

The background of the cover is a photograph of a traditional Indian stepwell. The structure is built with light-colored stone and features numerous wide, shallow steps that descend from the top of the frame towards a pool of water at the bottom. Three women are visible on the steps, each carrying a large metal pot balanced on her head. They are dressed in traditional Indian attire, including colorful saris. The walls of the stepwell show signs of age and weathering, with some areas appearing more eroded than others. The overall scene conveys a sense of daily life and the importance of water in this context.

MANUAL

The Water Insecurity
Experiences (WISE) Scales:

A Manual for Implementation and Analysis of People's Experiences with Water

RECOMMENDED CITATION

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Authors’ contact information is available in [Appendix 3](#) and on the back cover.

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The Water Insecurity Experiences (WISE) Scales transform people's experiences with water into actionable evidence for advancing global progress toward safe and sufficient water for all.

We have come a long way since the first implementation manual—a wonderful document led by Shalean Collins for the Household Water Insecurity Experiences (HWISE) Scale development study in 2017.¹ In 2019, we formalized lessons learned from broad implementation of the HWISE Scale with the [HWISE User Manual](#).² Now, five years later, there are 12-question WISE Scales suitable for households (the HWISE Scale³) and individuals [the Individual Water Insecurity Experiences (IWISE) Scale⁴], as well as short versions of each (HWISE-4⁵ and IWISE-4⁶). We have also learned much more about best practices for scale implementation and data analysis from colleagues around the world. The time is ripe for a new and more comprehensive manual.

The purpose of this manual is to facilitate the implementation of the WISE Scales, as well as the analysis and presentation of the data they generate.

Appropriate implementation and analysis will help facilitate the collection of high-quality data and ensure that findings are comparable across diverse contexts, a key strength of the WISE Scales. The extensive technical work that has gone into the development of the WISE Scales is referenced throughout, but is not the focus of this manual.

This document does not need to be read cover-to-cover. Those interested in learning about what the WISE Scales are and their utility for research and practice will want to read [Sections 2](#) and [3](#). Those who are focused on assessment design will be most interested in [Section 4](#). Implementers will be most interested in [Section 5](#), and analysts in [Sections 6](#) and [7](#).

As the WISE journey continues, there are sure to be more innovations and lessons learned. We welcome your feedback and input on suggestions for the next edition of this manual.



image 1 Water can be a source of joy, health, and nurturance.



2

A brief introduction to the WISE Scales

This photo, taken as part of a photo-elicitation interview in western Kenya in 2013, captures a key moment in the inception of the WISE Scales.³⁰ According to standard water indicators at the time of interview, this 9-month pregnant woman would be classified as having adequate water access. There was sufficient freshwater physically available in the country to meet the population's needs ($m^3/capita$) and, as seen in the photo, there was an improved water source on the premises. It became clear during the interview, however, that such measures did not capture the whole story.

This woman shared that her in-laws were not permitting her to use the water within the compound, so she was obliged to fetch water. While carrying water on the dangerous path home, she went into premature labor, with great risk to her health and that of her child.

By measuring people's experiences with water, we can capture these important human dimensions of water insecurity that would otherwise remain invisible.

2a. What are the WISE Scales?

The Water Insecurity Experiences (WISE) Scales are a series of simple questions that bring the voice of the people to the water sector.

Current global water metrics primarily focus on directly observable phenomena, such as the amount of available freshwater and presence of safely managed drinking water services. These are useful and necessary, but they do not tell us if people have insufficient water for basic daily needs – that is, whether they are water insecure (*box 1*).

The WISE Scales provide a snapshot of how water shows up in people's lives, i.e., their state of water insecurity. To understand the *causes* of water insecurity, information about water availability, infrastructure, cost, safety, and coping strategies is needed. To understand the *consequences* of water insecurity, information about phenomena like physical and mental health, diet, and economic well-being is needed.

box 1 Definition of water insecurity.

Water insecurity is the inability to reliably access and use water to meet basic human needs, including drinking, cooking, and washing. It can be caused by problems with water availability, accessibility, acceptability, safety, or reliability.⁷⁻⁹

