, an indicator of women's health that country leaders and policymakers can use to help build a healthy and safe future for women.

The Hologic Global Women's Health Index is a single number based only on women's answers that summarizes a host of complex factors that contribute to women's health. A higher score on the overall Index means more women are having positive experiences in five dimensions that explain more than 80% of women's average life expectancy at birth: Preventive Care, Basic Needs, Emotional Health, Opinions of Health and Safety, and Individual Health. Higher scores in these individual dimensions mean more women are having positive experiences in each of these respective areas.

Global, regional and country-level results on the overall Index, as well as the five individual dimensions, are presented and discussed in further detail throughout this report. More technical details about the construction and scoring of the Index and the dimensions are available in the Appendix.

About Gallup's World Poll:

Since 2005, Gallup has been interviewing nationally representative samples of women and men in more than 160 countries and territories annually on core topics that are important to women's lives, and to the rest of the world. All of Gallup's core question items are disaggregated by gender.

Preventive Care

High blood pressure*
Cancer*
Diabetes*
STDs/STIs*

Emotional Health

Anger
Stress
Sadness
Worry

Opinions of Health and Safety

High-quality pregnancy care*
High-quality healthcare
Safe walking alone at night

Basic Needs

Food
Shelter

Individual Health

Health problems
Pain a lot of the day

*Indicates Hologic additions to the World Poll

How was the Hologic Global Women's Health Index developed?

Starting in 2019, in consultation with international public health and medical experts[4] and the Gallup World Poll research team, Hologic developed a set of questions designed to consistently measure women's experiences with health issues and healthcare. The goal is to track changes on each of these measures over multiple years:

Health/Healthcare Issue	Hologic Question
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?*
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?* • *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]?*
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?*
Pregnancy	• *How many children do you, personally, have?* • *How old were you the first time you were pregnant?*
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?*

More information about the design and formulation of the Index is in the Appendix.

Throughout 2020, Gallup asked just over 120,000 women and men in 116 countries and territories these questions, along with questions that the World Poll has been asking for almost two decades about general health, opinions of available quality healthcare, safety, food and shelter, and emotional health.

What does the Index measure?

Using a factor analysis of the responses to these questions from nearly 60,000 women aged 15 and older, the Gallup and Hologic research team identified questions that related to five dimensions of women's health that together explain more than 80% of women's average life expectancy at birth: Preventive Care, Emotional Health, Opinions of Health and Safety, Basic Needs, and Individual Health.[5]

While Gallup and Hologic originally hypothesized that 18 of the Hologic or World Poll questions would be factored into the Index, after testing, several were dropped for various reasons (please see the Appendix for more details). For example, while a question about domestic violence asks about an important safety and health issue for women, it was not included in the Index because it was not highly related to any of the five dimensions.

4 Annastasiah Mhaka, Ph.D., Caroline Popper, M.D., Claire Wagner, M.D, MBA, Karen Drenkard, Ph.D., RN, Mary Catherine Beach, M.D., Robert Bollinger, M.D., Alexandra von Plato, Daniel J. Mollura, M.D., Sezin Palmer

5 For details on this factor analysis and why Gallup and Hologic included certain questions and not others, please see the Appendix.

Dimension of Women's Health	Survey Item
Preventive Care	*To the best of your knowledge, were you tested for any of the following in the past 12 months?* • *High blood pressure* • *Cancer* • *Diabetes* • *Sexually transmitted diseases/infections*
Emotional Health	*Did you experience the following feelings during a lot of the day yesterday?* • *How about worry?* • *How about sadness?* • *How about stress?* • *How about anger?*
Opinions of Health and Safety	• *In the city or area where you live, are you satisfied or dissatisfied with the availability of quality healthcare?* • *Do you think most pregnant women in the city or area where you live receive high-quality healthcare during their pregnancies, or not?* • *Do you feel safe walking alone at night in the city or area where you live?*
Basic Needs	• *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?*
Individual Health	• *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?*

Gallup calculated individual Index scores, first creating a simple average of the responses to the questions included in each dimension and then a weighted average of all dimension scores.[6]

This provides the foundation for the calculation of country averages and allows for a granular understanding of how different groups of women score differently based on health determinants — such as age, education, income, urban or rural status and women's age of first pregnancy.

6 For more information on the scoring of the Index, please see the Appendix.

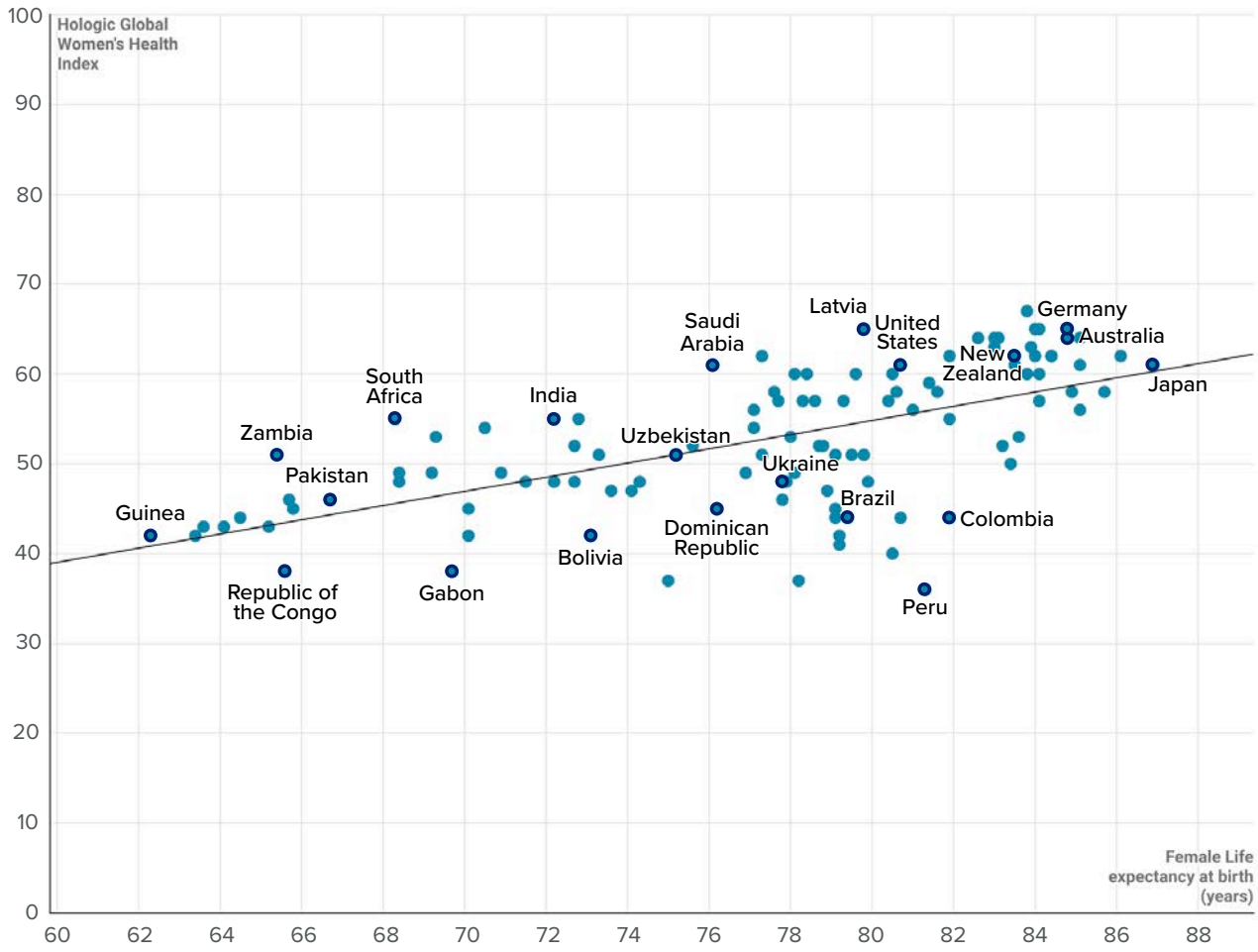
Why is the Index important?

Hologic and Gallup discovered that the Hologic Global Women's Health Index is strongly related to women's average life expectancy at birth — one of the most frequently used health status indicators.[7]

The current data suggest positive improvements on any one of the five dimensions could potentially help women live healthier, longer lives. As it stands, these dimensions account for more than 80% of why some women live longer than others do — and provide insights with the power to change countries and territories.[8]

CHART 1:

Women's Health Index and Life Expectancy



7 *Health status - Life expectancy at birth - OECD Data.* (n.d.). The OECD. Retrieved August 10, 2021, from https://data.oecd.org/healthstat/life-expectancy-at-birth.htm

8 Please see the regression analysis on life expectancy and the Index in the Appendix.

What are the goals for the Index?

The Index aims to provide country leaders and policymakers with an indicator that will help them improve the current lives of women and increase their longevity and quality of life in the future.

By using a global ranking of countries and territories and pinpointing what contributes to the greatest differences in women's health scores, leaders can see where they stand relative to the rest of the world, identify their areas of strength and opportunities for improvement, and use those insights to direct their policies more effectively.

Global Results

All countries and territories have room to improve on women's health.

Higher scores on the overall Hologic Global Women's Health Index mean more women in a country are having positive health and healthcare experiences. The world's score of 54 out of 100 signals global leaders have significant work to do to improve women's health.

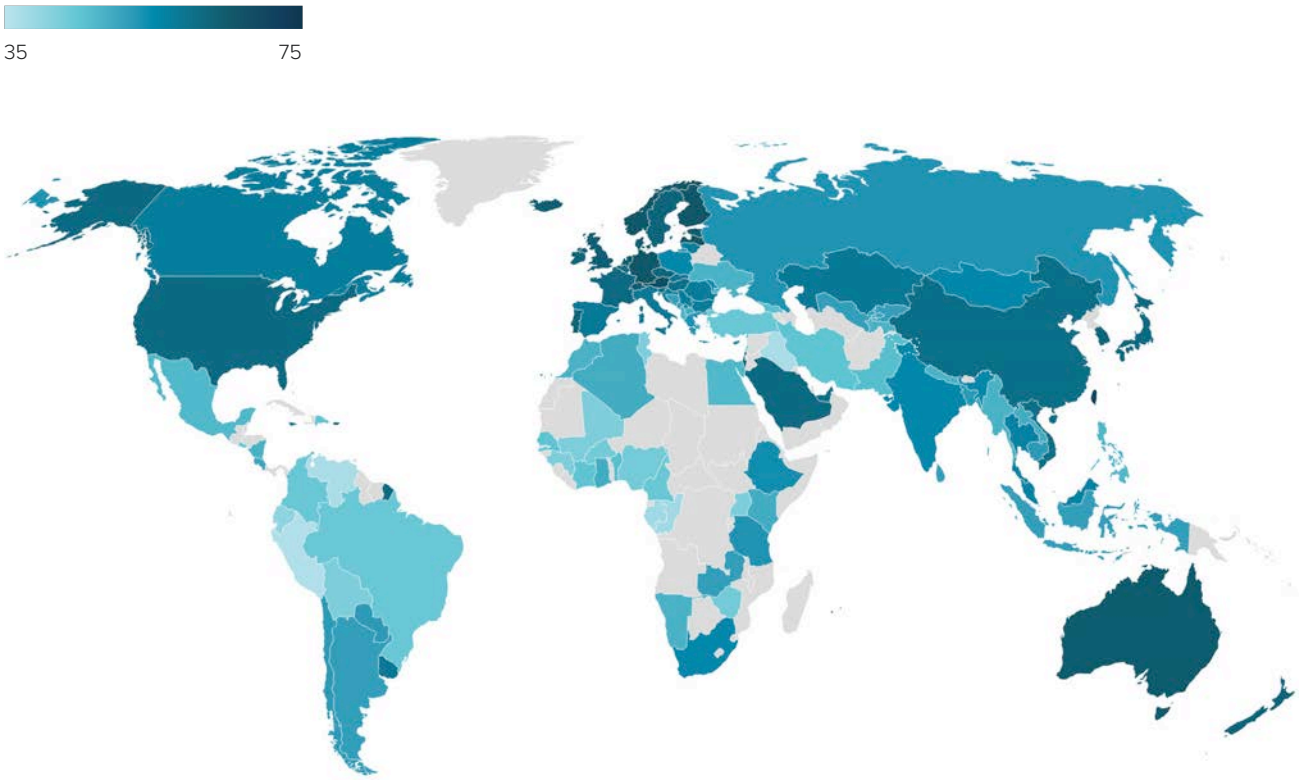
In fact, leaders in all countries and territories do. No one country or territory scores higher than 69 out of 100 on the Index. But results also reveal extreme inequality across the globe.[9]

> **Scores worldwide range from a high of 69 in Taiwan to a low of 36 in Peru.**

CHART 2:

Women's Health Around the World

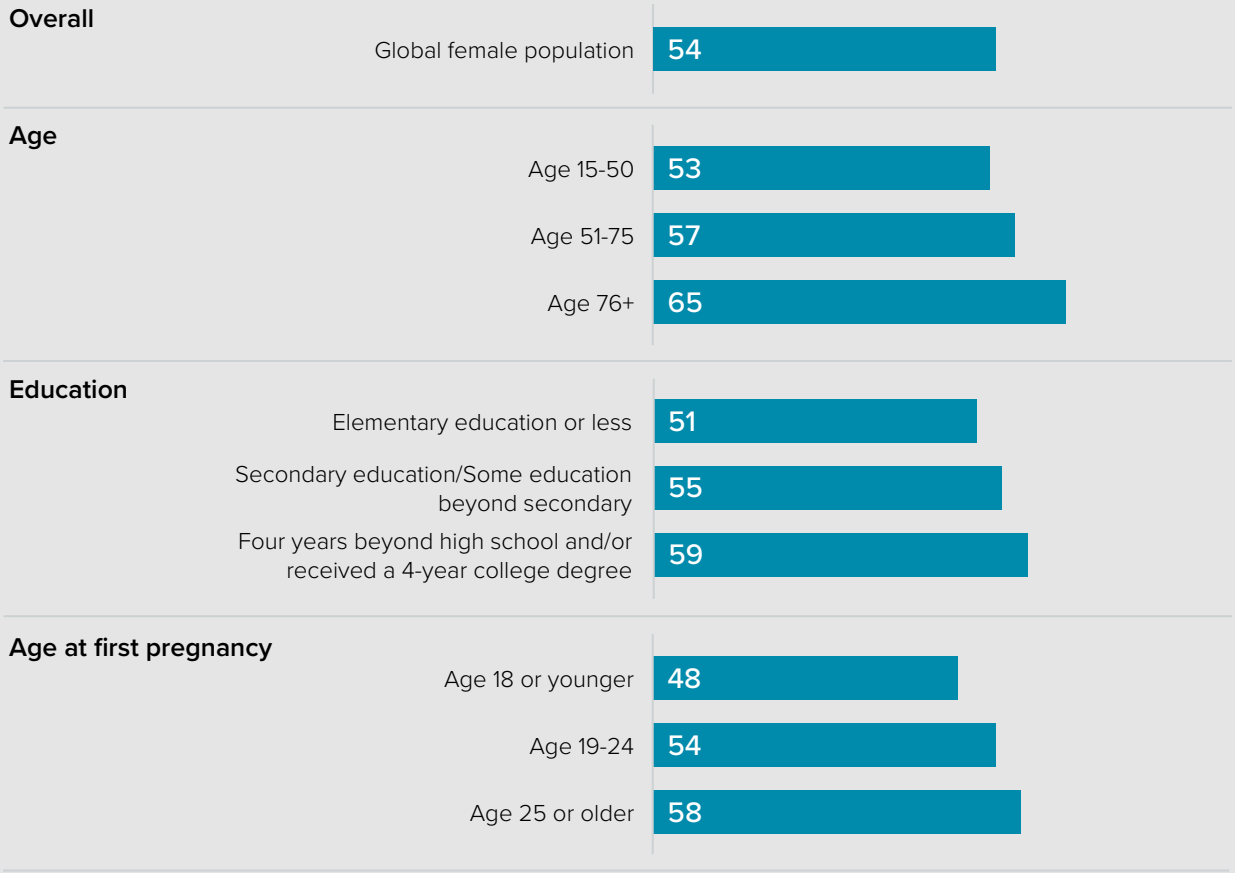
Hologic Global Women's Health Index



9 Please see page 65 for Index scores by country and territory.

CHART 3:

Hologic Global Women's Health Index by Demographic



Index scores range from 0 to 100. For more information on how these scores are calculated, please see page 70.

Most countries and territories with the highest scores on the Index have higher-than-average preventive care.

All the countries and territories with the highest scores on the overall Index are high-income economies.[10]

Women in these countries almost universally have their basic needs met, with scores in the Basic Needs dimension in the 90s in most countries except for Latvia and Estonia. And except for Switzerland, all of them also post Preventive Care dimension scores that are well above the global average of 19.

TABLE 1:

Top Countries/Territories on the Hologic Global Women's Health Index

		5 DIMENSIONS OF WOMEN'S HEALTH				
	Hologic Women's Health Index	1 Preventive Care	2 Emotional Health	3 Opinions of Health and Safety	4 Basic Needs	5 Individual Health
GLOBAL AVERAGE	54	19	68	70	68	75
Taiwan, Province of China	69	24	89	85	93	85
Austria	67	29	78	89	93	76
Finland	65	23	75	88	95	79
Latvia	65	44	76	64	84	72
Norway	65	23	74	93	93	74
Germany	65	29	75	81	93	72
Netherlands	64	23	73	87	96	74
Denmark	64	24	77	86	94	67
Australia	64	32	72	76	92	75
Estonia	64	26	77	78	89	78
Switzerland	64	19	76	90	93	78

Note: Higher scores indicate more women are having positive health and healthcare experiences.
Source: Hologic Global Women's Health Index, 2020

10 According to World Bank country-income classifications

The countries and territories with the lowest scores on the Index all share high income inequality and weak or destabilized infrastructure for healthcare.

The countries and territories with the lowest scores on the Index are a mix of mostly low and lower middle-income economies and some upper middle-income economies.

Few countries and territories in this group score well in meeting women's basic needs, with no country scoring above the global average of 68 in this dimension. Only Lebanon and Tunisia — whose healthcare systems were on the verge of collapse in 2021 — come close.[11,12] Most countries and territories in this group also score below the global average of 19 on the Preventive Care dimension.

TABLE 2:

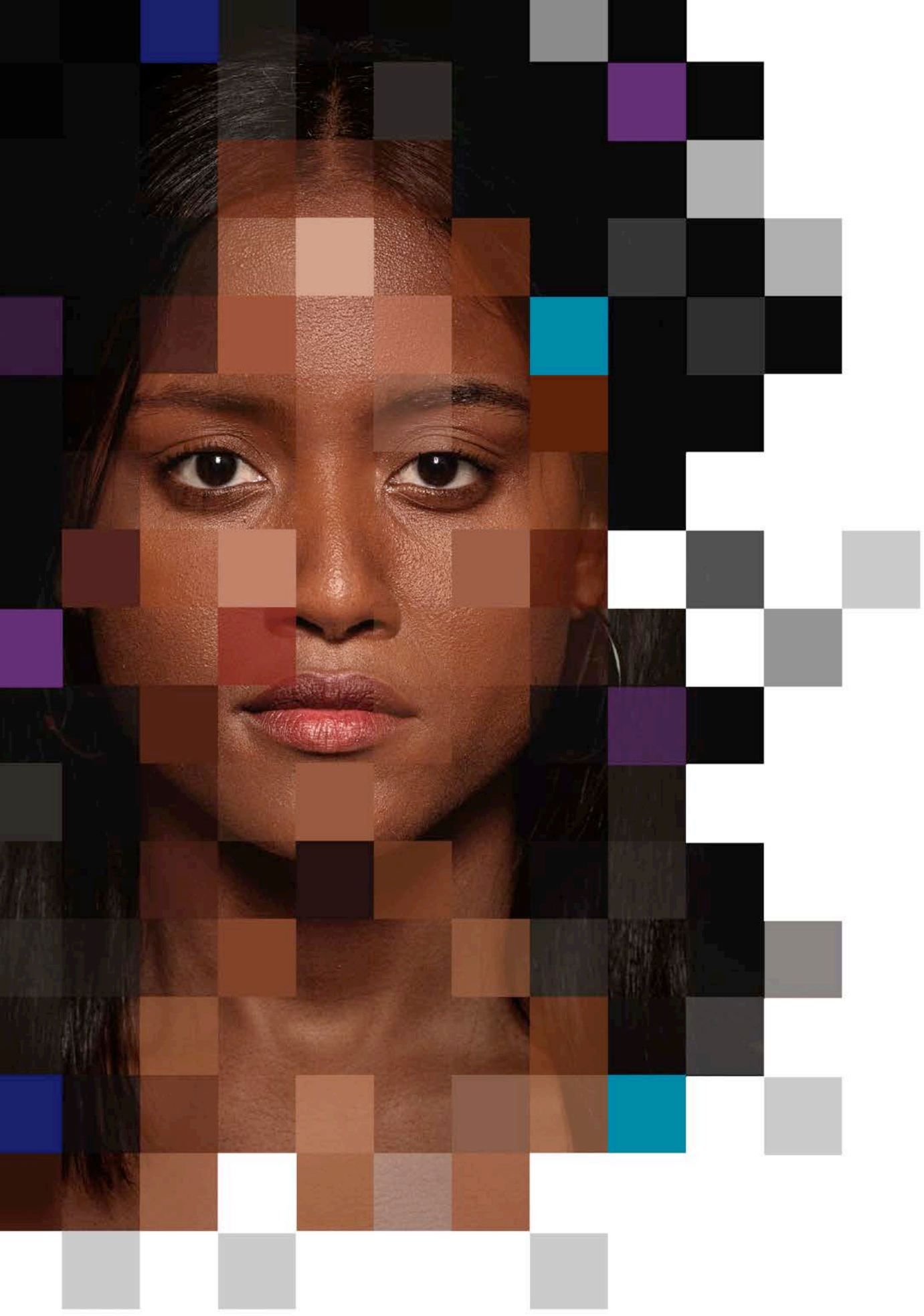
Bottom Countries/Territories on the Hologic Global Women's Health Index

		5 DIMENSIONS OF WOMEN'S HEALTH				
	Hologic Women's Health Index	1 Preventive Care	2 Emotional Health	3 Opinions of Health and Safety	4 Basic Needs	5 Individual Health
GLOBAL AVERAGE	**54**	**19**	**68**	**70**	**68**	**75**
Mali	**42**	10	56	51	54	62
Bolivia	**42**	21	55	35	47	72
Tunisia	**42**	16	48	44	65	58
Lebanon	**41**	16	45	48	67	54
Ecuador	**40**	20	49	43	40	70
Republic of the Congo	**38**	13	55	44	42	55
Gabon	**38**	14	58	33	33	68
Iraq	**37**	18	39	51	46	53
Venezuela	**37**	16	54	27	37	72
Peru	**36**	18	41	32	44	62

Note: Higher scores indicate more women are having positive health and healthcare experiences.
Source: Hologic Global Women's Health Index, 2020

11 Associated Press. (2021, June 10). *No more kidney dialysis? Lebanese hospitals issue warning.* https://apnews.com/article/beirut-middle-east-lebanon-business-health-7ff67b0bc6154b0fc1eaca63c04baa21

12 Reuters. (2021, July 8). *Tunisia says health care system collapsing due to COVID-19.* https://www.reuters.com/business/healthcare-pharmaceuticals/tunisia-says-health-care-system-collapsing-due-covid-19-2021-07-08/



Regional Rankings

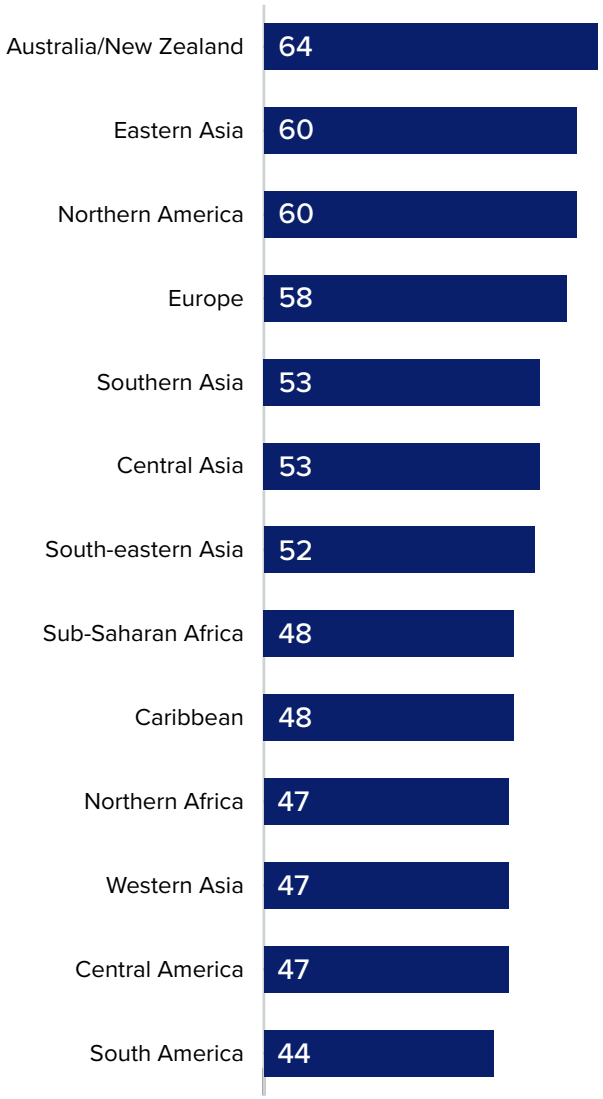
The wide range in overall Index scores at the regional level, from a high of 64 in Australia/New Zealand to a low of 44 in South America illustrates the health inequity that exists for women across the planet.

