Cookpad Year 4
Methodology Document

Survey Instruments

This survey was included as a module within the Gallup World Poll in 2021. 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.

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 survey 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 on the following page, 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.

Translation quality control

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 data 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 this survey. 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 and 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, the 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 this survey 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 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 the 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 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 this survey 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 the respondent was 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 made 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 this survey were new telephone countries. According to Gallup estimates, the coverage expected is 90% or greater for most countries.23 In some nations, such as Russia or China, the coverage is estimated closer to 95%. 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.

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 this survey 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.

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 of 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. 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.

Figure # 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. Figure 32 shows estimated precision levels for different values of P and sample sizes under the assumption of simple random sampling.

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

5,000	.60	.88	1.2	1.3	1.3	1.4

While the previous figure 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.

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 cooking 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 survey was fielded in 122 countries and territories, 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 # different countries and territories. The major types of country groupings used in this report are regional and country income breakdowns.

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

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 postsecondary 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.