As a region, Australia/New Zealand outscores all others on the overall Index. The health systems in the two countries share some similarities. Both have been able to successfully minimize inequities across a wide range of determinants of health, including **age at the time of first pregnancy, education and household income**.

CHART 4:

Hologic Global Women's Health Index

By region



REGION SPOTLIGHT:

Australia/New Zealand

With strong scores on the Index, women in Australia and New Zealand can expect to live long lives, and they already do: 85 in Australia and 84 in New Zealand.

But even in the world's healthiest and wealthiest countries, there are differences in outcomes between groups in society that illustrate the substantial room they have to grow. In Australia for example, even though women are living years longer than men, they are also experiencing more of the total disease burden than men and they are more likely to suffer from multiple chronic conditions and experience sexual violence.

Note: Higher scores indicate more women are having positive health and healthcare experiences.

Index scores range from 0 to 100. For more information on how these scores are calculated, please see page 70.

A woman's age at her first pregnancy sharply affects her health outcomes.

Early childbearing or pregnancy in adolescence can have lasting negative effects on women's and girls' education, their livelihoods and their health. Many of these girls drop out of school, further limiting their opportunities for training and employment, and they become more vulnerable to a life of poverty and exclusion.[13] Further, maternal conditions, including infections, are among the top causes of disability-adjusted life years and death among girls between ages 15 and 19.[14]

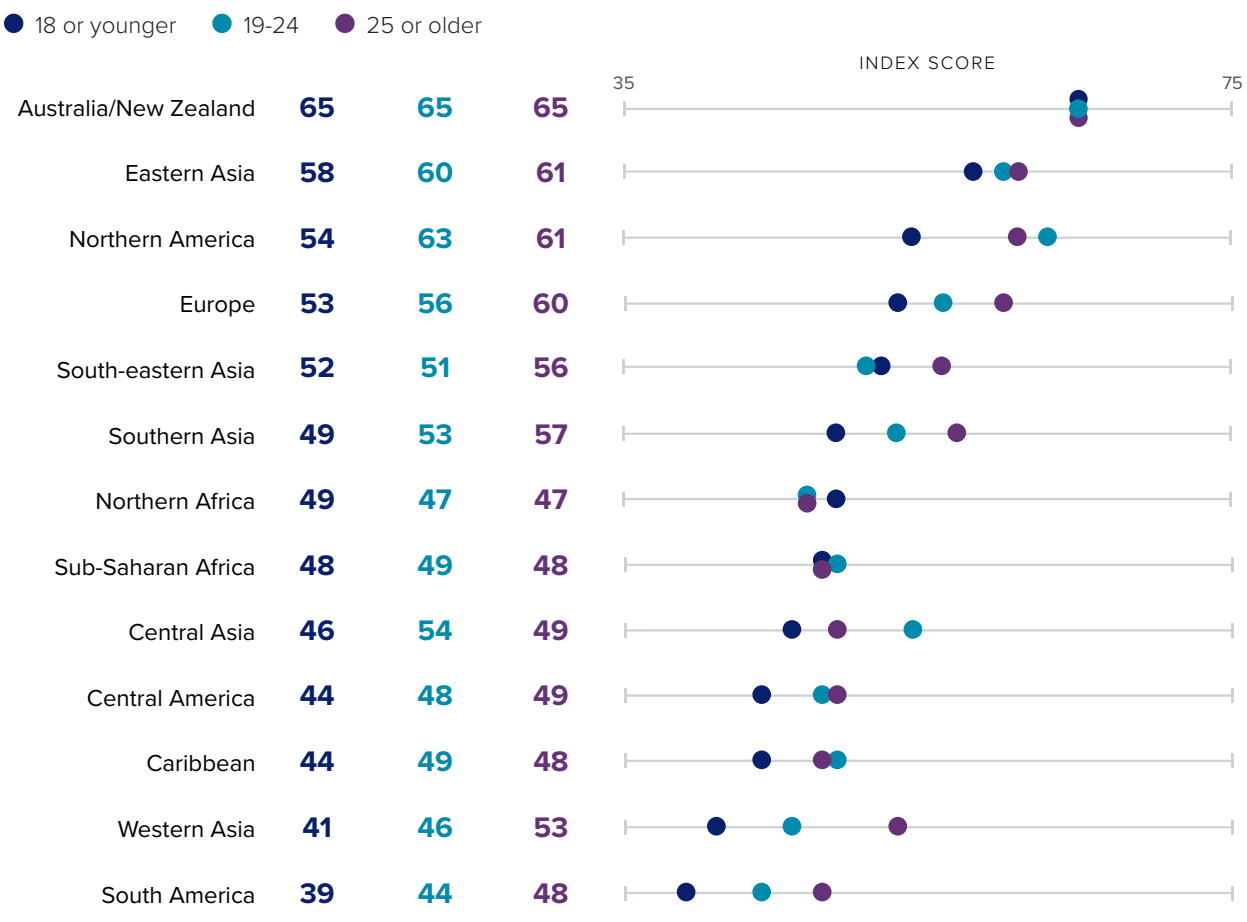
In nearly all regions, women who report first becoming pregnant at an age younger than 19 score worse in every one of the five dimensions compared with women who first became pregnant at a later age.

A notable exception to this is Australia/New Zealand, where women score equally on the Index regardless of the age at the time of their first pregnancy (scoring 65 at any age).

CHART 5:

Hologic Global Women's Health Index

By age at first pregnancy



Source: Hologic Global Women's Health Index, 2020

13 *Adolescent pregnancy.* (n.d.). UNFPA - United Nations Population Fund. Retrieved August 10, 2021, from https://www.unfpa.org/adolescent-pregnancy

14 *Early childbearing and teenage pregnancy rates by country.* (2021, July 20). UNICEF DATA. https://data.unicef.org/topic/child-health/adolescent-health/

Higher education level is associated with better health outcomes.

Ensuring people have access to quality education throughout their lives is a crucial social determinant of health, according to the World Health Organization (WHO).[15] This is particularly true for women.

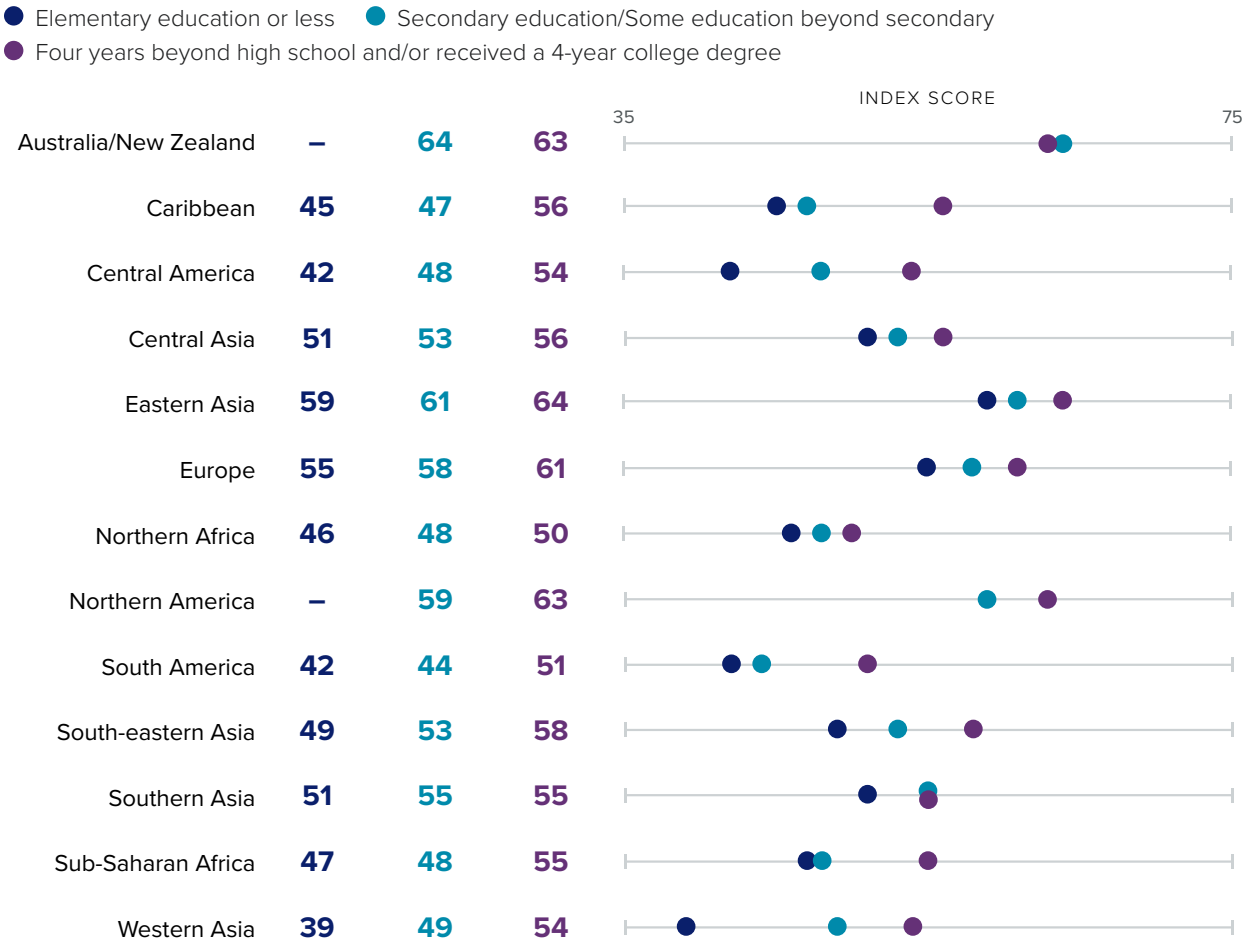
Women with at least some formal education are more likely than those without to use contraception, marry later, have fewer children and be better informed about their health and that of their children.[16]

In nearly every region, women who have completed college or a four-year degree post higher scores on the Index than those with less education. In Australia and New Zealand, however, the impact of education level on Index scoring is virtually nonexistent, meaning those with less education (64) post essentially the same scores as those with more education (63).

CHART 6:

Hologic Global Women's Health Index

By education



Note: Sample sizes for women in the lowest education group in Australia/New Zealand and Northern America are too small to report results.
Source: Hologic Global Women's Health Index, 2020

15 CSDH. (2008). Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva, World Health Organization.

16 *The Effect of Girls' Education on Health Outcomes: Fact Sheet*. (n.d.). PRB. Retrieved August 10, 2021, from https://www.prb.org/resources/the-effect-of-girls-education-on-health-outcomes-fact-sheet

Household income is strongly related to health disparities.

> **Low living standards in and within countries are powerful determinants of health inequity. In countries at all levels of income, the lower a person's socioeconomic position, the worse their health.[17]**

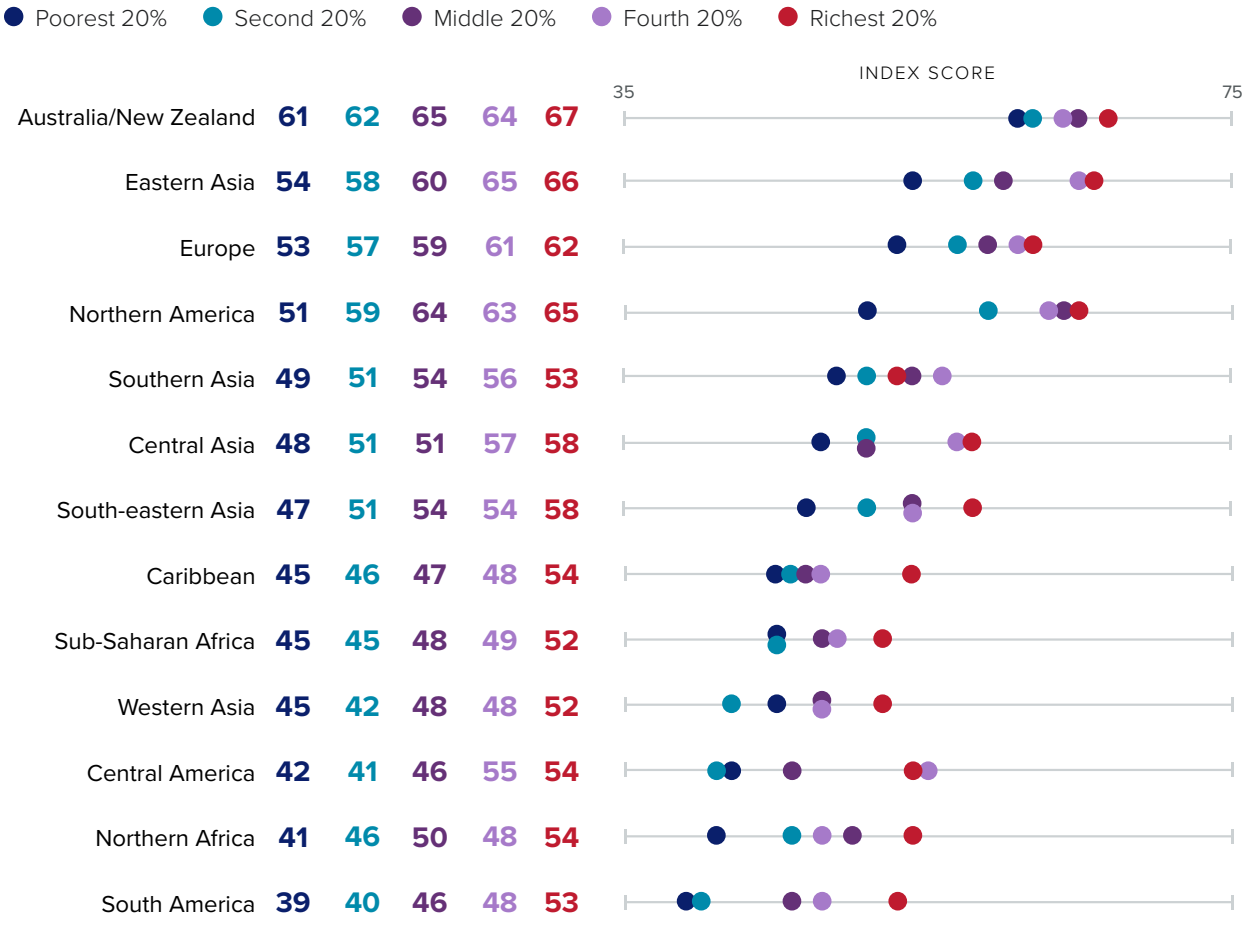
This plays out in nearly all regions of the world, where women in the richest 20% of a population's income distribution are substantially more likely to score higher on the Index than those in the poorest 20%.

Social protection programs like Australia/New Zealand's universal healthcare systems are typically associated with lower mortality rates among the disadvantaged and most vulnerable populations.[18] These programs and policies may help explain why the gap between the richest and poorest in the region is narrower in Australia/New Zealand than any other region of the world.

CHART 7:

Hologic Global Women's Health Index

By regional income level



Source: Hologic Global Women's Health Index, 2020

17 CSDH. (2008). Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva, World Health Organization.

18 Ibid.

Women in high-income countries and territories represent 17% of the women surveyed, but they have at least a seven-point lead on the Index over all other women globally.

Women in high-income economies tend to be more educated, give birth later in life and be more financially secure than those at other levels of country income, so it is not surprising that many live longer, healthier lives than other women. In addition, many women in high-income countries are more likely able to afford elective or uncovered services via out-of-pocket payments or private insurance.

Women in high-income economies score a 61 on the Index. However, the scores on the Index drop with each subsequent country-income group level after that, eventually widening to a 12-point gap between women living in high-income economies and low-income economies.

CHART 8:

Hologic Global Women's Health Index

By income level

For the current 2021 fiscal year, low-income economies are defined as those with a Gross National Income (GNI) per capita, calculated using the World Bank Atlas method, of $1,035 or less in 2019; lower middle-income economies are those with a GNI per capita between $1,036 and $4,045; upper middle-income economies are those with a GNI per capita between $4,046 and $12,535; high-income economies are those with a GNI per capita above $12,535.

Index scores range from 0 to 100. For more information on how these scores are calculated, please see page 70.

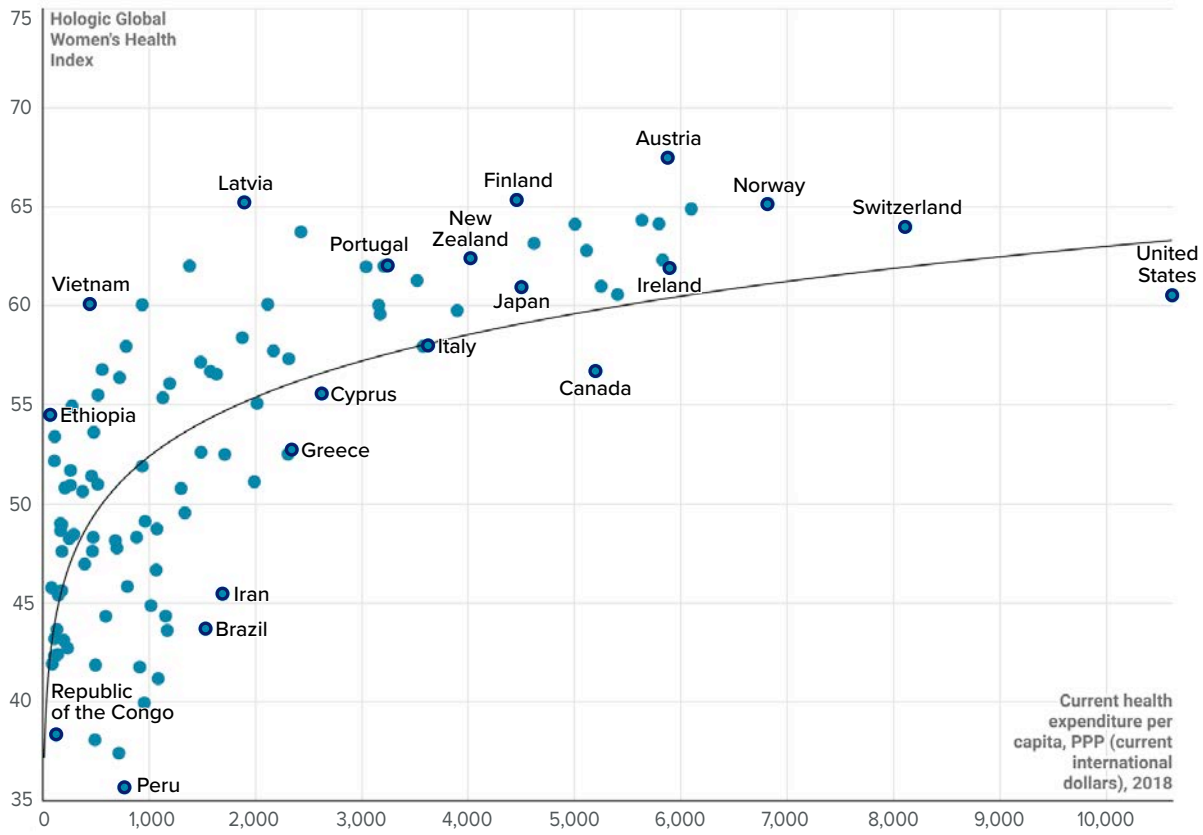
Countries and territories that spend more per capita on healthcare tend to earn higher scores on the overall Index, except for the United States.

In many countries and territories around the world, particularly the higher-income ones, higher healthcare expenditures per capita usually translate into better healthcare outcomes, including longer life expectancies for men and women.[19] The U.S., however, is a well-documented exception. The country spends nearly twice as much as an average Organisation of Economic Co-operation and Development (OECD) country does on healthcare, but it has a lower life expectancy.[20,21]

Countries and territories that spend more per capita on healthcare tend to earn higher scores on the overall Index — except for the U.S., which spends the most and scores a 61. Most of the countries that lead the world on the Index also lead the world in how much of their wealth they funnel back into their health system — including places such as Austria (67), Norway (65) and Switzerland (64).[22] And the inverse is true for the countries and territories that spend the least on healthcare — such as the lowest-ranking country, Peru (36).

CHART 9:

Health Expenditure Per Capita and the Hologic Global Women's Health Index

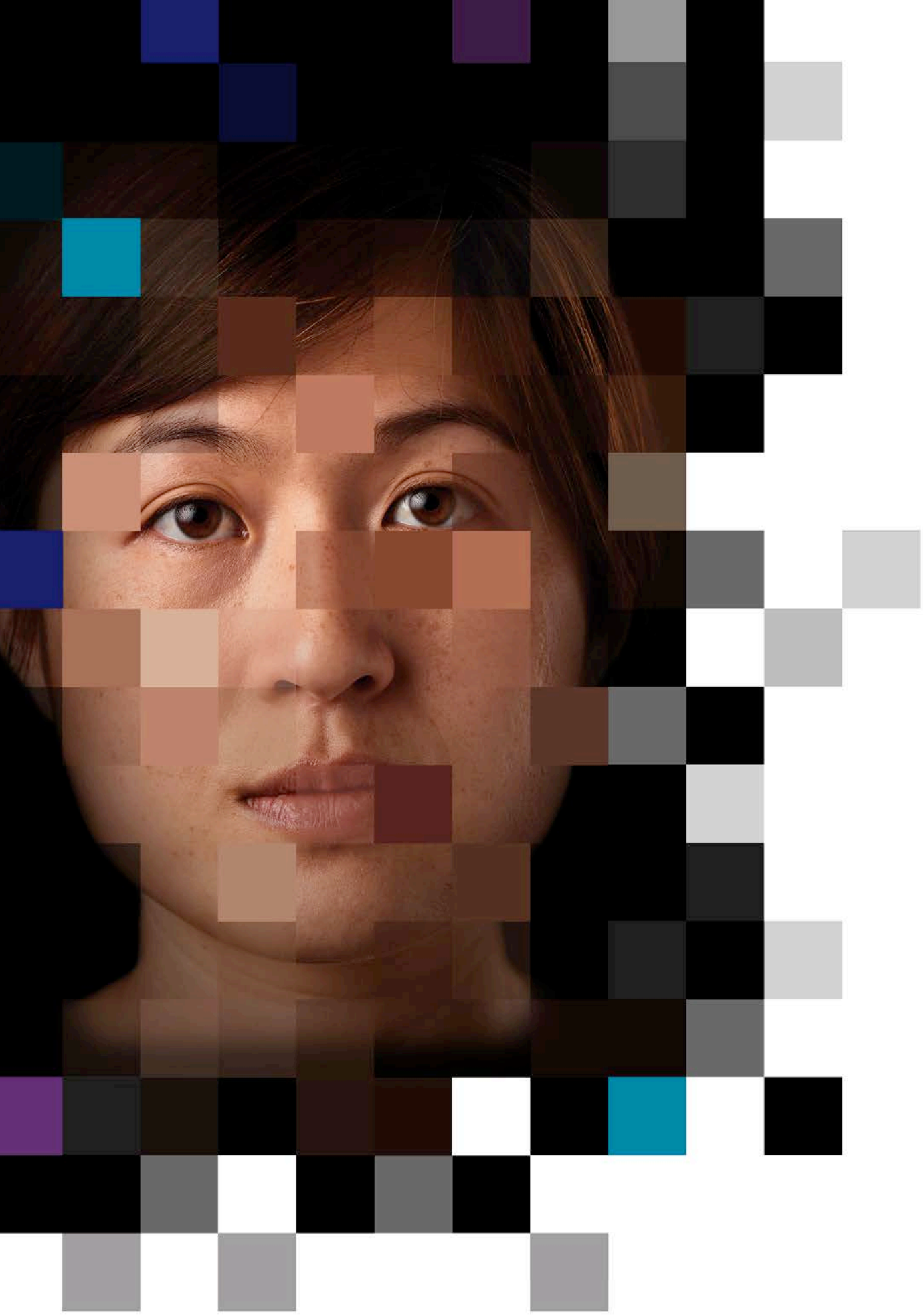


19 Duba, J., Berry, J., Fang, A., & Baughn, M. (2018). The Effects of Health Care Expenditures as a Percentage of GDP on Life Expectancies. *Research in Applied Economics, 10*(2), 50. https://doi.org/10.5296/rae.v10i2.12654

20 *U.S. Health Care from a Global Perspective, 2019: Higher Spending, Worse Outcomes?* (2020, January 30). The Commonwealth Fund. https://www.commonwealthfund.org/publications/issue-briefs/2020/jan/us-health-care-global-perspective-2019

21 *Health resources – Health spending – OECD Data.* (n.d.). The OECD. Retrieved August 10, 2021, from https://data.oecd.org/healthres/health-spending.htm

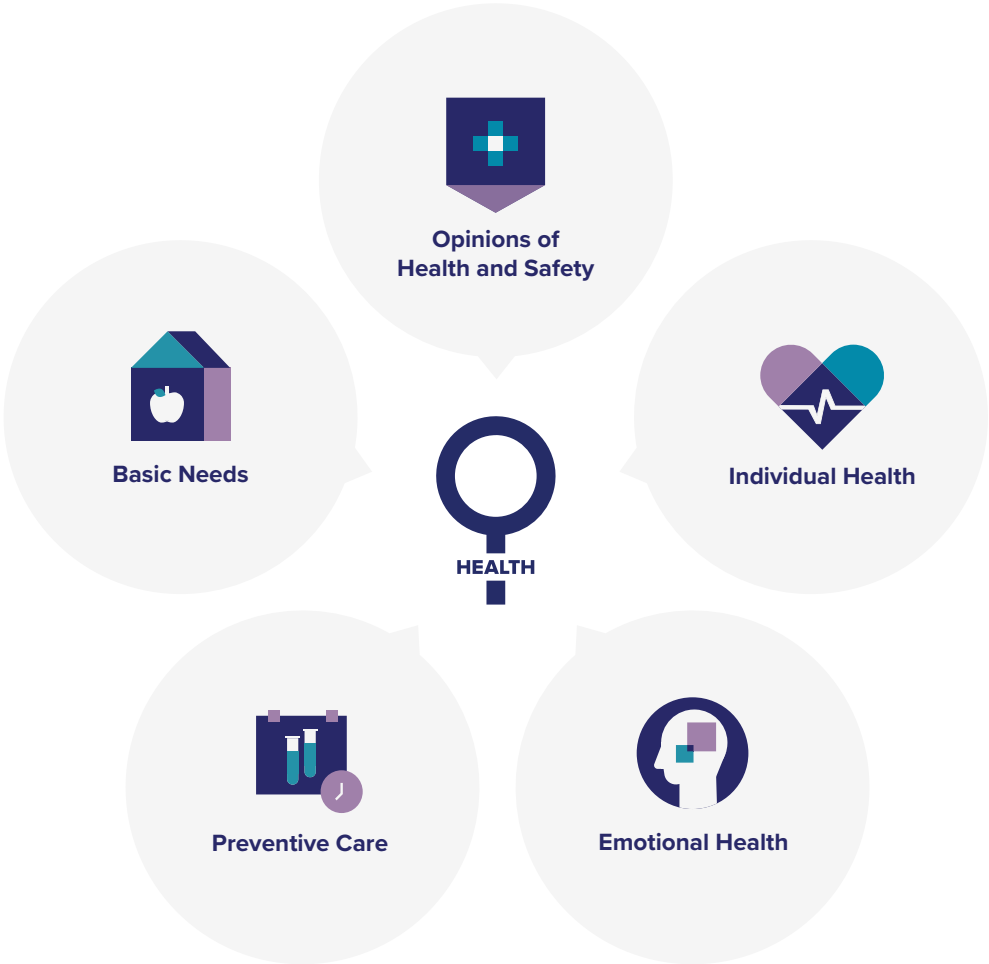
22 Ibid.



The Building Blocks for Improving Women's Health

Together, the five dimensions of the Hologic Global Women's Health Index — Preventive Care, Emotional Health, Opinions of Health and Safety, Basic Needs and Individual Health — are strongly related to women's life expectancies at birth.

These dimensions account for more than 80% of why some women live longer than others do.[23]



23 Please see the regression analysis on life expectancy and the Index in Appendix 1.

PREVENTIVE CARE:

Relatively Few Women Tested for Serious Diseases

Preventive care aims to help people avoid illnesses and detect medical problems, ideally before the onset of symptoms. The right test, screening or immunization at the right time can save people's lives and help them stay healthy and even live longer.

Because testing is an essential first step toward better health, the Hologic Global Women's Health Index asks women whether they had been tested* in the past 12 months for four of the most frequent, fast-growing and/or most damaging diseases for women globally: high blood pressure, cancer, diabetes and sexually transmitted diseases and infections (STDs/STIs).

Testing or screening recommendations for these diseases vary based on people's age, gender and the healthcare resources available to them in their communities. While the 12-month period asked about is not a globally agreed cadence, in the future the Index will capture testing over a two- to three-year period, which fits with most health advice.

Why these diseases?

- **Heart disease** is the leading cause of death in both men and women globally (CDC, 2020b).
- **Cancer** is the second-leading cause of death globally and was responsible for an estimated 9.6 million deaths in 2018. Globally, about one in six deaths is due to cancer (CDC, 2020a; WHO, 2021c).
- **Obesity and diabetes-related diseases** are a growing concern worldwide and associated with heart disease as well as increased incidence of certain cancers (CDC, 2021b; WHO, 2021b, 2021).
- **STDs/STIs** have an outsized, potentially devastating effect on women's reproductive health and fertility (compared to men) (CDC, 2021a).

* The survey questionnaire asked people whether they had been "tested" for these four conditions rather than "screened", the clinical term typically used to refer to scheduled preventive tests. This wording choice was made to help ensure the questions were easily comprehensible to all respondents.

The future will be better for women when as many women as possible have been tested in accordance with existing WHO medical standards and other guidance for high blood pressure, cancer, diabetes and STDs/STIs.

In the present, preventive care is a high bar and requires a robust healthcare system with public communication, adequate numbers of healthcare workers, technical training and equipment to screen large numbers of people.

> **But as of 2020, relatively few women worldwide reported getting preventive care with testing for cancer, high blood pressure, diabetes or STDs/STIs.**

Measuring Preventive Care

The Preventive Care dimension of the overall index measures whether women in the past year have been tested for any of these serious health conditions by asking:

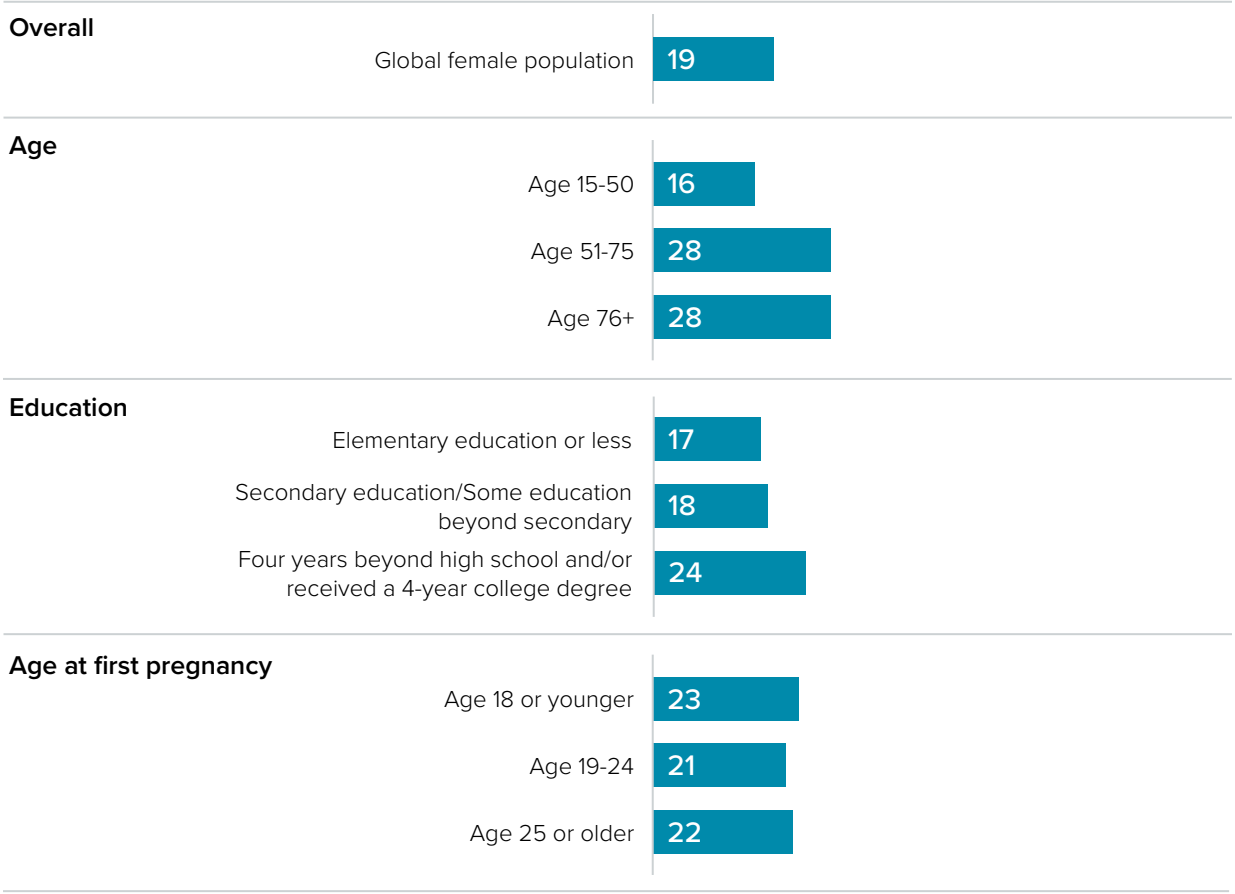
To the best of your knowledge, were you tested for any of the following in the past 12 months?

- *High blood pressure*
- *Cancer*
- *Diabetes*
- *Sexually transmitted diseases or infections*

Scores on this dimension are calculated at the individual level. To get a score, individuals need to answer at least three out of the four questions. The resulting score is a simple mean of the positive answers. Higher scores on the Preventive Care dimension mean more women are getting tested for these health factors.

CHART 10:

Women's Preventive Care by Demographic



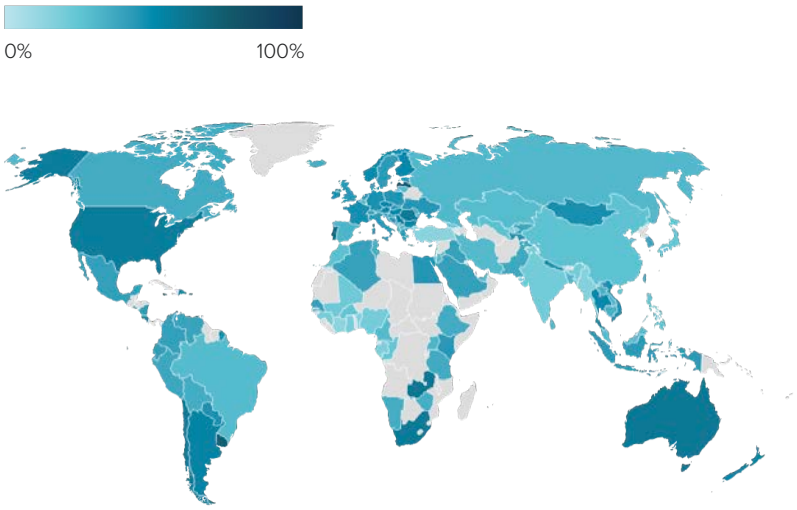
Index scores range from 0 to 100. For more information on how these scores are calculated, please see page 70.

CHART 11:

High Blood Pressure Testing

To the best of your knowledge, were you tested for any of the following in the past 12 months?

(% Yes, high blood pressure)



WHO FACTS:

More than three-quarters of cardiovascular disease deaths take place in low- and middle-income countries.

> **On average, only one in three women worldwide had their blood pressure tested in the previous 12 months — despite heart disease being the leading cause of death globally.[24]**

Blood pressure testing varies widely across the globe, from a low of **14% among women in Ivory Coast and Turkey** to a high of **76% of women in Latvia.** Although Latvia scores highest on the Preventive Care dimension of the Index, heart disease remains the No. 1 cause of death for men and women.[25]

24 *The top 10 causes of death.* (2020, December 9). The World Health Organization. https://www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death

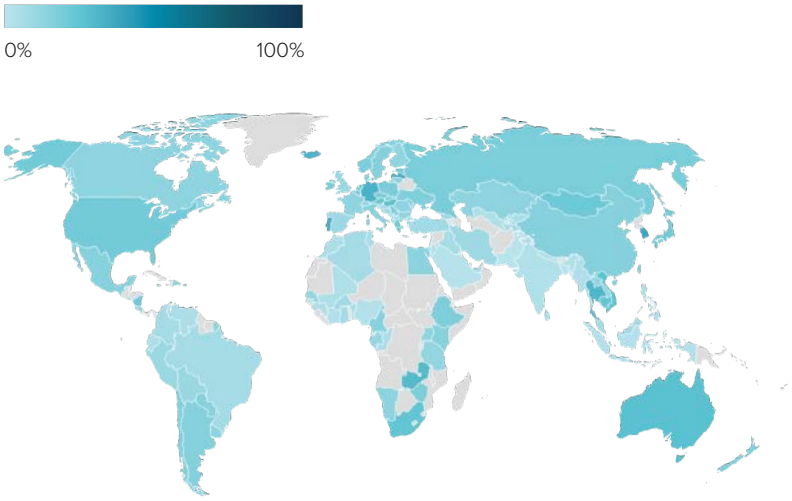
25 *Strengthening Latvia's secondary and tertiary prevention policies | OECD Reviews of Public Health: Latvia: A Healthier Tomorrow | OECD iLibrary.* (n.d.). OECD. Retrieved August 10, 2021, from https://www.oecd-ilibrary.org/sites/2be1eb8b-en/index.html?itemId=/content/component/2be1eb8b-en

CHART 12:

Cancer Testing

To the best of your knowledge, were you tested for any of the following in the past 12 months?

(% Yes, cancer)



Globally, no country or territory has tested more than 38% of women for any type of cancer — and in a host of countries, the percentage is less than 10%.

Worldwide, just 12% of women said in 2020 that they have been tested for any type of cancer in the past 12 months. But numbers were in the single digits in roughly 40 countries and territories. This includes less than 1% of women who say they were tested in Pakistan, where breast cancer rates are thought to be the highest in Asia, but like in many lower-income countries, the true numbers are unknown.[26,27]

Women in South Korea were the most likely in the world to say they were tested for cancer in that period, with 38% saying they had been.

WHO FACTS:

The most common causes of cancer death in 2020 (for men or women) were:

- Lung (1.8 million deaths)
- Colon and rectum (935,000 deaths)
- Liver (830,000 deaths)
- Stomach (769,000 deaths)
- Breast (685,000 deaths)
  - Countries that have succeeded in reducing breast cancer mortality have been able to achieve an annual breast cancer mortality reduction of 2% to 4% per year.
  - For women aged 50 to 69, the WHO recommends screenings every two years.
- Cervical cancer
  - Cervical cancer is the fourth-most common cancer among women globally, with an estimated 570,000 new cases in 2018.
  - Scaling up screening and treatment of cervical pre-cancer lesions would reduce mortality by more than one-third by 2030.

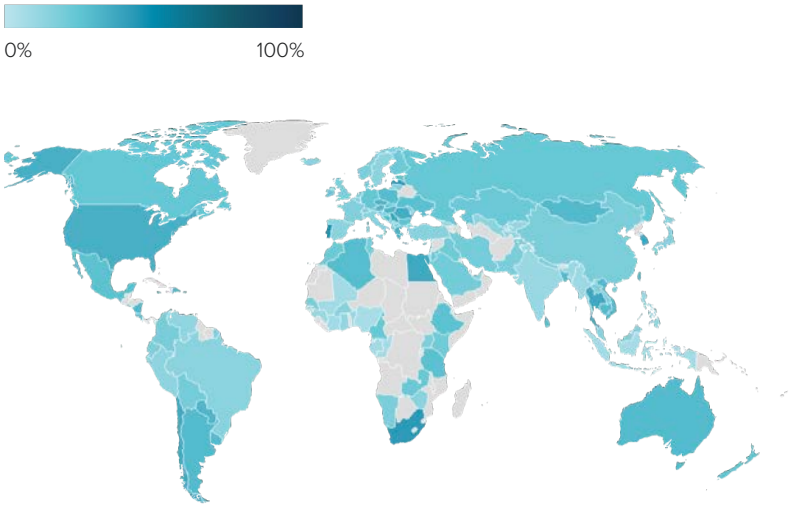
26 The Global Cancer Observatory. (2021, March). *Pakistan Fact Sheet.* https://gco.iarc.fr/today/data/factsheets/populations/586-pakistan-fact-sheets.pdf

27 Murad, R. (2017). *Breast cancer awareness in Pakistan.* The Journal of Bahria University Medical and Dental College. https://applications.emro.who.int/imemrf/J_Bahria_Univ_Med_Dent_Coll/J_Bahria_Univ_Med_Dent_Coll_2017_7_2_64_65.pdf

CHART 13:

Diabetes Testing

To the best of your knowledge, were you tested for any of the following in the past 12 months? (% Yes, diabetes)



In countries with high obesity rates, such as the U.S., about one in three women report being tested for diabetes.

Although it's the sixth leading cause of death for women, worldwide, fewer than one in five women (19%) report being tested for diabetes in the past year.[28] Reported diabetes testing ranges widely across the globe, from a low of 6% among women in Nigeria, where the WHO estimates that diabetes or high blood glucose kills more women than men annually, to a high of 46% of women in Portugal.[29]

WHO FACTS:

- The number of people with diabetes rose from 108 million in 1980 to 422 million in 2014. Prevalence has been rising more rapidly in low- and middle-income countries than in high-income countries.
- In 2019, an estimated 1.5 million deaths were directly caused by diabetes.

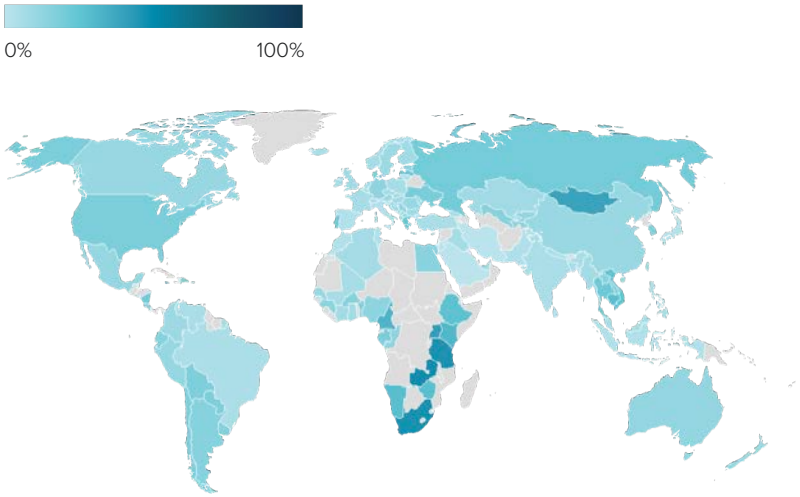
28 *The top 10 causes of death.* (2020, December 9). The World Health Organization. https://www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death

29 *World Health Organization — Diabetes Country Profiles.* (2016). The World Health Organization. https://www.who.int/diabetes/country-profiles/nga_en.pdf?ua=1

CHART 14:

Sexually Transmitted Diseases/Infections Testing

To the best of your knowledge, were you tested for any of the following in the past 12 months?
(% Yes, sexually transmitted diseases/infections)



In nearly half of the countries and territories in the study, fewer than one in 10 women had been tested for STDs/STIs in the past year.

STDs/STIs can have serious long-term consequences, including fertility problems and an increased risk of cervical cancer for women.[30] However, worldwide, only about one in nine women (11%) say they had been tested for an STD/STI in the past 12 months. In fact, in 56 countries and territories, fewer than one in 10 women said they had.

Testing percentages vary widely worldwide. Nearly half of women in countries such as Zambia (48%), South Africa (47%) and Tanzania (47%), which continue to see high rates of HIV infections, say they had been tested in the past year. These numbers may reflect the increasing availability of HIV testing in many of these countries, particularly during prenatal care.[31]

In a handful of countries and territories including Japan, which was involved in a high-profile HPV vaccine controversy in 2013 that led it to suspend recommending the vaccine, as few as 2% of women say they had been tested for any STD or STI.[32]

WHO FACTS:

- More than 1 million sexually transmitted infections (STIs) are acquired every day worldwide.
- More than 290 million women have a human papillomavirus (HPV) infection — the primary cause of cervical cancer.
- Milestones for each country to reach by 2030 to eliminate cervical cancer:
  - 90% of girls fully vaccinated with the HPV vaccine by the age of 15
  - 70% of women screened using a high-performance test by the age of 35, and again by the age of 45
  - 90% of women identified with cervical disease receive treatment

30 *Sexually transmitted infections (STIs).* (2019, June 14). The World Health Organization. https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)

31 Awopegba, O. E., Kalu, A., Ahinkorah, B. O., Seidu, A. A., & Ajayi, A. I. (2020). Prenatal care coverage and correlates of HIV testing in sub-Saharan Africa: Insight from demographic and health surveys of 16 countries. *PLOS ONE, 15*(11), e0242001. https://doi.org/10.1371/journal.pone.0242001

32 Muranaka, R. (2016, November 28). *Stopping the spread of Japan's antivaccine panic.* WSJ. https://www.wsj.com/articles/stopping-the-spread-of-japans-antivaccine-panic-1480006636

Preventive Care Dimension

Higher scores on the Preventive Care dimension of the Index mean more women are getting tested for these health factors. Worldwide, countries and territories do not perform well on this dimension of the Index, with a global score of 19.

Country-level scores on the Preventive Care dimension range from a low of 8 in Ivory Coast to a high of 44 in Latvia. Women 50 and younger and those with less than a primary education score lowest.

TABLE 3:

Top and Bottom Countries and Territories on Preventive Care

HIGHEST

Country	Preventive Care
Latvia	44
South Africa	43
Portugal	42
Zambia	40
Jamaica	37
Thailand	35
Mongolia	35
South Korea	32
Uruguay	32
Vietnam	32
United States	32
Chile	32
Australia	32

LOWEST

Country	Preventive Care
Guinea	12
Philippines	12
Benin	12
Ghana	11
Nigeria	11
Turkey	10
Mali	10
India	10
Myanmar	9
Ivory Coast	8

Source: Hologic Global Women's Health Index, 2020

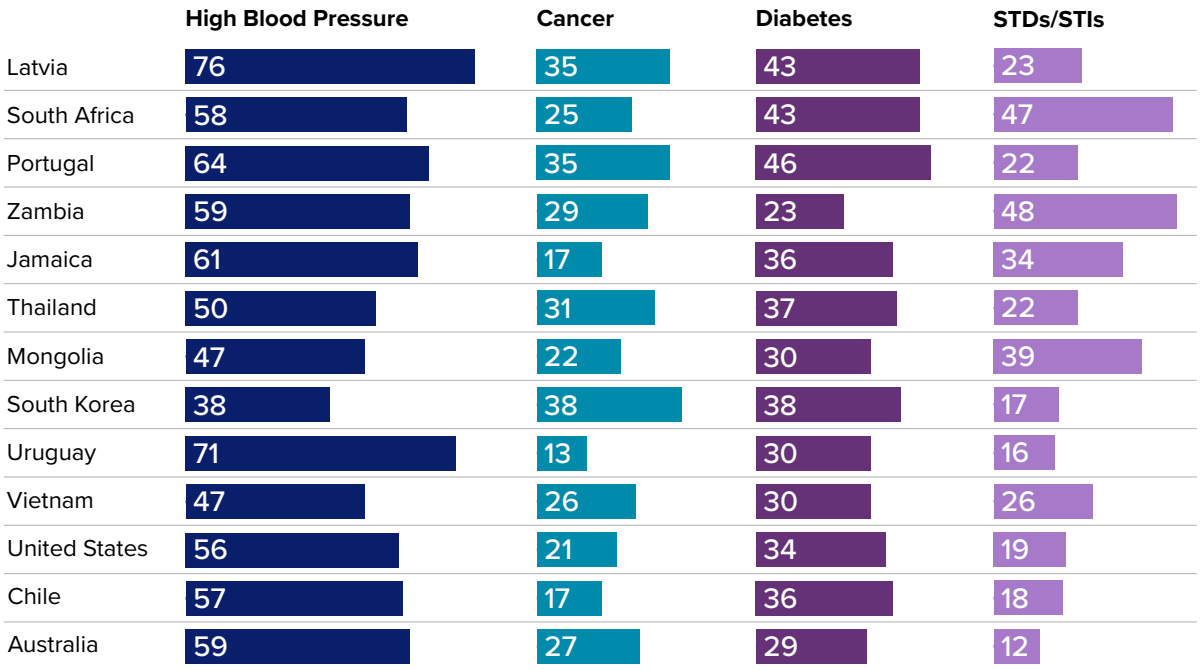
Countries and territories with the highest scores typically test for high blood pressure and other conditions.

Most of the countries with the highest scores on the Preventive Care dimension have relatively high levels of testing for high blood pressure, such as Latvia, which scores well on most measures except for testing for STDs/STIs.

The two African countries at the top of the list, South Africa and Zambia, have relatively high testing for STDs/STIs.

CHART 15:

Testing in the Top Countries for Preventive Care



Source: Hologic Global Women's Health Index, 2020
Index scores range from 0 to 100. For more information on how these scores are calculated, please see page 70.

Few women were tested for any of the four conditions in countries and territories with the lowest scores.

Most of the countries with the lowest scores on the Preventive Care dimension are low- to lower-middle income countries.

In Ivory Coast, just 14% of women were tested for high blood pressure in the past year; less than 10% were tested for any of the other conditions.

Most women (88%) believe checkups help improve people's health, but many (40%) haven't seen a healthcare professional in the past 12 months.

The questions that Hologic and Gallup asked about women's perceptions of the value of regular checkups or whether they'd spoken with a healthcare professional in the past 12 months are not factored into the overall Index score.[33] However, the results do provide some insight into the low numbers of women being tested for cancer, diabetes, high blood pressure and STDs/STIs.

> **Majorities of women in all the countries and territories surveyed perceive that regular medical checkups help improve people's health. Worldwide, the percentages of women who believe this range from a low of 72% in Hungary to a high of 100% in Tanzania. In many countries, women universally agree about the value of checkups with health professionals.**

Women's belief in the value of regular checkups did not necessarily translate into action, such as personally speaking with a healthcare professional in the past 12 months. In the majority of countries, there were significant gaps between women's perceptions and actions. In Tanzania, for example, although 100% of women say regular checkups improve women's health, 70% say they had spoken with a healthcare professional in the past 12 months. And in Myanmar, 97% say regular checkups improve health, but 38% had spoken with a health professional in the past year.

The availability of healthcare may factor into the disconnect. In Tanzania, there is less than one doctor for every 1,000 people in the country. But it is also possible that women in some of these countries did not have checkups during the past year because of the COVID-19 pandemic, as many American women reported in a recent Kaiser Family Foundation Women's Health survey.[34] The next administration of the Hologic Women's Health Index study should shed some light on this.

33 For more information on which questions are included in the Index and why, please see Appendix 1.

34 *Women's Experiences With Health Care During the COVID-19 Pandemic: Findings from the KFF Women's Health Survey.* (2021, April 16). KFF. https://www.kff.org/womens-health-policy/issue-brief/womens-experiences-with-health-care-during-the-covid-19-pandemic-findings-from-the-kff-womens-health-survey/

CHART 16:

Perceptions of the Value of Prevention and Having Talked to a Healthcare Professional in the Last 12 Months

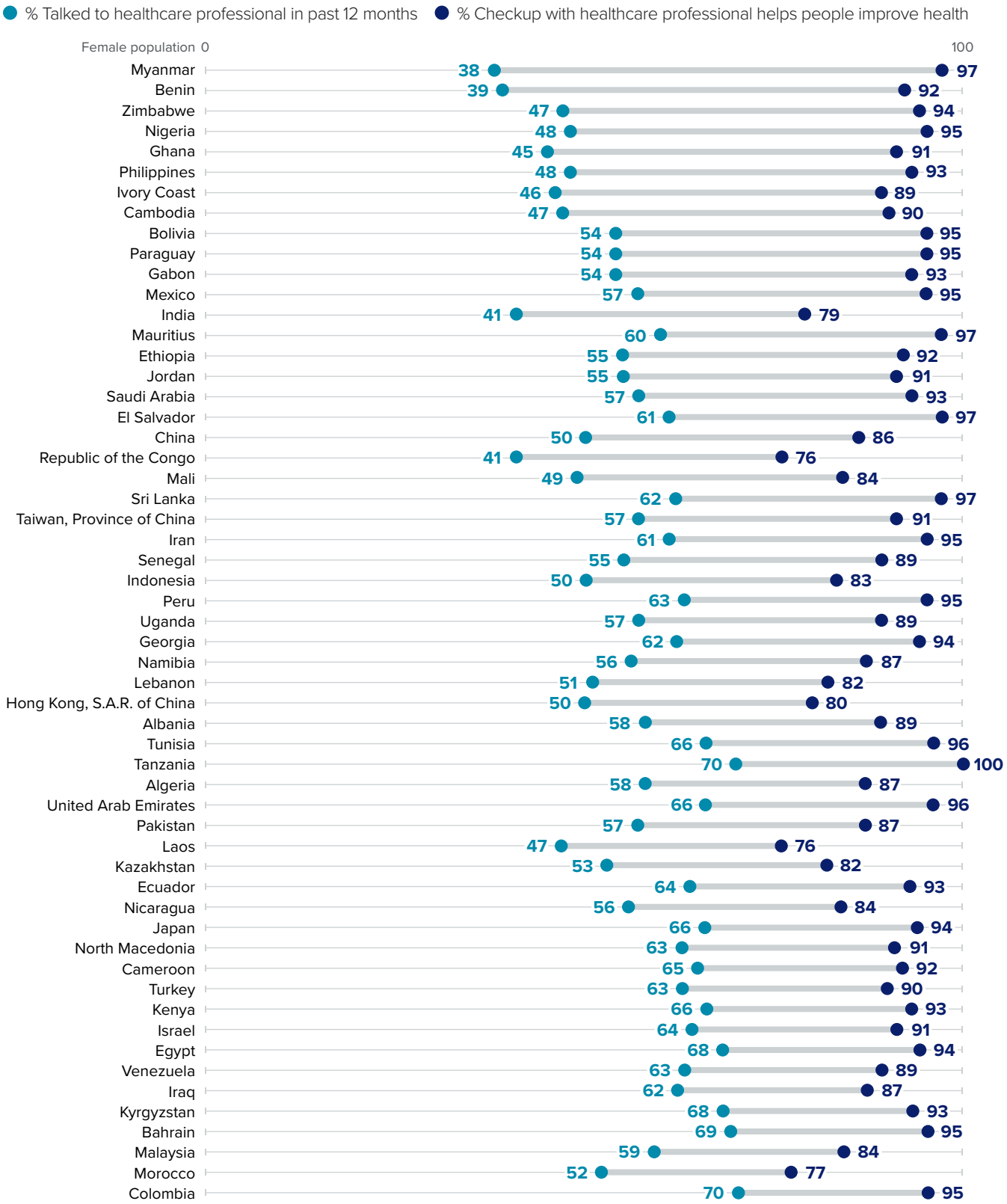
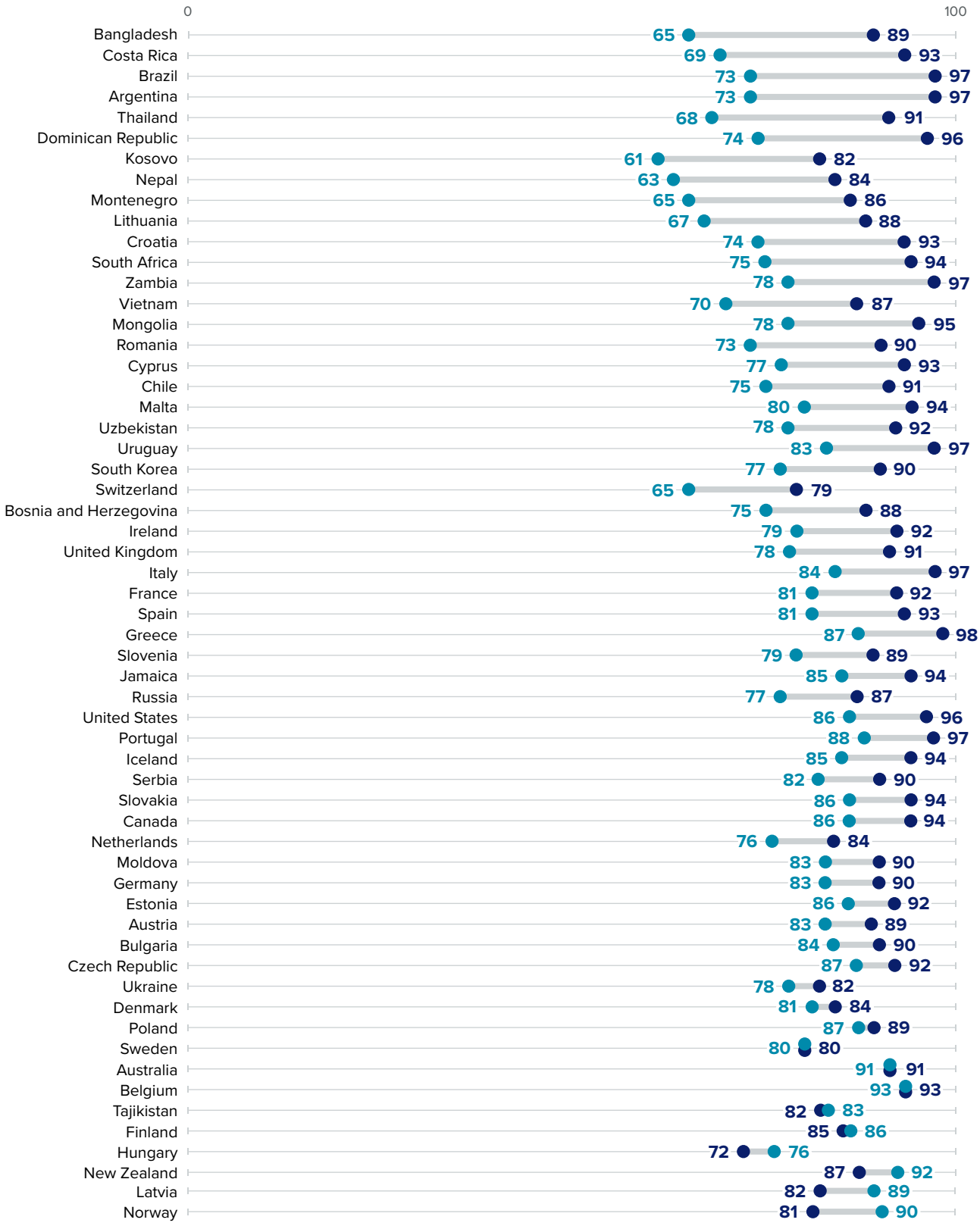


CHART 16 CONTINUED:



EMOTIONAL HEALTH:

Stress, Worry Are Major Challenges for Women

Stress, worry, sadness, anger and other emotions are all a normal part of life. But when these feelings become chronic, they can be overwhelming and interfere with people's ability to carry out everyday tasks.

They can become unhealthy and signal more serious conditions such as anxiety and depressive disorders, or other mental health diagnoses.[35]

Moreover, there is a growing body of evidence that emotional health can positively or negatively affect cardiovascular health and cardiovascular risk factors.[36]

The future will be better for women if as many women as possible do not experience worry, sadness, stress or anger a lot in a typical day.

In the present, reducing the incidence of these negative feelings — particularly stress and worry — are major challenges. But doing so can lead to better health outcomes for women. Women's experiences with health problems (the Individual Health dimension) and their ability to afford food (the Basic Needs dimension) are both related to a higher incidence of feeling negative emotions.

35 *Depression (major depressive disorder) - Symptoms and causes.* (2018, February 3). Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/depression/symptoms-causes/syc-20356007

36 Levine, G. N., Cohen, B. E., Commodore-Mensah, Y., Fleury, J., Huffman, J. C., Khalid, U., Labarthe, D. R., Lavretsky, H., Michos, E. D., Spatz, E. S., & Kubzansky, L. D. (2021). Psychological Health, Well-Being, and the Mind-Heart-Body Connection: A Scientific Statement From the American Heart Association. *Circulation, 143*(10). https://doi.org/10.1161/cir.0000000000000947

Measuring Emotional Health Issues

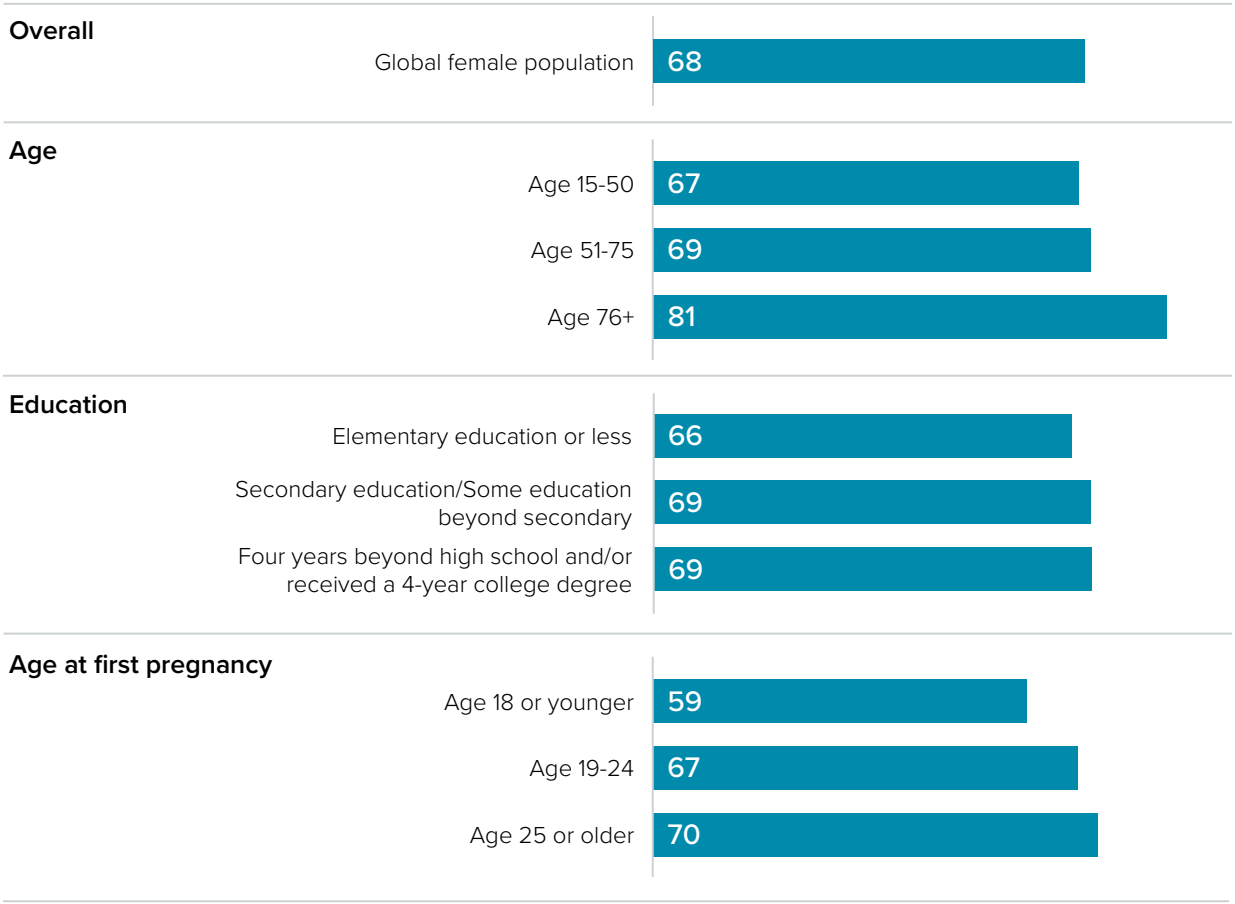
Feelings and emotions are life's intangibles that "hard data" like GDP or mortality rates were not designed to capture. The Emotional Health dimension of the Hologic Global Women's Health Index gauges women's daily experiences of negative feelings with four questions that have been asked as part of Gallup's World Poll for more than a decade:

- *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?*

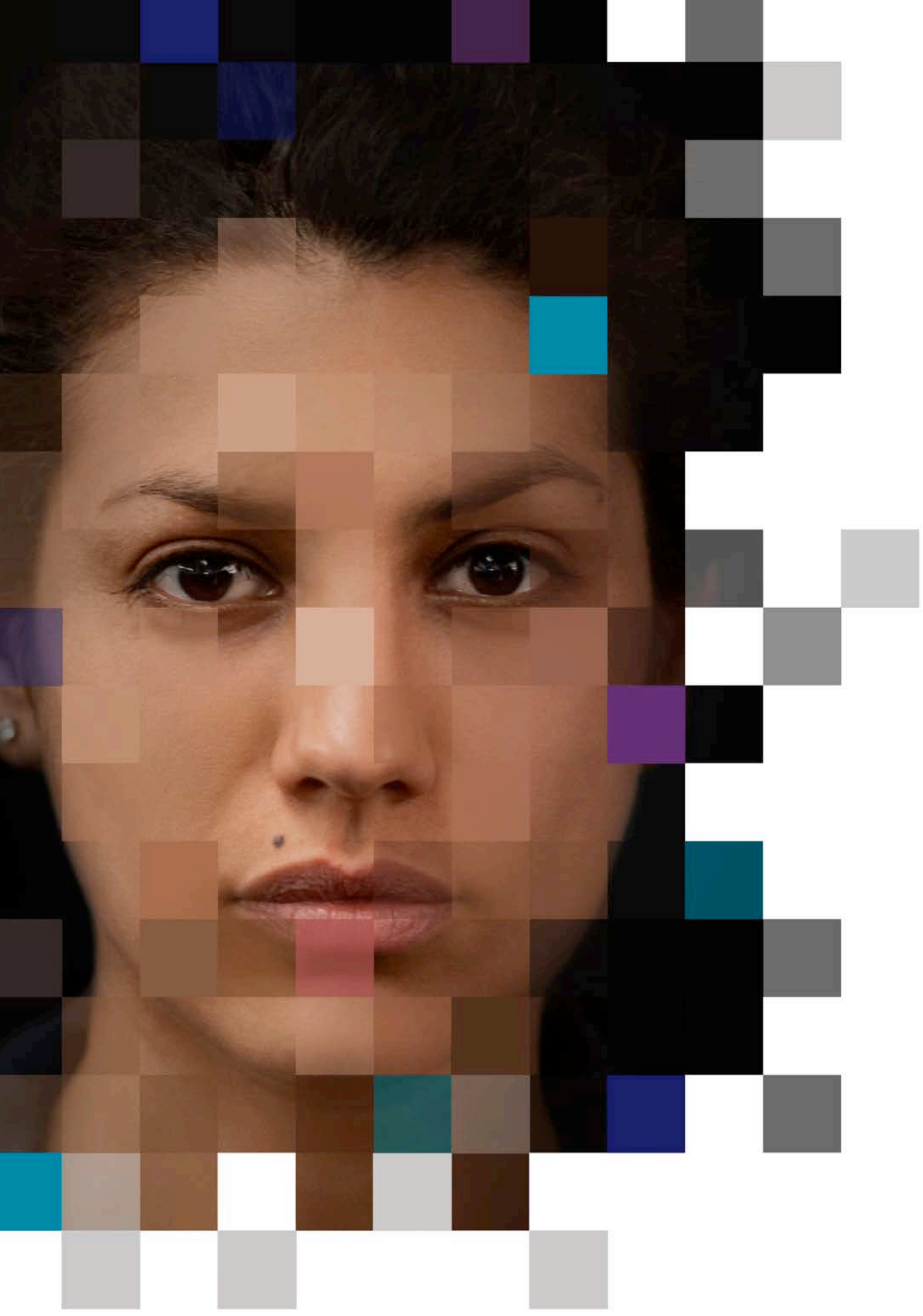
Scores on this component are calculated at the individual level. To get a score, individuals need to answer at least three out of the four questions. The resulting score is a simple mean of the positive answers. Higher scores on the Emotional Health dimension mean fewer women are experiencing negative feelings on a given day.

CHART 17:

Women's Emotional Health by Demographic



Index scores range from 0 to 100. For more information on how these scores are calculated, please see page 70.



Women in 2020 were worried, stressed, sad and angry, along with the rest of the world.

> **About four in 10 women say they experienced worry (40%) and stress (38%) during a lot of the day before the survey, while about one in four say they experienced sadness (26%) and anger (23%).**

CHART 18:

Women aren't alone in feeling this way. People worldwide in 2020 were feeling the worst they had in 15 years. Global experiences of worry, stress, sadness and anger continued to rise in 2020 and set new records. Stress alone increased from 35% to 40% worldwide in the span of a year.[37]

EMOTIONAL HEALTH DIMENSION

Higher scores on the Emotional Health dimension of the Index mean fewer women are experiencing negative feelings on a given day. Overall, women worldwide score a 68 on the Emotional Health dimension. At the country level, women's scores range widely from a high of 89 in Taiwan to a low of 39 in Iraq. Worldwide, those younger than age 75 are more likely to experience negative feelings, as are those who experienced their first pregnancy before age 19.

37 Ray, J. (2021, July 26). *2020 Sets Records for Negative Emotions.* Gallup.com. https://news.gallup.com/poll/352205/2020-sets-records-negative-emotions.aspx

Women in countries in turmoil experience the worst Emotional Health.

Many of the countries where women post the lowest scores on the Emotional Health dimension reflected the political or economic strife engulfing their countries in 2020 — with protests taking place from Iraq to Uganda.[38]

With a score of 39, women's Emotional Health scores in Iraq, where unrest intensified in late 2020, were the worst in the world.[39]

Majorities of women in Iraq experienced each of the negative feelings — with 57% reporting that they'd been angry during a lot of the previous day.

TABLE 4:

Top and Bottom Countries and Territories for Women's Emotional Health Issues

HIGHEST

Country	Emotional Health Issues
Taiwan, Province of China	89
Kazakhstan	86
Mauritius	84
Russia	79
India	79
Austria	78
Estonia	77
Denmark	77
Hong Kong, S.A.R. of China	76
United Kingdom	76
Latvia	76
Switzerland	76
Kyrgyzstan	76

LOWEST

Country	Emotional Health Issues
Uganda	53
Malta	51
Turkey	51
Iran	50
Ecuador	49
Egypt	48
Tunisia	48
Lebanon	45
Peru	41
Iraq	39

Source: Hologic Global Women's Health Index, 2020

38 Athumani, H., & Wroughton, L. (2020, November 20). *37 dead in Uganda protests after arrest of presidential candidate Bobi Wine.* Washington Post. https://www.washingtonpost.com/world/africa/uganda-protests-bobi-wine/2020/11/20/efe106ec-2aa6-11eb-9c21-3cc501d0981f_story.html

39 Abduh-Zahra, Q. (2020, October 25). *Tear gas fired as thousands mark one year of Iraq protests.* ABC News. https://abcnews.go.com/International/wireStory/thousands-rally-iraq-mark-year-protests-73815550

Women in Taiwan, Kazakhstan and Mauritius are least likely to experience negative feelings on a daily basis.

> **Women in Taiwan, who also score well on other dimensions of the overall Index, score highest on the Emotional Health dimension with an 89.**

This means many women in the territory are not experiencing negative emotions — in fact, the percentages of Taiwanese women who say they were sad, angry or worried are all in the single digits. Women in Kazakhstan and Mauritius also scored high on this dimension in 2020, with levels of stress, anger, worry and sadness that were remarkably similar to their low levels in previous years.

OPINIONS OF HEALTH AND SAFETY:

Healthcare, Safety Contribute to Longer Lives for Women

Women's (and men's) satisfaction with the availability of quality healthcare where they live and their perceptions of the quality of the prenatal care that women receive in their communities are largely missing from global statistics. But including them could help save lives: According to the WHO, "most maternal deaths are preventable with timely management by a skilled health professional working in a supportive environment."[40]

Finding out how safe women feel in these same communities is also a critical social determinant of their health. In environments where women feel personally secure, adolescent fertility rates and maternal mortality rates are lower and health expenditures per capita are higher.[41]

> **Women's satisfaction with the quality and availability of their healthcare options and their safety walking alone at night are all highly related to their life expectancy at birth.**

The future will be better for women if as many women as possible agree there is high-quality healthcare and prenatal care in the city or area where they live and they feel safe walking alone at night.

In the present, majorities of women worldwide can answer these questions affirmatively, but there are many — well over half a billion — who cannot. This includes an estimated 800 million women who do not feel safe walking alone at night where they live.

40 WHO. (2021a). *Maternal health.* World Health Organization. https://www.who.int/health-topics/maternal-health#tab=tab_1

41 Gallup World Poll Methodology 2021

Measuring Opinions of Health and Safety

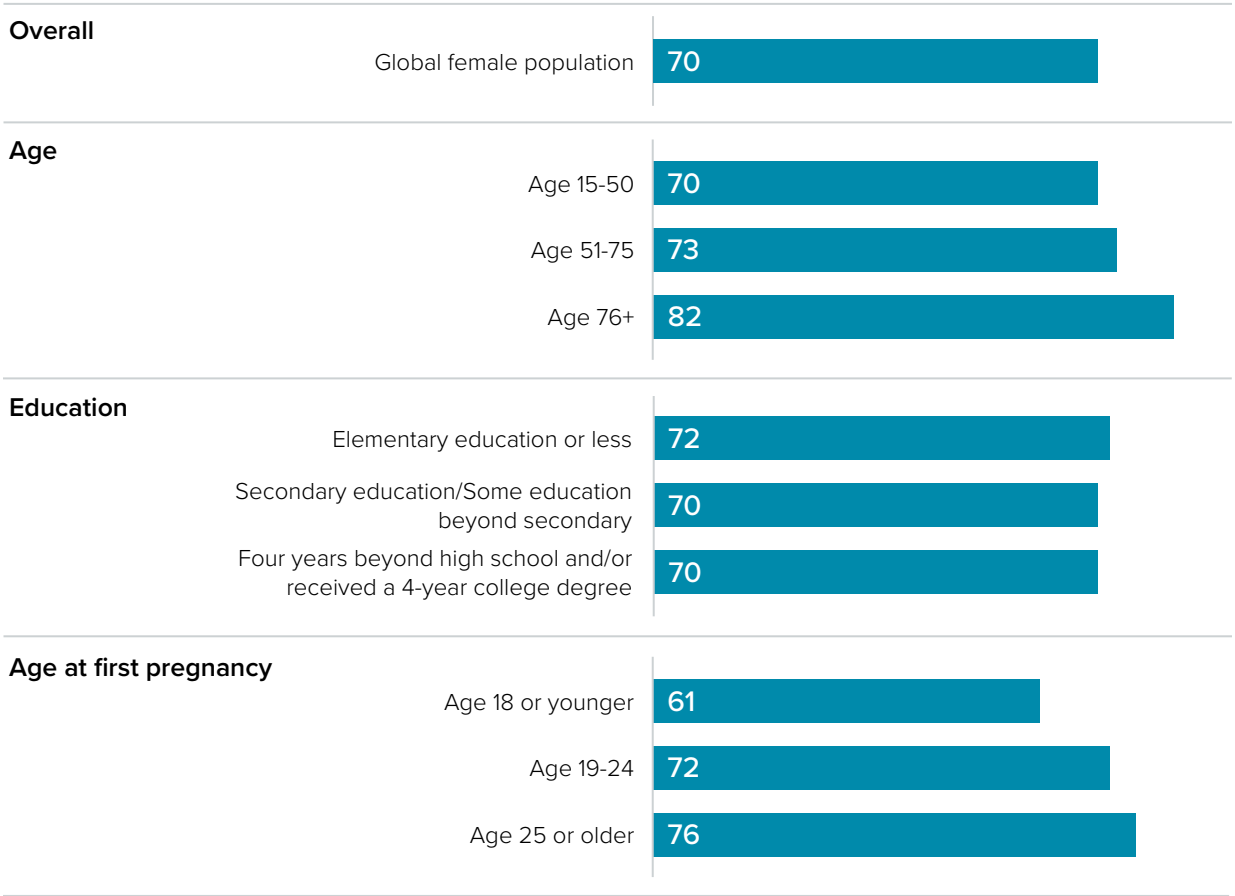
The Opinions of Health and Safety dimension of the Hologic Global Women's Health Index gauges women's satisfaction with access to quality healthcare in general, whether they think pregnant women receive high-quality care and whether they feel safe walking alone at night. Three questions make up this dimension:

- *Do you think most pregnant women in the city or area where you live receive high-quality healthcare during their pregnancies, or not?*
- *In the city or area where you live, are you satisfied or dissatisfied with the availability of quality healthcare?*
- *Do you feel safe walking alone at night in the city or area where you live?*

Scores on this dimension are calculated at the individual level. To get a score, individuals need to answer at least two out of the three questions. The resulting score is a simple mean of the positive answers. Higher scores on the Opinions of Health and Safety dimension mean more women feel safe and satisfied with the quality and availability of healthcare where they live.

CHART 19:

Opinions of Health and Safety by Demographic



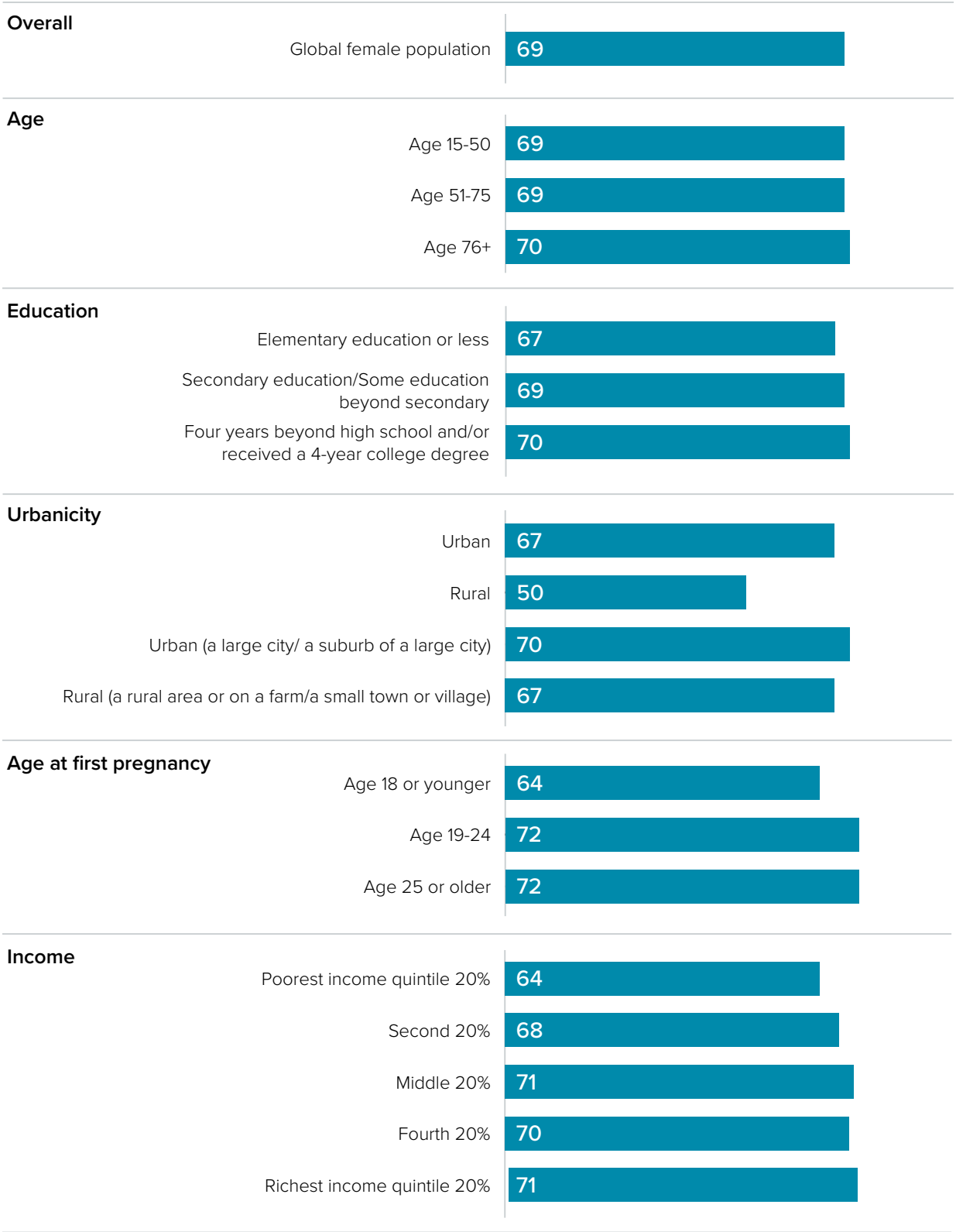
Index scores range from 0 to 100. For more information on how these scores are calculated, please see page 70.

Most women are satisfied with the availability of quality healthcare where they live and think most pregnant women in their communities receive high-quality prenatal care.

- About seven in 10 women are satisfied with the availability of quality healthcare (68%) and think most pregnant women receive high-quality care (69%). This satisfaction is lower among women living in rural areas and those who experienced their first pregnancy before age 19.
- Men and women largely share similar views on the availability of quality healthcare, but many men do not know if pregnant women get high-quality care. Nearly one in 10 men say they don't know if most women receive high-quality care during their pregnancies — rising to as high as one in three in some countries such as Latvia (35%) and Lithuania (33%).

CHART 20:

Opinions of Maternal Care by Demographic

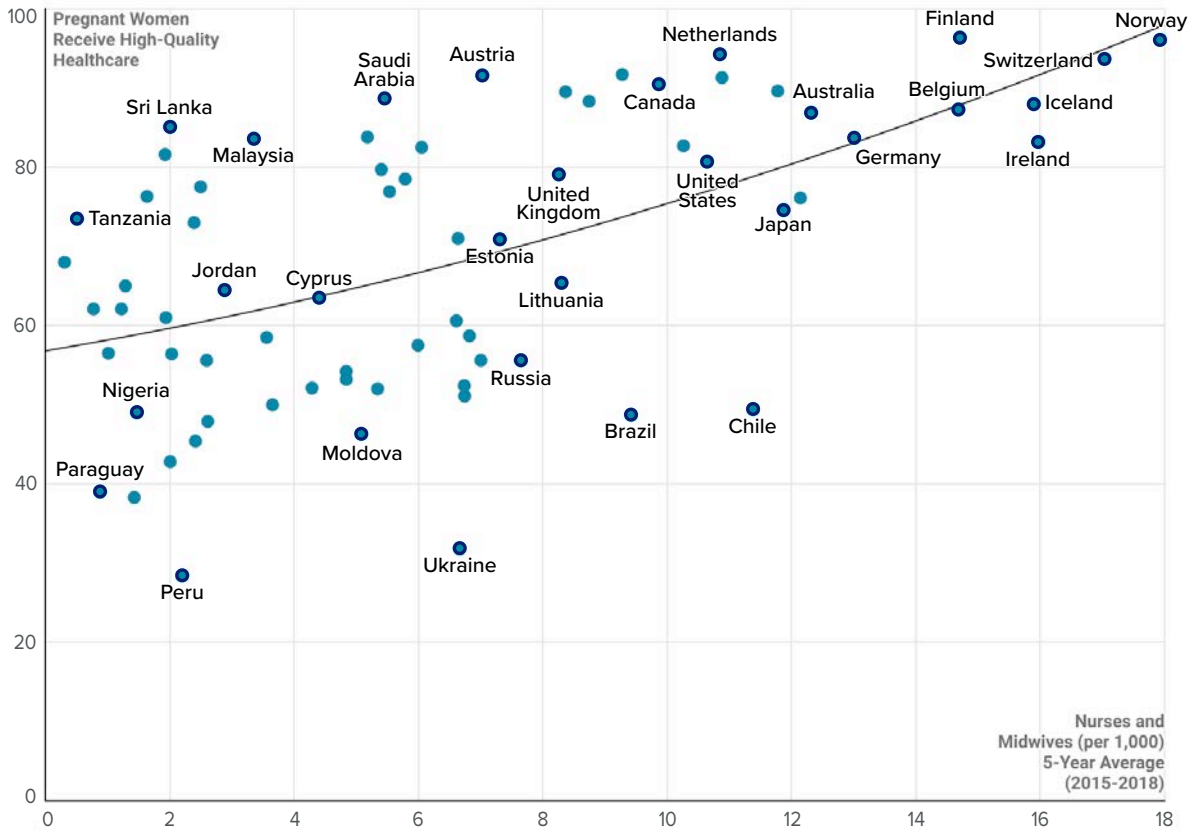


Index scores range from 0 to 100. For more information on how these scores are calculated, please see page 70.

Countries with higher numbers of nurses and midwives have higher levels of agreement that pregnant women receive high-quality care.

CHART 21:

Opinion of Availability of High-Quality Care for Women and Average Number of Nurses and Midwives



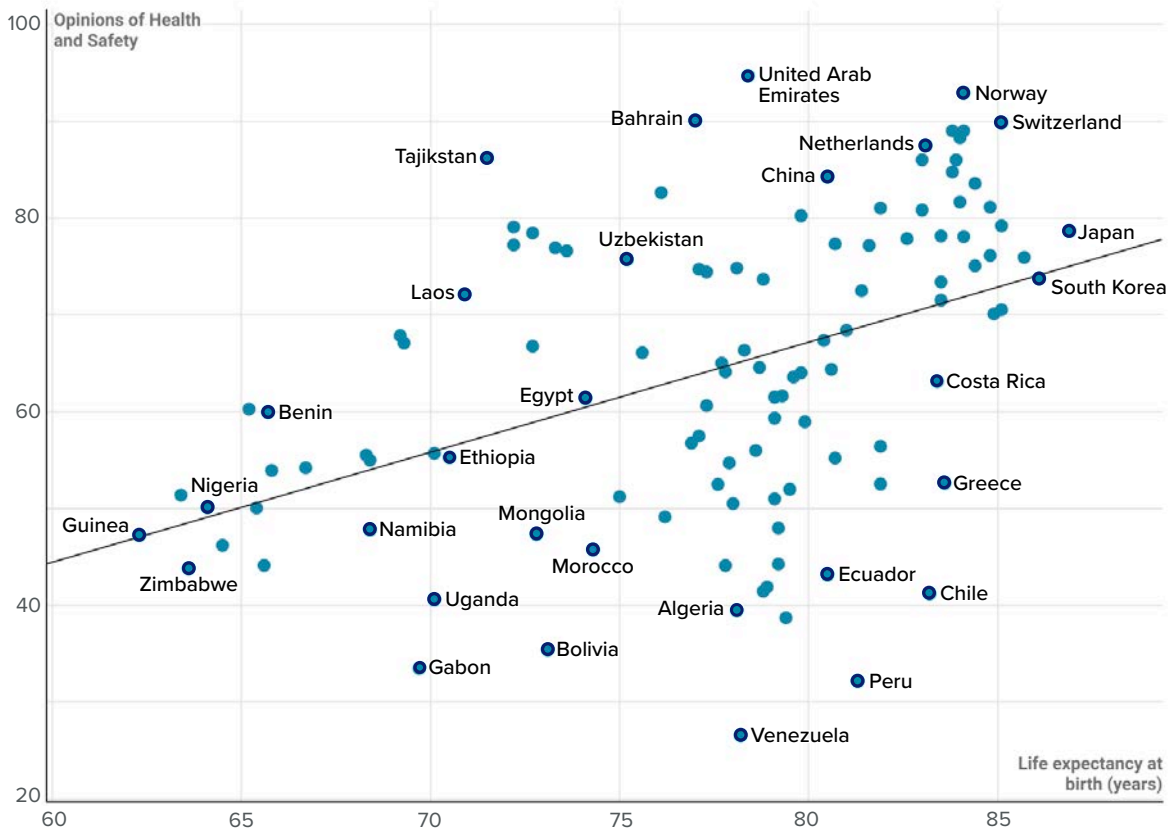
Nearly one in three women worldwide — more than 800 million — do not feel safe walking alone at night in their communities. Fewer women than men feel safe.

- About two in three women worldwide (65%) say they feel safe walking alone at night where they live, while about one in three (32%) say they do not. However, majorities of women in many Latin American and sub-Saharan African countries say they do not feel safe walking alone at night where they live. Many of these countries have high intentional homicide rates, which Gallup finds is strongly linked to feelings of security.[42]
- Consistent with previous Gallup research, women are less likely to say they feel safe than men are. In 2020, nearly eight in 10 (79%) men said they feel safe, compared with about two in three women (65%).[43]

Women's opinions of their health and safety in their areas are strongly related to their life expectancy.

CHART 22:

Opinions of Health and Safety and Life Expectancy



42 World Poll Methodology 2021

43 Nsubuga, F., & Crabtree, S. (2012, July 6). *Women Feel Less Safe Than Men in Many Developed Countries.* Gallup.com. https://news.gallup.com/poll/155402/Women-Feel-Less-Safe-Men-Developed-Countries.aspx

Opinions of Health and Safety

Higher scores on the Opinions of Health and Safety dimension mean more women feel safe and are satisfied with the quality and availability of healthcare where they live. Overall, women worldwide score a 70 on the Opinions of Health and Safety dimension.

> **At the country level, women's scores on the Opinions of Health and Safety dimension range from a high of 95 in the United Arab Emirates to a low of 27 in Venezuela — which has the fourth-highest intentional homicide rate for women in the world.[44,45]**

Women aged 50 and younger, those living in rural areas and those who experienced their first pregnancy before age 19 are more likely to post lower scores.

44 Statista. (2021, July 29). *World's most dangerous countries 2021, by homicide rate.* https://www.statista.com/statistics/262963/ranking-the-20-countries-with-the-most-murders-per-100-000-inhabitants/

45 *Intentional homicides, female (per 100,000 female)* | *Data.* (n.d.). World Bank. Retrieved August 10, 2021, from https://data.worldbank.org/indicator/VC.IHR.PSRC.FE.P5?most_recent_value_desc=true

Satisfaction with healthcare and safety is almost universal in the United Arab Emirates and Norway.

Nearly all women in the United Arab Emirates and Norway are content with the health and safety situations in their countries. More than nine in 10 in each country say they feel safe walking alone at night where they live, and just as many say they are satisfied with the availability of quality healthcare.

Most of the other countries and territories with the highest scores in this dimension are high-income economies (except for Tajikistan) with well-developed healthcare systems and infrastructure.

TABLE 5:

Top and Bottom Countries and Territories on Opinions of Health and Safety

HIGHEST

Country	Opinions of Health and Safety
United Arab Emirates	95
Norway	93
Bahrain	90
Switzerland	90
Austria	89
Slovenia	89
Finland	88
Netherlands	87
Tajikistan	86
Denmark	86

LOWEST

Country	Opinions of Health and Safety
Mexico	42
Paraguay	41
Chile	41
Uganda	41
Algeria	39
Brazil	39
Bolivia	35
Gabon	33
Peru	32
Venezuela	27

Source: Hologic Global Women's Health Index, 2020

Latin American and sub-Saharan African countries have the lowest scores.

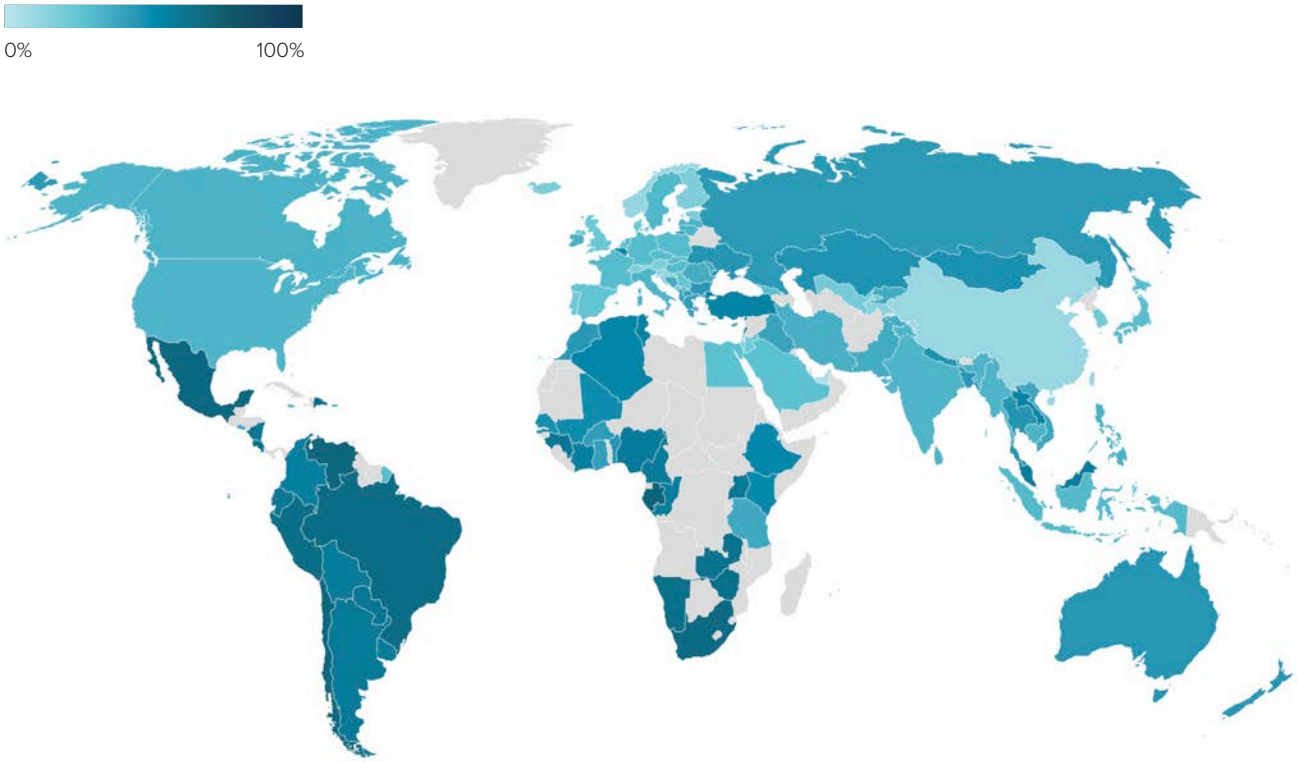
Negative perceptions of safety largely contribute to the poor performance of the countries with the lowest scores in this dimension.

Majorities of women in nearly all the Latin American and sub-Saharan African countries with the worst scores in this dimension say they do not feel safe walking alone at night where they live.

CHART 23:

Feel Safe Walking Alone at Night

Do you feel safe walking alone at night in the city or area where you live? (% No)



Most women and men identify domestic violence as a widespread problem where they live.

Although domestic violence is very much a major public health and safety problem — more than half a billion women across their lifetimes are subjected to physical or sexual violence by an intimate partner — the question that Hologic and Gallup asked about this important subject was not included in the Index. In testing, the question results were not consistent or highly related to any of the dimensions of health. However, Gallup and Hologic will continue to monitor and study results on this question in future administrations of the Index.

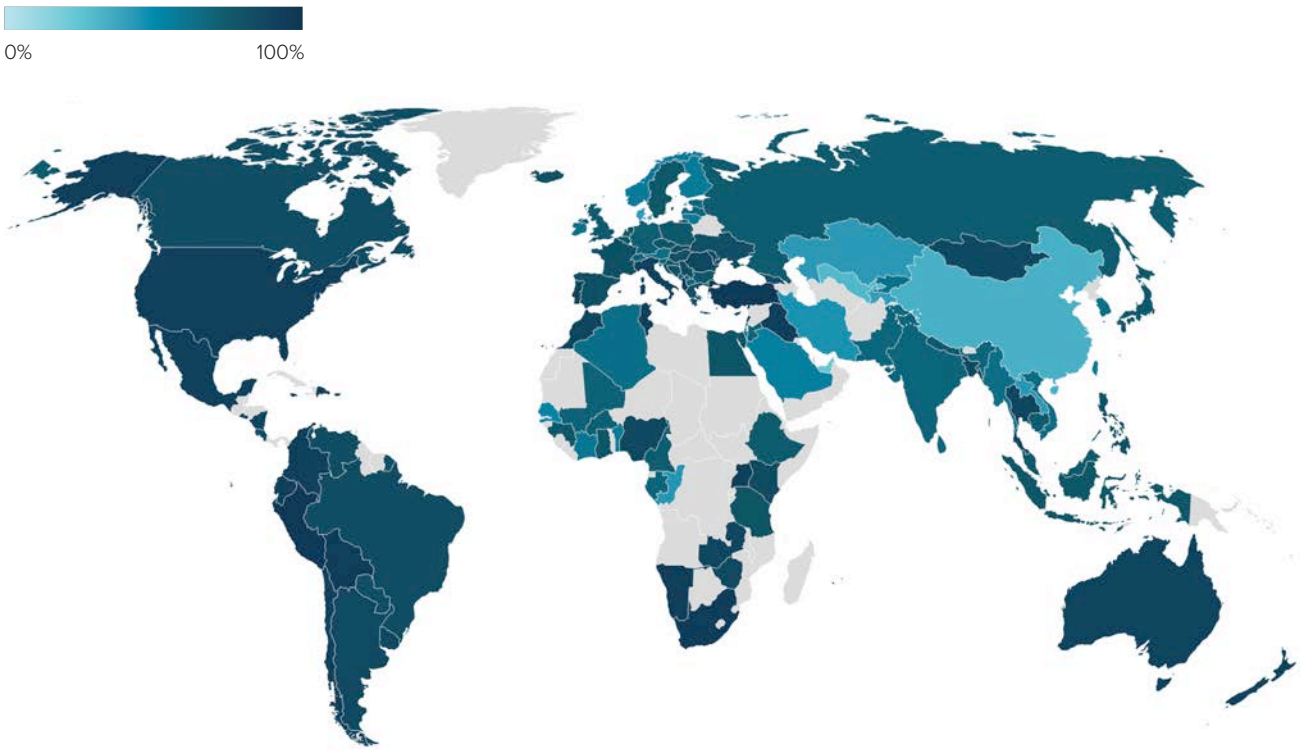
The findings reveal the extensive scope of the problem around the world. Two in three women worldwide — or about 1.7 billion women — say domestic violence is a widespread problem in their country. And nearly six in 10 men agree.

Worldwide, the percentage of women who say domestic violence is widespread ranges from a low of 24% in the United Arab Emirates to a high of 94% in Peru and Turkey.

CHART 24:

Women's Perception of 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, or not? (% Yes)



BASIC NEEDS:

Food, Shelter Are Necessities Many Women Cannot Afford

Having enough resources to meet daily needs such as having enough nutritious food to eat — and being able to find safe, affordable housing — are all basic needs for healthy living.

Of the social determinants of health, food insecurity likely has one of the most extensive influences on people's health: Adults who are food insecure — meaning they lack regular access to enough safe and nutritious food — are disproportionately at risk of obesity and chronic diseases including hypertension, diabetes, cancer and heart disease.[46,47]

Establishing a baseline for how many women are struggling to afford food now and monitoring that in the years to come is critical. The COVID-19-related disruptions that pushed hundreds of millions of the most vulnerable populations — including women — into acute food insecurity in 2020 are expected to continue through at least 2022.[48]

The future will be better for women if as many women as possible say they are not struggling to afford the food or shelter that they or their families need. When women can meet their basic needs, their life expectancies go up and the mortality rates of mothers and children go down.[49]

In the present, hundreds of millions of women worldwide cannot afford the food and shelter that they or their families need.

46 Coleman-Jenkins, A., & Gregory, C. (2017). *Food Insecurity, Chronic Disease, and Health Among Working-Age Adults.* USDA. https://www.ers.usda.gov/webdocs/publications/84467/err-235_summary.pdf?v=5079.8

47 *Hunger.* (n.d.). Food and Agriculture Organization of the United Nations. Retrieved August 10, 2021, from http://www.fao.org/hunger/en/

48 *Food Security and COVID-19.* (n.d.). World Bank. Retrieved August 10, 2021, from https://www.worldbank.org/en/topic/agriculture/brief/food-security-and-covid-19

49 Gallup World Poll Methodology, 2021

Measuring Basic Needs

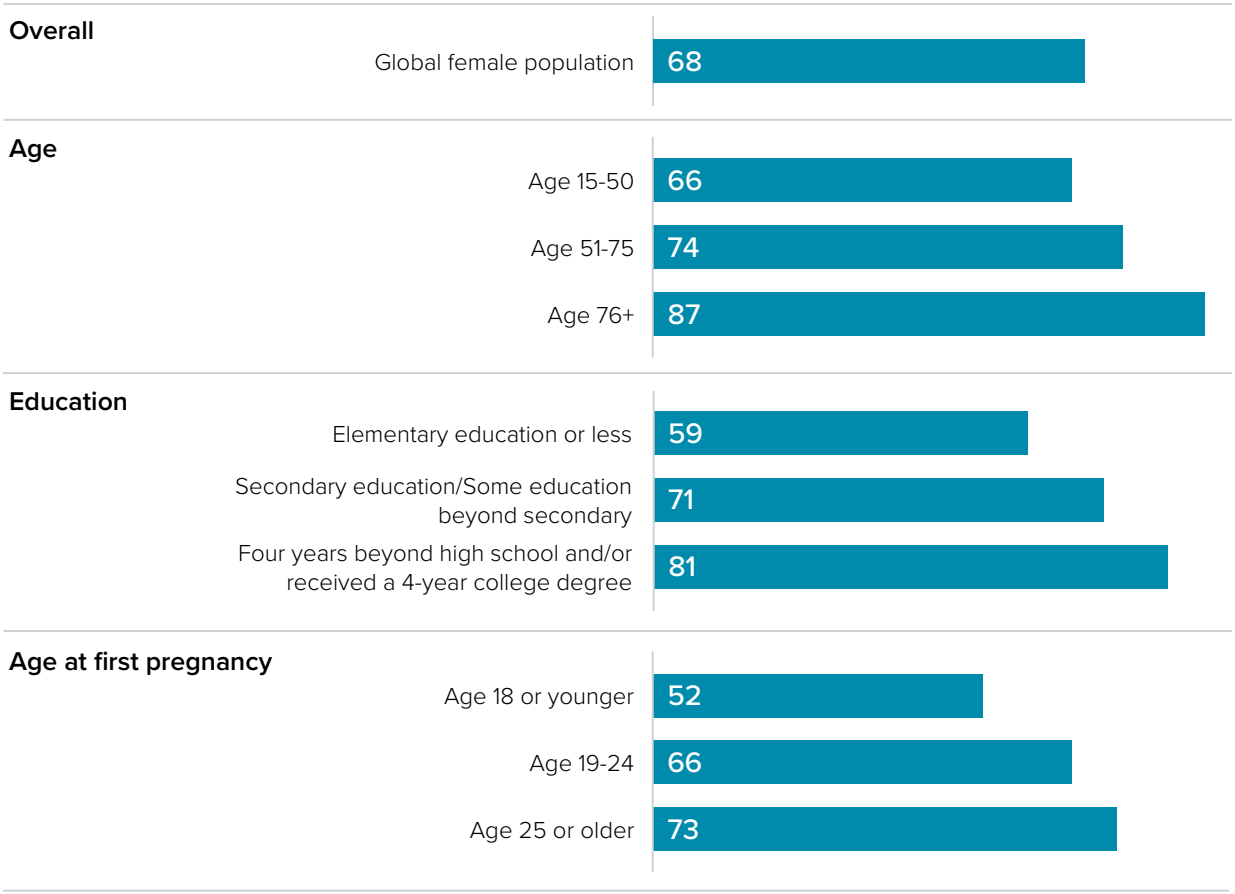
The Basic Needs dimension of the Hologic Global Women's Health Index gauges women's ability to meet their basic needs with two questions that Gallup's World Poll has asked for more than a decade:

- *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?*

Scores on this dimension are calculated at the individual level. To get a score, individuals need to answer both questions. The resulting score is a simple mean of the positive answers. Higher scores on the Basic Needs dimension mean fewer women are struggling to afford the food and shelter they need.

CHART 25:

Women's Basic Needs by Demographic



Index scores range from 0 to 100. For more information on how these scores are calculated, please see page 70.

More than one in three women worldwide — nearly 900 million — couldn't afford the food their families needed at times in the past year.

In 2020, 34% of women — or nearly 900 million women — struggled to afford food in the past year. Most of these women are aged 50 and younger, with a primary school education or less and experienced their first pregnancy before the age of 19.

Nearly 700 million women didn't have enough money for shelter.

Just shy of three in 10 (29%) women — or nearly 700 million — say there had been times in the past year when they were unable to afford adequate shelter or housing for themselves or their families. Again, these women were often aged 50 and younger, less educated and experienced their first pregnancies early in life.

BASIC NEEDS DIMENSION

Higher scores on the Basic Needs dimension of the Index mean fewer women in a country are struggling to afford the food and shelter they need. Women worldwide score a 68 on this dimension of the overall Index. At the country level, women's scores on the Basic Needs dimension range from a low of 29 in Namibia to a high of 96 in the Netherlands.

Worldwide, women aged 50 and younger, those with primary education or less, rural women and those who experienced their first pregnancy before age 19 scored worst on the Basic Needs dimension.

Women in sub-Saharan Africa and Latin America score worst on basic needs.

Reinforcing the value of these two questions as summary poverty measures, countries with the lowest scores on the Basic Needs dimension are almost all sub-Saharan African and Latin American countries — the two regions where women are struggling most to meet their basic needs. In all these countries, women's difficulties with basic needs pre-date the pandemic.

In Namibia, for example, which scores the worst in the world on Basic Needs, the percentage of women who could not afford food for their families has been holding above 70% since 2019. Drought and food shortages in the past few years have stressed low-wage earners in this upper-middle-income country.[50]

TABLE 6:

Top and Bottom Countries and Territories for Women's Basic Needs

HIGHEST

Country	Basic Needs
Netherlands	96
Finland	95
Malta	95
Japan	94
Denmark	94
Ireland	93
Norway	93
Taiwan, Province of China	93
Austria	93
Sweden	93
Switzerland	93
United Kingdom	93
Germany	93

LOWEST

Country	Basic Needs
Benin	38
Nigeria	38
Dominican Republic	37
Venezuela	37
El Salvador	35
Cameroon	34
Zambia	34
Gabon	33
Kenya	33
Zimbabwe	33
Namibia	29

Source: Hologic Global Women's Health Index, 2020

Women in many high-income countries almost universally have their basic needs met.

Countries where women have the highest scores on the Basic Needs dimension are exclusively high-income economies where worries about food and shelter are relatively nonexistent.

In the Netherlands, for example, the "yes" responses to both questions in 2020 were in the low single digits.

50 *Namibia | World Food Programme.* (2021, June 24). World Food Programme. https://www.wfp.org/countries/namibia

INDIVIDUAL HEALTH:

The World Needs to Help Women Manage Pain

Health-related statistics such as life expectancy, infant mortality and disease rates provide a great deal of insight into a country's overall health.

However, these statistics shed little light on how individuals see health problems affecting their quality of life and keeping them from doing the things that people their age normally do.

The future of women's health will be better if as few women as possible have health problems that prevent them from doing things that women their age normally do, and they aren't in physical pain daily.

In the present, this will be no small task: Worldwide, more than half a billion women experience physical pain on any given day, with life-limiting health problems.

Measuring Individual Health

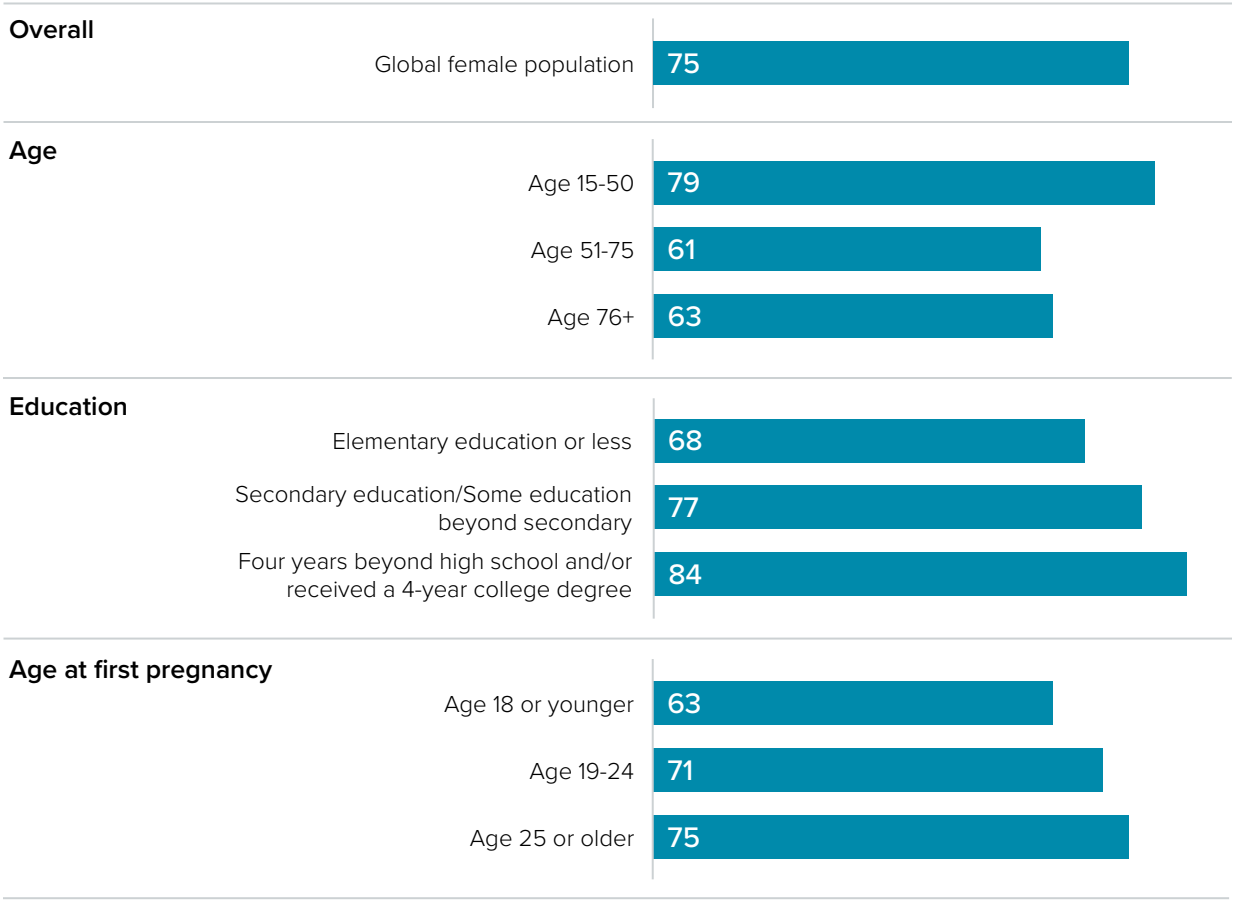
The Individual Health dimension of the Hologic Global Women's Health Index gauges women's daily experiences of pain and health problems with two questions that have been asked as part of Gallup's World Poll for more than a decade:

- *Did you experience the following feelings during a lot of the day yesterday? How about physical pain?*
- *Do you have any health problems that prevent you from doing any of the things people your age normally can do?*

Scores on this dimension are calculated at the individual level. To get a score, individuals need to answer both questions. The resulting score is a simple mean of the positive answers. Higher scores on the Individual Health dimension mean fewer women are experiencing health problems and pain on a given day.

CHART 26:

Women's Individual Health by Demographic



Index scores range from 0 to 100. For more information on how these scores are calculated, please see page 70.

More than half a billion women worldwide spent a lot of the previous day in pain.

- Three in 10 (30%) women — or more than 750 million worldwide — report experiencing physical pain during a lot of the previous day.
- In 2020, women continued to be more likely than men to report experiencing pain. The gender gap was four points globally, with 30% of women and 26% of men experiencing pain during a lot of the previous day.

More than half a billion women have health problems that keep them from normal activities.

- One in five (20%) women — or more than 500 million women — say they have health problems that prevent them from doing things people their age normally do.
- Women are also more likely than men to suffer from these problems. Again, four points separate women and men, with 20% of women versus 16% of men saying they have health problems that keep them from doing things people their age normally do.

INDIVIDUAL HEALTH DIMENSION

Higher scores on the Individual Health dimension of the Index mean fewer women are experiencing health problems and pain on a given day. Women worldwide score a 75 on the Individual Health dimension of the Index. At the country level, scores on the Individual Health dimension range from a low of 48 in Egypt to a high of 85 in Malaysia, Taiwan and Kazakhstan.

Worldwide, women aged 51 and older, those with the lowest level of education and those who experienced their first pregnancy before age 19 are most likely to have the worst Individual Health scores.

Individual Health scores lowest in mostly lower-income countries.

Countries with the lowest scores for women's Individual Health are largely a mix of low to lower middle-income countries, except for upper middle-income Albania. In nearly all these countries, at least half of women report experiencing pain the previous day. In places such as Ukraine, Congo and Senegal, the percentage of women reporting health problems is about twice the global average.

In a number of these countries, the picture in 2020 looked more dire than the previous year. In Egypt, which has the lowest score on this dimension, the percentage of women reporting that they experienced pain rose from 46% to a world-high 67%, and the percentage with health problems rose from 27% to 35%.

TABLE 7:

Top and Bottom Countries and Territories for Women's Individual Health

HIGHEST

Country	Individual Health
Malaysia	85
Taiwan, Province of China	85
Kazakhstan	85
Ethiopia	84
Vietnam	83
Israel	82
Ireland	82
United Arab Emirates	81
Hong Kong, S.A.R. of China	81

LOWEST

Country	Individual Health
Ukraine	59
Tunisia	58
Albania	56
Tajikistan	55
Congo	55
Lebanon	54
Iraq	53
Senegal	51
Egypt	48

Source: Hologic Global Women's Health Index, 2020

Malaysia, Taiwan and Kazakhstan earn high marks.

The countries and territories with the highest scores for women's Individual Health are led by Malaysia, Taiwan (which also leads the global Index) and Kazakhstan. Women in Malaysia and Taiwan have the lowest incidence of health problems in the world.

Women in Kazakhstan are also the least likely of women worldwide to say they experienced physical pain — just 12% say they experienced pain the previous day.

Conclusion

The inaugural Hologic Global Women's Health Index provides a sobering baseline account of the state of women's health worldwide. The results clearly illustrate how uneven and slow progress in women's health has been over the past few decades, and how fragile gains for women are.

The survey reveals that every country or territory in the world — high-income and low-income alike — has work to do to help women lead healthier, safer and potentially longer lives. With country scores on the overall Index ranging from 36 to 69, the results also highlight global inequities that leave women in many countries and territories without the basic services that others may take for granted. These and other disparities illustrate why data like those collected by the Hologic Global Women's Health Index are so urgently needed and why they should be consistently tracked.

Every country or territory has room to improve in the five dimensions of women's health identified in the research, but overall, the world is weakest in the dimension of Preventive Care. Relatively few women report being tested in the past year for four of the most serious diseases and conditions for women — high blood pressure, cancer, diabetes or STDs/STIs. More than six in 10 women worldwide — over 1.5 billion — did not get tested for any of them.

Testing rates in 2020 may have been somewhat lower than in other years, with many women forgoing checkups and other non-emergency procedures during the past year because of the pandemic. Future administrations of the Index will shed light on the extent to which COVID-19 affected women's use of health services — and provide guidance for mitigating such effects in future crises.

ABOUT HOLOGIC

We are an innovative medical technology company primarily focused on improving women's health and well-being through early detection and treatment.

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 this survey in partnership with Gallup for years into the future.

ABOUT GALLUP

Gallup delivers analytics and advice to help leaders and organizations solve their most pressing problems. Combining more than 80 years of experience with its global reach, Gallup knows more about the attitudes and behaviors of employees, customers, students and citizens than any other organization in the world.

Index Scores by Country and Territory

Rank	Country/Territory	Hologic Global Women's Health Index
1	Taiwan, Province of China	69
2	Austria	67
3	Finland	65
4	Latvia	65
5	Norway	65
6	Germany	65
7	Netherlands	64
8	Denmark	64
9	Australia	64
10	Switzerland	64
11	Estonia	64
12	United Kingdom	63
13	Iceland	63
14	New Zealand	62
15	Sweden	62
16	Portugal	62
17	Mauritius	62
18	Israel	62
19	Czech Republic	62
20	Ireland	62
21	South Korea	62
22	Saudi Arabia	61
23	France	61
24	Japan	61
25	Belgium	61
26	United States	61
27	Vietnam	60
28	Hungary	60
29	China	60
30	Slovenia	60

Index Scores by Country and Territory

(CONTINUED)

Rank	Country/Territory	Hologic Global Women's Health Index
31	Malta	60
32	Hong Kong, S.A.R. of China	60
33	United Arab Emirates	60
34	Slovakia	59
35	Croatia	58
36	Italy	58
37	Kazakhstan	58
38	Spain	58
39	Uruguay	58
40	Lithuania	57
41	Serbia	57
42	Jamaica	57
43	Canada	57
44	Romania	57
45	Bulgaria	57
46	Thailand	56
47	Malaysia	56
48	Cyprus	56
49	Mongolia	55
50	South Africa	55
51	Kosovo	55
52	Poland	55
53	India	55
54	Ethiopia	54
55	Moldova	54
56	Tanzania	53
57	Greece	53
58	Russia	53
59	Chile	52

Index Scores by Country and Territory

(CONTINUED)

Rank	Country/Territory	Hologic Global Women's Health Index
60	Montenegro	52
61	Bangladesh	52
62	Paraguay	52
63	Cambodia	52
64	Uzbekistan	51
65	Argentina	51
66	Sri Lanka	51
67	Kyrgyzstan	51
68	Zambia	51
69	Bosnia and Herzegovina	51
70	Indonesia	51
71	Costa Rica	50
72	Algeria	49
73	Laos	49
74	Kenya	49
75	North Macedonia	49
76	Ghana	49
77	Myanmar	48
78	Nicaragua	48
79	Namibia	48
80	Tajikistan	48
81	Ukraine	48
82	Albania	48
83	Morocco	48
84	Nepal	48
85	Egypt	47
86	Philippines	47
87	Mexico	47
88	Georgia	46

Index Scores by Country and Territory

(CONTINUED)

Rank	Country/Territory	Hologic Global Women's Health Index
89	Benin	46
90	Pakistan	46
91	Iran	45
92	Senegal	45
93	Dominican Republic	45
94	Ivory Coast	45
95	Colombia	44
96	El Salvador	44
97	Brazil	44
98	Cameroon	44
99	Turkey	44
100	Burkina Faso	43
101	Zimbabwe	43
102	Nigeria	43
103	Uganda	42
104	Guinea	42
105	Mali	42
106	Bolivia	42
107	Tunisia	42
108	Lebanon	41
109	Ecuador	40
110	Republic of the Congo	38
111	Gabon	38
112	Iraq	37
113	Venezuela	37
114	Peru	36

Two countries, Bahrain and Jordan, do not have overall Hologic Global Women's Index scores because some component questions were not fielded in these countries.

APPENDIX 1

About 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 and improves women's health in the future.

The Gallup World Poll has collected data since 2005 in more than 160 countries and territories and 150+ 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 (and what it does not) to not oversimplify complex issues and topics and to avoid overstating policy conclusions. We aim to be 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 WHO listed the top 10 issues for women's health 20 years after countries signed pledges in the 1995 Beijing Declaration and Platform of 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
- STDs/STIs
- Violence against women
- Mental health
- Noncommunicable diseases
- Age-related (teenage pregnancies, older women may have fewer pensions and benefits, less access to healthcare and social services and greater risk of poverty, which are 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, 2020).

While not all these issues can accurately be measured in a non-epidemiological social science survey, they convey that women's health is a combination of physical health as well as 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) Capturing 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) Focusing 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 diseases are increasing while infectious diseases are decreasing
3) Bringing attention to actionable areas to increase female longevity
    - **a.** increasing years of education to improve the life expectancy of women
    - **b.** reducing domestic violence, sexual assault and femicide
    - **c.** not only diagnosing early conditions so they are more treatable but also having services to provide care

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 (Table 1). 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 2020 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 behavior 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 behavior (or practice) (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 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, 2021; 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 illness helps decrease mortality rates. Many of the top risk factors leading to illness and premature death can be prevented.
- Reduced 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 checkup 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 checkups. The question echoes the specific timeframe used in the previous question ("the past 12 months") to aid with recall and help yield more precise responses.

The question also defines who we consider 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 inequalities between populations.
- Increase public knowledge regarding personal care behaviors.

Experience of preventive care (continued)

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 timeframe 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.

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 is responsible for an estimated 9.6 million deaths in 2018. 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 associated with heart disease as well as increased incidence of certain cancers (CDC, 2021b; WHO, 2021b, 2021).
- 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 illness 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, 2021).
  - 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 people about "most pregnant women" they 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 health 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).

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, mental health, etc. (PRB, 2011; UNFPA, 2021; UNICEF, 2021; WHO, 2020; 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 (ages 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, 2021; WHO, 2020).
- Adolescent pregnancy takes an enormous toll on a girl's education and income-earning potential. 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, 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?

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 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 of 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 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, 2021; UNHCR, 2021; WHO, 2021d; 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, 2021).
- 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
    - 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, 2021)
- 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)).

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[1]

Topic	Question
Attitudes and behaviors regarding preventative 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 (Struggling, Suffering, Thriving).*

1 Items marked in blue are from the Hologic World Poll module in 2020, all other items are Gallup historical items collected since 2005.

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 (87% of women globally answered in the affirmative).

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 spoken to a healthcare professional about health and 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 61.4% of the total variance of the selected items.

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:

- **Bahrain:** Values are missing for the questions regarding domestic violence, not having enough money for food and feeling safe walking alone at night.
- **Jordan:** Values are missing for the questions regarding experiencing physical pain, worry, sadness, stress and anger for a lot of the day yesterday.
- **Saudi Arabia:** Values are missing for the question regarding testing for STDs/STIs.
- **Iran:** Values are missing for the question regarding testing for STDs/STIs.

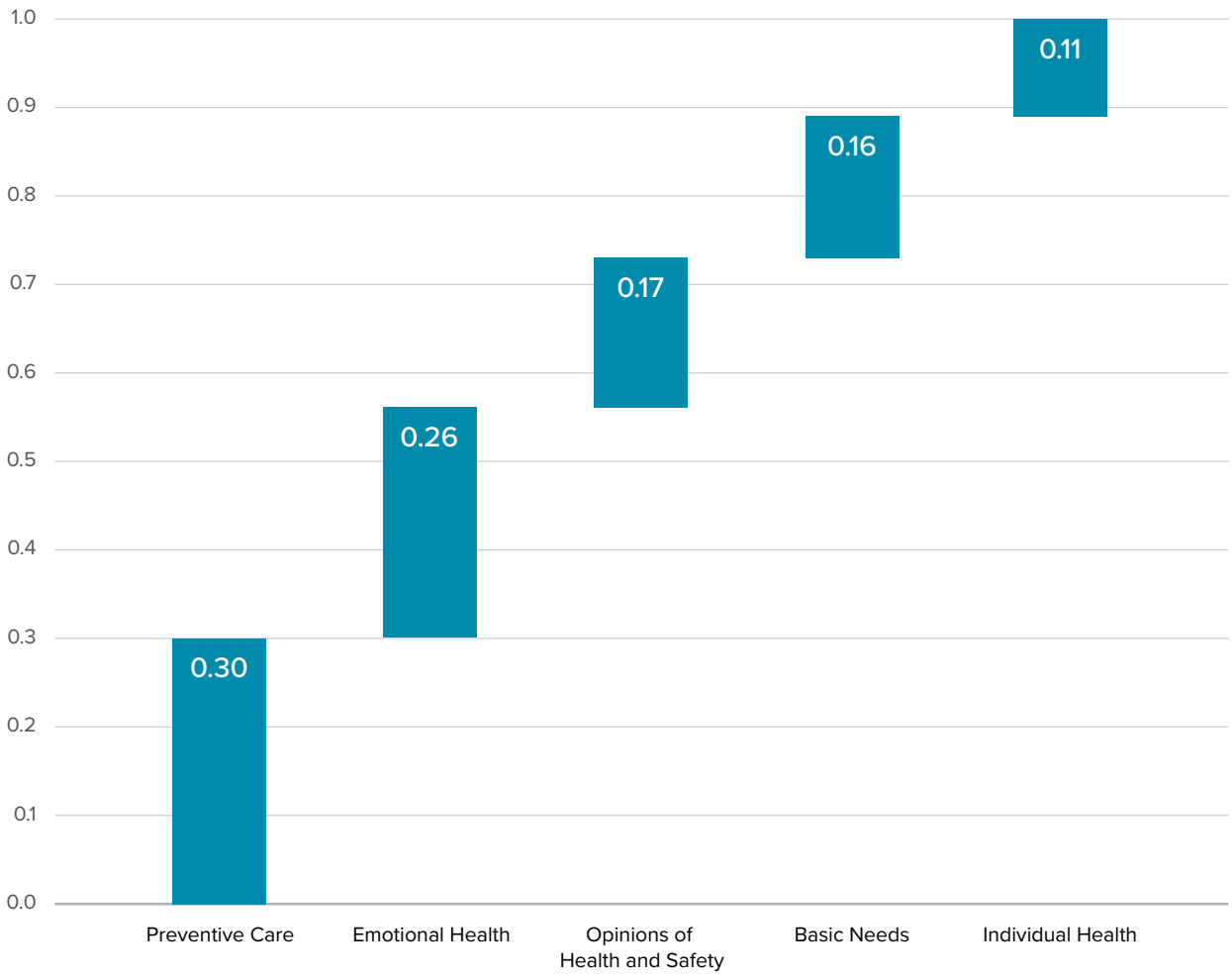
To achieve a valid score, a respondent needs to answer "Yes" or "No" to at least three out of four items for factor 1, three out of four items for factor 2, two out of three items for factor 3, two out of three items for factor 4 and two out of two items for factor 5.

4 Weighting and aggregation approach

Each sub-index score is calculated for each factor by taking the simple average of its corresponding recoded items. The 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



5 Data normalization

Variables were recoded for inclusion in the Index as follows:

For a list of variable codes please see section 7. 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.

- WELL_RESTED: set to 1 if WP60 = 1, 0 if WP60 = 2, NA for any other value.
- TREATED_WITH_RESPECT: set to 1 if WP61 = 1, 0 if WP61 = 2, NA for any other value.
- SMILE_LAUGH: set to 1 if WP63 = 1, 0 if WP63 = 2, NA for any other value.
- LEARN_SOMETHING: set to 1 if WP65 = 1, 0 if WP65 = 2, NA for any other value.
- ENJOYMENT: set to 1 if WP67 = 1, 0 if WP67 = 2, 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.

- CHECKUP_IMPROVE_HEALTH: set to 1 if H1. = 1, 0 if H1. = 2, NA for any other value.
- DOMESTIC_VIOLENCE: set to 1 if H7. = 1, 0 if H7. = 2, NA for any other value.
- LIFE_THRIVING: set to 1 if INDEX_LE = “Thriving”, 0 if INDEX_LE = “Struggling” or “Suffering”, NA for any other value.

6 Multivariate analysis

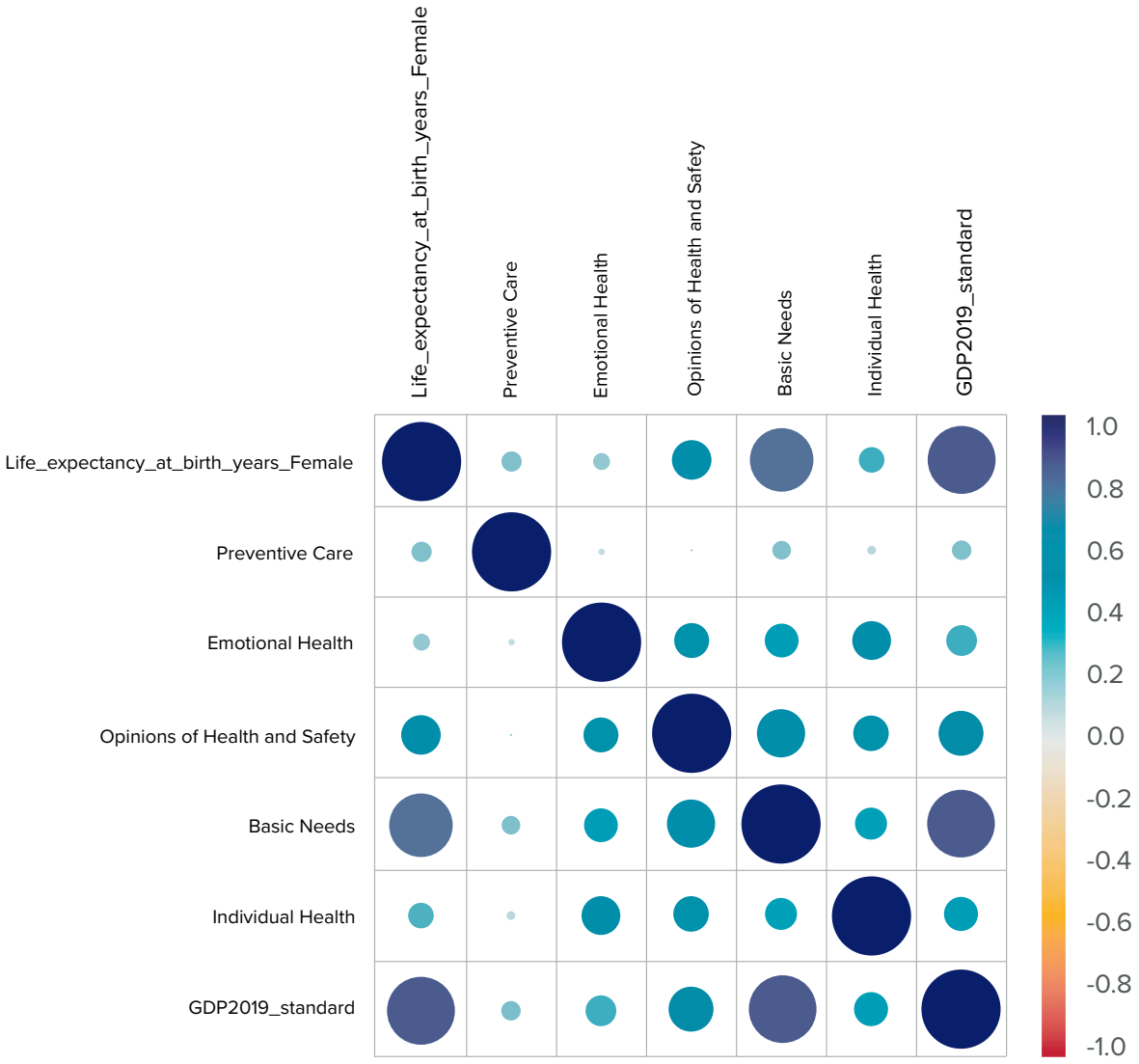
To understand the interactions of the individual dimensions and their relationship to health outcomes, the Gallup and Hologic research team ran correlations among the variables and regression analysis using life expectancy as the dependent variable.

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 Index explain 86% of the female life expectancy at birth at the country level.

FIGURE 2:

Correlation Among Dimensions of the Index and to Female Life Expectancy at Birth and GDP 2019 by Country/Territory



Call: lm(formula = Life_expectancy_at_birth_years_Female ~ Preventive Care + Emotional Health + Opinions on Health and Safety + Basic Needs + Individual Health, data = df_sub, weights = df_sub$weight)

Weighted Residuals:

Min	1Q	Median	3Q	Max
-28401404	-139333	313863	1424708	14845090

Coefficients:

	Estimate Std.	Error	t value	Pr (>|t|)
(Intercept)	53.084	4.255	12.476	<2e-16 ***
Preventive Care	9.324	3.941	2.366	0.019815*
Emotional Health	-12.679	3.966	-3.196	0.001838**
Opinions on Health and Safety	-5.159	2.950	-1.749	0.083223
Basic Needs	26.180	1.861	14.069	<2e-16 ***
Individual Health	21.142	6.117	3.456	0.000792***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error: 5565000 on 105 degrees of freedom
Multiple R-squared: 0.8657, Adjusted R-squared: 0.8594
F-statistic: 135.4 on 5 and 105 DF, p-value: <2.2e-16

7 Survey module

H1 *Do you think going to a healthcare professional, such as a medical doctor or 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

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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APPENDIX 2

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 2020 survey and further information about the data analysis presented in this report.

Methodology

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

However, 2020 was far from a typical year. The unprecedented challenges presented by the coronavirus pandemic forced Gallup to pause its global data collection in March 2020 to thoroughly assess risk and prepare contingency plans for data collection. By May, the continued prevalence of COVID-19 made it clear that 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 2020 Hologic Global Women's Health Index survey was conducted primarily by phone (Computer-Assisted Telephone Interviewing — 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).

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 master-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 master-language version. For example, the Russian master-language questionnaire was created first (translation from English to Russian), then was 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 on 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/selection process works

Due to the immense challenges presented by the coronavirus pandemic, interviewing for the Hologic Global Women's Health Index was conducted solely by telephone. In some countries, Gallup and its data collection partners contacted respondents on landline or mobile telephones; in a small but growing number of countries, respondents were contacted by mobile phone only.

Regardless of the approach, how were potential survey participants identified and contacted? This process is known, in technical terms, as sample generation and selection. The general idea is straightforward: Gallup and its data collection partners must first establish a list of all potential participants (known as the sampling frame) and then use random-based methods to contact individuals from that frame. In 2020, this process worked as follows:

1) In any given the country, the first step was to construct the landline and/or mobile frames using either True RDD or List-Assisted RDD (explained below).
2) Second, telephone numbers were drawn using random processes. This is done by drawing a seed (typically an exchange) using a simple random sample and then a random number (4-6 digits long) is appended to create a random telephone number.

    a) Generally, the mobile frame is constructed using pure RDD, where all assigned exchanges (based on information from the Telecom authority) by mobile service providers are used to generate the frame of all possible mobile numbers. The exchanges are used as seeds and a random number of the appropriate length (depending on the country, this could be anywhere from 4-6 digits) is added to the seed to generate a random telephone number. As mobile exchanges are assigned to service providers, the frame is stratified explicitly by mobile service provider. Within each stratum, a fixed sample of telephone numbers (sample size is determined by market share of the service provider, expected working rate and response rate) is selected using a simple random sample. In countries where Gallup has information on differential response or working rates by service provider, that information is taken into account while determining the sample size to draw from each service provider.

    b) In the case of landline using True RDD, the frame is constructed similarly using assigned exchanges to each geography/region (instead of service provider) based on information provided by Telecom Authority as seeds and generating all possible numbers first, then selecting a fixed sample size (using a simple random sample within each stratum), which is estimated based on population size in each region and estimated working/response rate. The difference between the True RDD approach to constructing the frame and List-Assisted RDD is how the initial seeds are generated. In the List-Assisted approach, the frame is constructed by accessing various publicly available list sources that provide a comprehensive list of valid exchanges. The more sources accessed, the more comprehensive the frame. Unique exchanges identified from these sources form the seed for the random number generation process. Due to the nature of the frame generation process, List-Assisted RDD has a higher working rate because exchanges in the frame come from public list sources and therefore tend to be more active.

Traditional telephone countries

Gallup typically uses dual-frame (landline and mobile telephone) Computer-Assisted Telephone Interviewing (CATI) as the mode of data collection in Northern America, Western Europe, wealthy Asian and the Pacific countries or territories including Japan, Australia, New Zealand, Taiwan and Gulf Cooperation Council (GCC) countries. Due to limited landline usage, the sampling frame is mobile telephone only in a growing number of countries (e.g., Libya, Finland and UAE). The split between expected landline and mobile completes in a dual-frame design is based on the information Gallup has on landline and mobile use in those countries from past surveys and other secondary data, as well as the demographic distribution of the final landline/mobile sample in relation to targets. There were no other changes to the design, stratification or execution of the telephone list samples in traditional telephone countries in 2020.

In traditional telephone countries and areas, respondent selection followed the same procedure as in previous years:

- For respondents contacted by landline, random respondent selection was performed within the household (among eligible respondents aged 15 and older), either by asking for the person aged 15 or older who has the next birthday or randomly selecting a respondent from a list of all eligible household members (as provided by the person Gallup originally contacted).
- For respondents contacted by mobile telephone, no further selection was performed (other than confirming the respondent was at least 15 years of age).

Thirty-two of the 116 countries and territories included in the Hologic Global Women's Health Index were traditional telephone countries — meaning, the mode of interviewing did not change in 2020 compared with the last year Gallup interviewed there. In these countries, the coverage error (percentage of target population not accessible for sampling) remains negligible according to Gallup estimates — typically, no more than 1% of the 15 and older population.

New telephone countries

In countries and territories where interviews were conducted by telephone for the first time (i.e., previously face-to-face countries in Central and Eastern Europe, Latin America, former Soviet states, developing Asia, the Middle East and Africa), Gallup used one of two methods:

- dual-frame (landline and mobile telephone) RDD, where landline presence and use are 20% or higher based on historical Gallup estimates
- mobile telephone RDD in countries with limited-to-no landline presence (<20%)

To ensure greater transparency and control over the sampling process, RDD samples for all the new telephone countries, except Israel and Uzbekistan, were purchased from Sample Solutions Europe. Stratification of landline frame was by geography and, where market share information for mobile service providers was known, the mobile frame was explicitly stratified by the service providers, and sample drawn was proportional to the market share.

In new telephone countries with combined landline/mobile telephone coverage of 80% or higher, these same respondent selection procedures were applied:

- For respondents contacted by landline telephone, random respondent selection was performed within the household (among eligible respondents aged 15 and older), either by asking for the person aged 15 or older who has the next birthday or randomly selecting a respondent from a list of all eligible household members.
- For respondents contacted by mobile telephone, no further selection was performed (other than confirming respondent is at least 15 years of age).

In new telephone countries with low combined landline/mobile telephone coverage (below 80%), random respondent selection within the household (among eligible household members aged 15 and older) was performed, regardless of if the respondent was contacted by landline or mobile telephone. The decision to include both modes (landline and mobile) in random respondent selection, rather than landline only, was done to increase coverage and representation of individuals in these countries who are less likely to own a mobile phone themselves but have access to such a device through someone else in their household.

The majority of countries included in the Hologic Global Women's Health Index were new telephone countries. According to Gallup estimates, the coverage expected is 90% or greater for most countries.[1] In some nations, such as Russia or China, the coverage is estimated closer to 95%.

This under-coverage — though unavoidable, given the scope of the public health challenges in 2020 — may have implications for the underlying sample composition in some countries (i.e., the overall demographic profile of all respondents interviewed in a nation). In many nontraditional telephone countries, samples skewed toward specific demographic characteristics, often — though not always — toward more educated, younger individuals. To help adjust for these imbalances, Gallup (where it considered necessary) relied on an expanded set of demographic factors when calculating post-stratification weights (further discussed in 'Data weighting').

Scripting and testing

Local data collection partners continue to program the surveys in traditional telephone countries, and Gallup continues to test them for accuracy prior to launch.

To ensure consistency in survey programming, Gallup used one of two methods in each new telephone country. Using their own CATI data collection platform, local data collection partners prepared their own script and provided Gallup with links to test the program logic and generate synthetic data used to confirm that the questionnaire was programmed correctly. For the remaining countries, Gallup scripted all the country surveys on a single platform (SurveyToGo) and tested them before making them available to local data collection partners.

Response rates

As is the case with Gallup World Poll surveys more generally, response rates for the Hologic Global Women's Health Index varied considerably across countries. In general, response rates are lower in countries where interviewing is conducted by telephone than in-person countries, though 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.

1 Gallup estimates that coverage may be less than 80% in a limited number of countries, including Ethiopia, Zambia or Venezuela. Gallup estimates of coverage error primarily come from 2019 World Poll data collected in previously face-to-face countries. Gallup estimated what percentage of the 15+ population had access to a landline or mobile phone. In several countries, Gallup enhanced those estimates with additional information from recently conducted large-scale, face-to-face surveys such as Demographic and Health (DHS) and, in some cases, more recent United Nations Telecommunication Development Sector (ITU-D) estimates.

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.

> **Adjustment to selection probabilities reflecting the relative frame sizes was a new improvement to the weighting process in 2020 and was implemented in all telephone countries, regardless of if the country was a traditional or nontraditional telephone country.**

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/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 * √(0.25/1000) = 3.1 percentage points under the assumption of simple random sampling.

Table 1 shows the size of the margin of error 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

	For Percentages Near					
Sample Sizes 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 of size 1,000.

Country dataset details, Hologic Global Women's Health Index

Country dataset details

Gallup Worldwide Research Data Collected From 2020

[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)

[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	Exclusions (Samples are nationally representative unless noted otherwise)
2020	Albania	15.1	Sep 7 – Oct 6, 2020	1,000	1.41	3.7	Mobile Telephone	Albanian	
2020	Algeria	15.1	Oct 9 – Oct 24, 2020	1,016	1.56	3.8	Landline and Mobile Telephone	Arabic	
2020	Argentina	15.1	Sep 7 – Nov 20, 2020	1,000	1.93	4.3	Landline and Mobile Telephone	Spanish	
2020	Australia	15.1	Feb 04 – Mar 22, 2020	1,003	1.76	4.1	Landline and Mobile Telephone	English	
2020	Austria	15.1	Aug 24 – Sep 19, 2020	1,000	1.68	4.0	Landline and Mobile Telephone	German	

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Exclusions (Samples are nationally representative unless noted otherwise)
2020	Bahrain	15.1	Aug 6 – Aug 23, 2020	1,009	1.61	3.9	Landline and Mobile Telephone	Arabic English	Includes only Bahrainis, Arab expatriates and non-Arabs who were able to complete the interview in Arabic or English
2020	Bangladesh	15.1	Oct 30 – Nov 28, 2020	1,013	2.43	4.8	Mobile Telephone	Bengali	
2020	Belgium	15.1	Aug 19 – Sep 19, 2020	1,005	1.33	3.6	Landline and Mobile Telephone	French, Dutch	
2020	Benin	15.1	Dec 11 – Dec 25, 2020	1,042	2.36	4.7	Mobile Telephone	Bariba, Fon, French	
2020	Bolivia	15.1	Sep 25 – Oct 28, 2020	1,001	1.84	4.2	Mobile Telephone	Spanish	
2020	Bosnia and Herzegovina	15.1	Oct 16 – Nov 19, 2020	1,001	1.50	3.8	Landline and Mobile Telephone	Bosnian	
2020	Brazil	15.1	Sep 10 – Nov 11, 2020	1,002	1.85	4.2	Landline and Mobile Telephone	Portuguese	
2020	Bulgaria	15.1	Sep 17 – Nov 26, 2020	1,000	2.03	4.4	Landline and Mobile Telephone	Bulgarian	
2020	Burkina Faso	15.1	Feb 19 – Mar 4, 2021	1,007	2.52	4.9	Mobile Telephone	Dioula, French, Fulfulde, Moore	
2020	Cambodia	15.1	Oct 23 – Nov 15, 2020	1,002	2.73	5.1	Mobile Telephone	Khmer	
2020	Cameroon	15.1	Sep 19 – Nov 8, 2020	1,000	2.63	5.0	Mobile Telephone	French, English, Fulfulde	
2020	Canada	15.1	Aug 3 – Sep 21, 2020	1,006	1.46	3.7	Landline and Mobile Telephone	English, French	Northwest Territories, Yukon and Nunavut (representing approximately 0.3% of the Canadian population) were excluded.
2020	Chile	15.1	Sep 11 – Nov 16, 2020	1,000	1.52	3.8	Landline and Mobile Telephone	Spanish	
2020	China	15.1	Sep 8 – Oct 28, 2020	3,503	2.16	2.4	Mobile Telephone	Chinese	Tibet was excluded from the sample. The excluded areas represent less than 1% of the population of China
2020	Colombia	15.1	Aug 21 – Oct 27, 2020	1,000	1.52	3.8	Landline and Mobile Telephone	Spanish	
2020	Congo	15.1	Dec 2 – Dec 29, 2020	1,002	1.55	3.9	Face-to-Face (HH)*	French, Kituba, Lingala	
2020	Costa Rica	15.1	Sep 15, 2020 – Jan 4, 2021	1,000	1.67	4.0	Landline and Mobile Telephone	Spanish	
2020	Croatia	15.1	Sep 22 – Nov 2, 2020	1,002	1.77	4.1	Landline and Mobile Telephone	Croatian	

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Exclusions (Samples are nationally representative unless noted otherwise)
2020	Cyprus	15.1	Jul 20 – Sep 27, 2020	1,005	1.55	3.8	Landline and Mobile Telephone	Greek, English	
2020	Czech Republic	15.1	Oct 9 – Nov 28, 2020	1,004	1.50	3.8	Landline and Mobile Telephone	Czech	
2020	Denmark	15.1	Sep 14 – Oct 10, 2020	1,000	1.30	3.5	Mobile Telephone	Danish	
2020	Dominican Republic	15.1	Sep 24 – Oct 23, 2020	1,000	1.63	4.0	Landline and Mobile Telephone	Spanish	
2020	Ecuador	15.1	Aug 26 – Oct 23, 2020	1,000	1.51	3.8	Landline and Mobile Telephone	Spanish	
2020	Egypt	15.1	Oct 24 – Nov 12, 2020	1,002	2.00	4.4	Landline and Mobile Telephone	Arabic	
2020	El Salvador	15.1	Sep 23 – Nov 17, 2020	1,000	1.83	4.2	Mobile Telephone	Spanish	
2020	Estonia	15.1	Oct 14 – Nov 20, 2020	1,000	1.54	3.8	Mobile Telephone	Estonian, Russian	
2020	Ethiopia	15.1	Oct 5 – Nov 1, 2020	1,003	2.96	5.3	Mobile Telephone	Amharic, English, Oromo, Tigrinya	
2020	Finland	15.1	Mar 26 – May 13, 2020	1,000	1.42	3.7	Mobile Telephone	Finnish, Swedish	
2020	France	15.1	Sep 7 – Oct 2, 2020	1,000	1.52	3.8	Landline and Mobile Telephone	French	
2020	Gabon	15.1	Feb 19 – Mar 3, 2021	1,000	2.43	4.8	Mobile Telephone	French, Fang	
2020	Georgia	15.1	Sep 25 – Nov 14, 2020	1,003	2.00	4.4	Landline and Mobile Telephone	Georgian, Russian	
2020	Germany	15.1	Aug 24 – Sep 19, 2020	1,000	2.14	4.5	Landline and Mobile Telephone	German	
2020	Ghana	15.1	Oct 2 – Oct 30, 2020	1,000	2.19	4.6	Mobile Telephone	English, Ewe, Twi	
2020	Greece	15.1	Sep 23 – Oct 24, 2020	1,002	1.88	4.2	Landline and Mobile Telephone	Greek	
2020	Guinea	15.1	Feb 19 – Mar 4, 2021	1,005	2.88	5.2	Mobile Telephone	French, Malinke, Pular, Soussou	
2020	Hungary	15.1	Oct 19 – Nov 17, 2020	1,001	1.83	4.2	Landline and Mobile Telephone	Hungarian	
2020	Hong Kong, S.A.R. of China	15.1	Sep 3 – Nov 8, 2020	1,005	1.26	3.5	Landline and Mobile Telephone	Chinese	
2020	Iceland	15.1	Aug 31 – Oct 12, 2020	501	1.49	5.3	Landline and Mobile Telephone	Icelandic	

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Exclusions (Samples are nationally representative unless noted otherwise)
2020	India	15.1	Dec 28, 2020 – Jan 26, 2021	3,103	3.53	3.3	Mobile Telephone	Assamese, Bengali, Gujarati, Hindi, Kannada, Malayalam, Marathi, Odia, Punjabi, Tamil, Telugu	Excluded population living in Northeast states and remote island.
2020	Indonesia	15.1	Oct 31, 2020 – Jan 13, 2021	1,062	2.43	4.7	Mobile Telephone	Bahasa Indonesia	
2020	Iran	15.1	Aug 5 – Aug 12, 2020	1,009	1.45	3.7	Landline and Mobile Telephone	Farsi	
2020	Iraq	15.1	Nov 1 – Nov 23, 2020	1,000	1.69	4.0	Mobile Telephone	Arabic, Kurdish	
2020	Ireland	15.1	Aug 17 – Sep 12, 2020	1,000	1.62	3.9	Landline and Mobile Telephone	English	
2020	Israel	15.1	Sep 24 – Oct 19, 2020	1,057	1.38	3.5	Landline and Mobile Telephone	Hebrew, Russian, Arabic	
2020	Italy	15.1	Aug 24 – Sep 16, 2020	1,000	2.53	4.9	Landline and Mobile Telephone	Italian	
2020	Ivory Coast	15.1	Dec 5 – Dec 21, 2020	1,021	2.20	4.5	Mobile Telephone	French, Dioula	
2020	Jamaica	15.1	Sep 24, 2020 – Jan 4, 2021	502	1.47	5.3	Mobile Telephone	English	
2020	Japan	15.1	Aug 7 – Oct 8, 2020	1,016	1.22	3.4	Landline and Mobile Telephone	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 of Japan.
2020	Jordan	15.1	Nov 3 – Nov 20, 2020	1,012	1.46	3.7	Mobile Telephone	Arabic	
2020	Kazakhstan	15.1	Nov 7 – Dec 4, 2020	1,000	1.57	3.9	Mobile Telephone	Russian, Kazakh	
2020	Kenya	15.1	Sep 30 – Nov 6, 2020	1,008	1.99	4.4	Mobile Telephone	English, Swahili/ Kishwahili	
2020	Kosovo	15.1	Oct 12 – Dec 12, 2020	1,000	1.73	4.1	Mobile Telephone	Albanian, Serbian	
2020	Kyrgyzstan	15.1	Oct 27 – Nov 20, 2020	1,000	1.33	3.6	Mobile Telephone	Kyrgyz, Russian	

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Exclusions (Samples are nationally representative unless noted otherwise)
2020	Laos	15.1	Oct 28 – Nov 11, 2020	1,000	2.43	4.8	Mobile Telephone	Lao	
2020	Latvia	15.1	Sep 10 – Oct 31, 2020	1,001	1.62	3.9	Mobile Telephone	Latvian, Russian	
2020	Lebanon	15.1	Oct 18 – Nov 26, 2020	1,050	1.33	3.5	Landline and Mobile Telephone	Arabic	
2020	Lithuania	15.1	Oct 8 – Nov 26, 2020	1,002	1.93	4.3	Mobile Telephone	Lithuanian	
2020	Malta	15.1	Mar 8 – Apr 24, 2020	1,001	1.46	3.7	Landline and Mobile Telephone	Maltese, English	
2020	Malaysia	15.1	Oct 27, 2020 – Jan 26, 2021	1,000	2.09	4.5	Mobile Telephone	Bahasa Malay, Chinese, English	
2020	Mali	15.1	Dec 3 – Dec 22, 2020	1,000	1.36	3.6	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.
2020	Mauritius	15.1	Jul 24 – Aug 27, 2020	1,000	1.69	4.0	Landline and Mobile Telephone	Creole, English, French	
2020	Mexico	15.1	Sep 08 – Nov 18, 2020	1,010	1.66	4.0	Landline and Mobile Telephone	Spanish	
2020	Moldova	15.1	Oct 7 – Nov 16, 2020	1,000	1.63	4.0	Mobile Telephone	Romanian/ Moldavian, Russian	
2020	Mongolia	15.1	Nov 14 – Nov 30, 2020	1,000	1.58	3.9	Mobile Telephone	Mongolian	
2020	Montenegro	15.1	Oct 15 – Dec 25, 2020	1,004	1.74	4.1	Landline and Mobile Telephone	Montenegrin	
2020	Morocco	15.1	Oct 8 – Nov 10, 2020	1,006	1.47	3.7	Landline and Mobile Telephone	Moroccan Arabic	
2020	Myanmar	15.1	Oct 29 – Dec 4, 2020	1,000	1.84	4.2	Mobile Telephone	Myanmar, Burmese	
2020	Namibia	15.1	Oct 5 – Nov 16, 2020	1,000	1.76	4.1	Mobile Telephone	English, Oshivambo, Afrikaans, Kwangali	
2020	Nepal	15.1	Oct 18 – Dec 4, 2020	1,000	2.59	5.0	Mobile Telephone	Nepali	
2020	Netherlands	15.1	Mar 11 – May 15, 2020	1,006	1.60	3.9	Landline and Mobile Telephone	Dutch	

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Exclusions (Samples are nationally representative unless noted otherwise)
2020	New Zealand	15.1	Feb 17 – Mar 23, 2020	1,002	1.56	3.9	Landline and Mobile Telephone	English	
2020	Nicaragua	15.1	Nov 14 – Dec 28, 2020	1,002	2.06	4.4	Mobile Telephone	Spanish	
2020	Nigeria	15.1	Sep 25 – Nov 2, 2020	1,004	1.96	4.3	Mobile Telephone	English, Hausa, Igbo, Pidgin English, Yoruba	
2020	North Macedonia	15.1	Nov 28 – Dec 17, 2020	1,003	1.44	3.7	Landline and Mobile Telephone	Macedonian, Albanian	
2020	Norway	15.1	Mar 24 – May 4, 2020	1,000	1.47	3.8	Landline and Mobile Telephone	Norwegian	
2020	Pakistan	15.1	Jan 2 – Feb 5, 2021	1,000	1.56	3.9	Face-to-Face (HH)*	Urdu	Did not include AJK, Gilgit-Baltistan. The excluded area represents approximately 5% of the population. Gender-matched sampling was used during the final stage of selection.
2020	Paraguay	15.1	Nov 28 – Dec 28, 2020	1,000	1.28	3.5	Landline and Mobile Telephone	Spanish	
2020	Peru	15.1	Oct 29, 2020 – Jan 6, 2021	1,006	1.67	4.0	Landline and Mobile Telephone	Spanish	
2020	Philippines	15.1	Sep 14 – Oct 26, 2020	1,000	1.92	4.3	Landline and Mobile Telephone	Filipino, Iluko, Cebuano, Waray, Bicol	
2020	Poland	15.1	Sep 25 – Oct 24, 2020	1,010	1.74	4.1	Landline and Mobile Telephone	Polish	
2020	Portugal	15.1	Mar 20 – Apr 16, 2020	1,002	1.70	4.0	Landline and Mobile Telephone	Portuguese	
2020	Romania	15.1	Dec 5, 2020 – Jan 25, 2021	1,000	1.44	3.7	Landline and Mobile Telephone	Romanian	
2020	Russia	15.1	Aug 19, – Oct 2, 2020	2,022	1.68	2.8	Landline and Mobile Telephone	Russian	
2020	Saudi Arabia	15.1	Aug 9 – Aug 27, 2020	1,043	1.80	4.1	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.
2020	Senegal	15.1	Dec 5 – Dec 23, 2020	1,000	1.36	3.6	Face-to-Face (HH)*	French, Wolof	
2020	Serbia	15.1	Sep 18 – Oct 25, 2020	1,002	1.63	4.0	Landline and Mobile Telephone	Serbian	
2020	Slovakia	15.1	Sep 9 – Oct 9, 2020	1,001	1.51	3.8	Landline and Mobile Telephone	Hungarian, Slovak	
2020	Slovenia	15.1	Mar 13 – Apr 18, 2020	1,001	1.97	4.3	Landline and Mobile Telephone	Slovene	

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Exclusions (Samples are nationally representative unless noted otherwise)
2020	South Africa	15.1	Oct 21 – Dec 12, 2020	1,019	1.91	4.2	Mobile Telephone	Afrikaans, English, Sotho, Xhosa, Zulu	
2020	South Korea	15.1	Aug 25 – Oct 7, 2020	1,005	1.32	3.6	Landline and Mobile Telephone	Korean	
2020	Spain	15.1	Aug 24 – Sep 17, 2020	1,000	1.60	3.9	Landline and Mobile Telephone	Spanish	
2020	Sri Lanka	15.1	Oct 31 – Dec 5, 2020	1,000	1.91	4.3	Mobile Telephone	Sinhala, Tamil	
2020	Sweden	15.1	Mar 30 – Apr 29, 2020	1,000	1.41	3.7	Landline and Mobile Telephone	Swedish	
2020	Switzerland	15.1	Sep 7 – Oct 9, 2020	1,000	1.79	4.1	Landline and Mobile Telephone	German, French, Italian	
2020	Taiwan, Province of China	15.1	Jul 9 – Jul 31, 2020	1,000	1.54	3.8	Landline and Mobile Telephone	Chinese	
2020	Tajikistan	15.1	Nov 15 – Dec 7, 2020	1,000	1.89	4.3	Mobile Telephone	Tajik	
2020	Tanzania	15.1	Oct 6 – Nov 8, 2020	1,001	2.56	5.0	Mobile Telephone	Swahili, Kishwahili	
2020	Thailand	15.1	Oct 22 – Dec 7, 2020	1,000	2.39	4.8	Mobile Telephone	Thai	
2020	Tunisia	15.1	Sep 19 – Oct 7, 2020	1,003	1.81	4.2	Landline and Mobile Telephone	Arabic	
2020	Turkey	15.1	Oct 3 – Oct 23, 2020	1,000	1.68	4.0	Landline and Mobile Telephone	Turkish	
2020	Uganda	15.1	Oct 12 – Nov 8, 2020	1,016	2.35	4.7	Mobile Telephone	Ateso, English, Luganda, Runyankole	
2020	Ukraine	15.1	Sep 20 – Oct 19, 2020	1,001	1.68	4.0	Landline and Mobile Telephone	Russian, Ukrainian	
2020	United Arab Emirates	15.1	Aug 9 – Sep 7, 2020	1,011	1.27	3.5	Mobile Telephone	Arabic, English, Hindi, Urdu	Includes only Emiratis, Arab expatriates and non Arabs who were able to complete the interview in Arabic, English, Urdu or Hindi
2020	United Kingdom	15.1	Aug 17 – Sep 12, 2020	1,000	1.50	3.8	Landline and Mobile Telephone	English	
2020	United States	15.1	Mar 16 – May 8, 2020	1,007	1.67	4.0	Landline and Mobile Telephone	English, Spanish	
2020	Uruguay	15.1	Sep 24 – Nov 30, 2020	1,001	1.54	3.8	Landline and Mobile Telephone	Spanish	
2020	Uzbekistan	15.1	Oct 26 – Nov 21, 2020	1,000	1.82	4.2	Landline and Mobile Telephone	Uzbek, Russian	
2020	Venezuela	15.1	Sep 19 – Nov 25, 2020	1,000	1.65	4.0	Landline and Mobile Telephone	Spanish	

Data Collection Year	Country	Wave	Data Collection Date	Number of Interviews	Design Effect[a]	Margin of Error[b]	Mode of Interviewing	Languages	Exclusions (Samples are nationally representative unless noted otherwise)
2020	Vietnam	15.1	Dec 16, 2020 – Jan 8, 2021	1,000	2.15	4.5	Mobile Telephone	Vietnamese	
2020	Zambia	15.1	Oct 4 – Oct 28, 2020	1,026	1.81	4.1	Mobile Telephone	Bemba, English, Lozi, Nyanja, Tonga	
2020	Zimbabwe	15.1	Sep 21 – Oct 24, 2020	1,004	1.81	4.2	Mobile Telephone	English, Shona, Ndebele	

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 to 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 used in this analysis

As the Hologic Global Women's Health Index was fielded in 116 countries and territories, 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 116 different countries and territories. The major types of country groupings used in this report are regional and country income breakdowns.

Regional groupings: The Hologic Global Women's Health Index analysis relied on 13 different geographic regions, largely corresponding to the continental sub-region or 'intermediary' regions used by the United Nations Statistics Division (UNSD). Ultimately, Gallup and Hologic decided on the groupings below.

Regional groupings used in this report

In analyzing the results from 116 countries and territories in the Hologic Global Women's Health Index, this report uses the following regional groupings:

Australia/New Zealand: Australia, New Zealand

East Asia: China, Hong Kong, S.A.R. of China, Japan, Mongolia, South Korea, Taiwan, Province of China

Europe: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kosovo, Latvia, Lithuania, Malta, Moldova, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom

South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela

Central America: Costa Rica, El Salvador, Mexico, Nicaragua

Caribbean: Jamaica, Dominican Republic

Western Asia: Bahrain, Cyprus, Georgia, Iraq, Israel, Jordan, Turkey, Lebanon, Saudi Arabia, United Arab Emirates

Northern America: Canada, United States

Central Asia: Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan

South Asia: Bangladesh, India, Iran, Pakistan, Nepal, Sri Lanka

South-eastern Asia: Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam

Northern Africa: Algeria, Egypt, Morocco, Tunisia

Sub-Saharan Africa: Benin, Burkina Faso, Cameroon, Congo, Ivory Coast, Ethiopia, Gabon, Ghana, Guinea, Kenya, Mali, Mauritius, Namibia, Nigeria, Senegal, South Africa, Tanzania, Uganda, Zambia, Zimbabwe

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, China has the largest population of the 116 countries included in the Hologic Global Women's Health Index. China's aged 15 and older population represents 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 this report, respondents from China were given a greater weight — that corresponds to their share of the population — in determining the final calculation.

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.[2] For this reason, the Hologic Global Women's Health Index examined these characteristics using standardized definitions of income and education (shown below) 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.[3]

Country income level

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

- **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

Education

Countries have unique ways of classifying education levels, and these classifications need to be preserved during data collection for weighting purposes. However, to make comparisons across countries by educational attainment, consistent categories needed to be created. All education descriptions can be placed within three categories: primary, secondary and tertiary. All responses regarding education were coded into their relevant category for global comparison.

- **Primary:** Functional equivalent to completing primary education or lower secondary or less. This level is closest to completing up to eight years of education. The exact definition will vary by country.
- **Secondary:** Functional equivalent to completing some secondary up to some tertiary education. This category typically refers to individuals who have completed nine to 15 years of education but have not completed the equivalent of a bachelor's degree. The exact definition will vary by country.
- **Tertiary:** Functional equivalent to completing four years of post-secondary tertiary education, or the equivalent of a bachelor's degree. This level typically refers to individuals who have completed approximately 16 or more years of education. The exact definition will vary by country.

2 As discussed in the Gallup World Poll Methodology and Codebook (pages 12-14).

3 See page 14 of the Gallup World Poll Methodology and Codebook.

Employment

Gallup classified respondents into one of six employment categories based on a respondent's combination of answers to a series of questions about employment.

- **Employed full time for an employer:** A respondent is considered employed full time for an employer if they are employed by an employer and work for this employer for at least 30 hours per week.
- **Employed full time for self:** Respondents are considered employed full time for themselves if they are self-employed and work at least 30 hours per week.
- **Employed part time, do not want to work full time:** Respondents who work either for an employer or themselves and do not work more than 30 hours per week at either job are categorized as employed part time. Additionally, when asked, these respondents indicate that they do not want to work more than 30 hours per week.
- **Employed part time, want to work full time:** Respondents who work either for an employer or themselves and do not work more than 30 hours per week at either job are categorized as employed part time. Additionally, when asked, these respondents indicate that they do want to work more than 30 hours per week.
- **Unemployed:** A respondent is unemployed if they report not being employed in the last seven days, either for an employer or themselves. The respondent must also report actively looking for a job in the past four weeks AND being able to begin work in the last four weeks.
- **Out of the workforce:** Respondents who are out of the workforce, were not employed within the last seven days either for an employer or themselves, are not looking for work, AND/OR are not available to start work. Respondents may be full-time students, retired, disabled or homemakers; however, some respondents will not fall into any of these scenarios.

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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