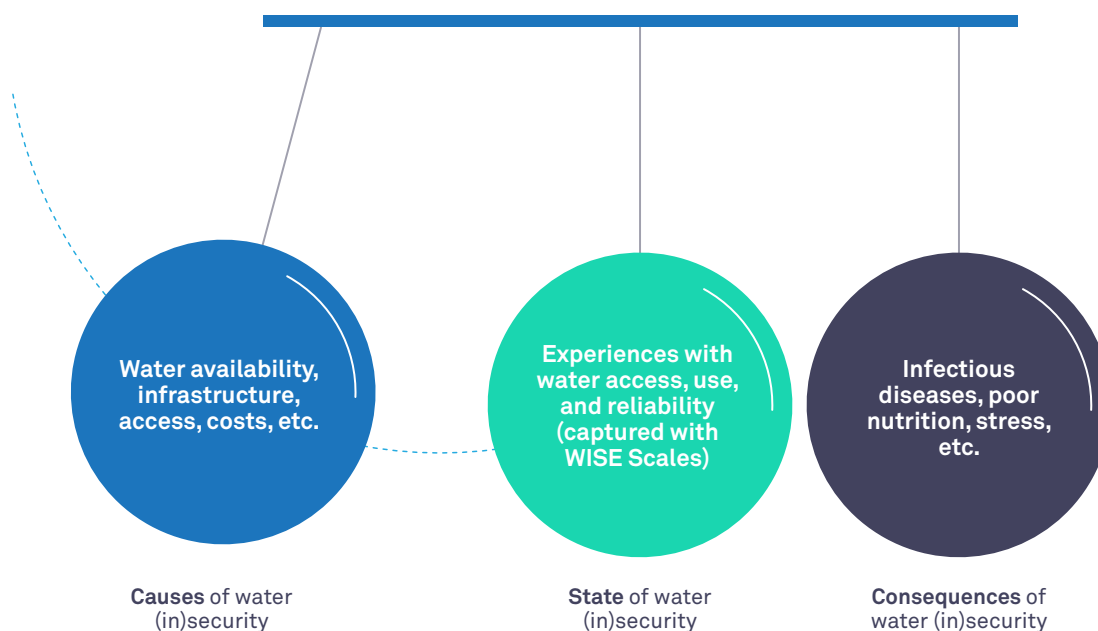


figure 1 Water insecurity is a broad concept that can be measured in many ways. The WISE Scales measure the state of water (in)security (middle), which is driven by many factors (left) and has many consequences (right).

The WISE Scales include 12 questions (also referred to as “*items*”) about how frequently problems with water are experienced (*figure 2*). Items focus on experiences with water for consumption (e.g., drinking, cooking) and hygiene (e.g., handwashing), and consider psychological manifestations of water insecurity (e.g., worry, anger).

The questions can be directed at the household, using the Household Water Insecurity Experiences (HWISE) Scale,² or the individual level, using the Individual Water Insecurity Experiences (IWISE) Scale.³ The 12 questions take approximately 3 minutes to ask. There are abbreviated forms of each (the HWISE-4 Scale⁴ and the IWISE-4 Scale⁵); these take approximately 1 minute to administer. Recall periods of both four weeks and one year have been validated.

(See [Appendix 1](#) for the complete HWISE and IWISE Scales).



figure 2 The 12 items (questions) in the Household Water Insecurity Experiences (HWISE) Scale and the Individual Water Insecurity Experiences (IWISE) Scale query about adverse experiences caused by problems with water. The four items on the top row are those that comprise the HWISE-4⁵ and IWISE-4⁶. Full phrasing and the scoring process for the WISE Scales can be found in [Appendix 1](#). The HWISE and IWISE Scales have been translated into dozens of languages and are freely accessible [online](#). Figure reproduced from a prior publication.⁶

2b. Why use the WISE Scales?

Data from the WISE Scales complement existing water indicators and expand our understanding of the burden of water insecurity. In so doing, they:

i. Reveal who is being left behind.

WISE data can be used to establish the prevalence of water insecurity and monitor changes across time. We can also see differences in water insecurity across socio-demographics. For example, data from the IWISE Scale can be disaggregated to examine differences by gender and other characteristics that are obscured with watershed- and household-level measures. The WHO/UNICEF Joint Monitoring Programme (JMP), together with Emory University and others, have recommended inclusion of the IWISE-4 Scale in global water, sanitation, and hygiene (WASH) monitoring efforts under Sustainable Development Goal 6 (clean water and sanitation for all) because they can track gender disparities in water access and use (*image 2*).⁶

ii. Connect water to other sectors.

Data from the WISE Scales are relevant within the WASH sector, but have demonstrated utility in many other fields (*figure 3*). Experiential water insecurity measures are typically more predictive of well-being than supply-side indicators. To date, water insecurity has been found to meaningfully impact health and well-being (*figure 3*), including food security, prosperity and physical and mental health (see *Thematic Briefs 5, 7, & 8* in the [WISE Impact Report](#)).¹⁰

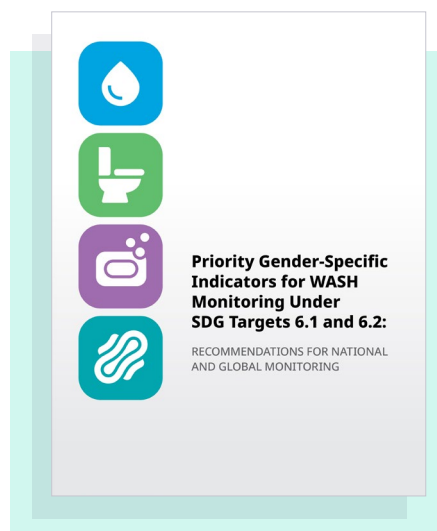


image 2

The [2024 report](#) recommending gender-specific indicators for SDG 6, in which use of the IWISE-4 Scale is recommended.

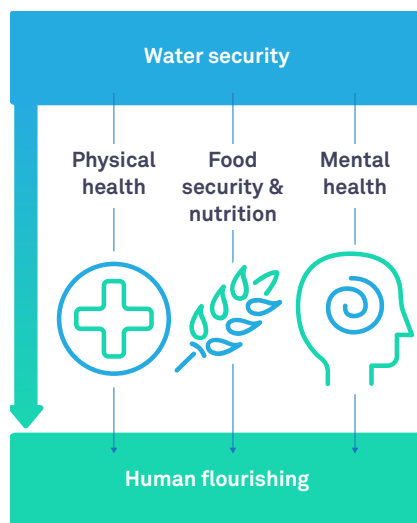


figure 3

Water security has intrinsic value, but it is also imperative for physical health, food security & nutrition, and mental health, all of which are necessary for humanity to flourish.

iii. Permit global comparisons.

WISE data can be used to estimate the prevalence of water insecurity and monitor changes across time. The WISE Scales have been validated for making comparisons across countries with diverse water infrastructure, climates, and population densities.^{2,3} The WISE Scales can thus be used to track changes in the prevalence of water insecurity across locations (figure 4) and after interventions or shocks.

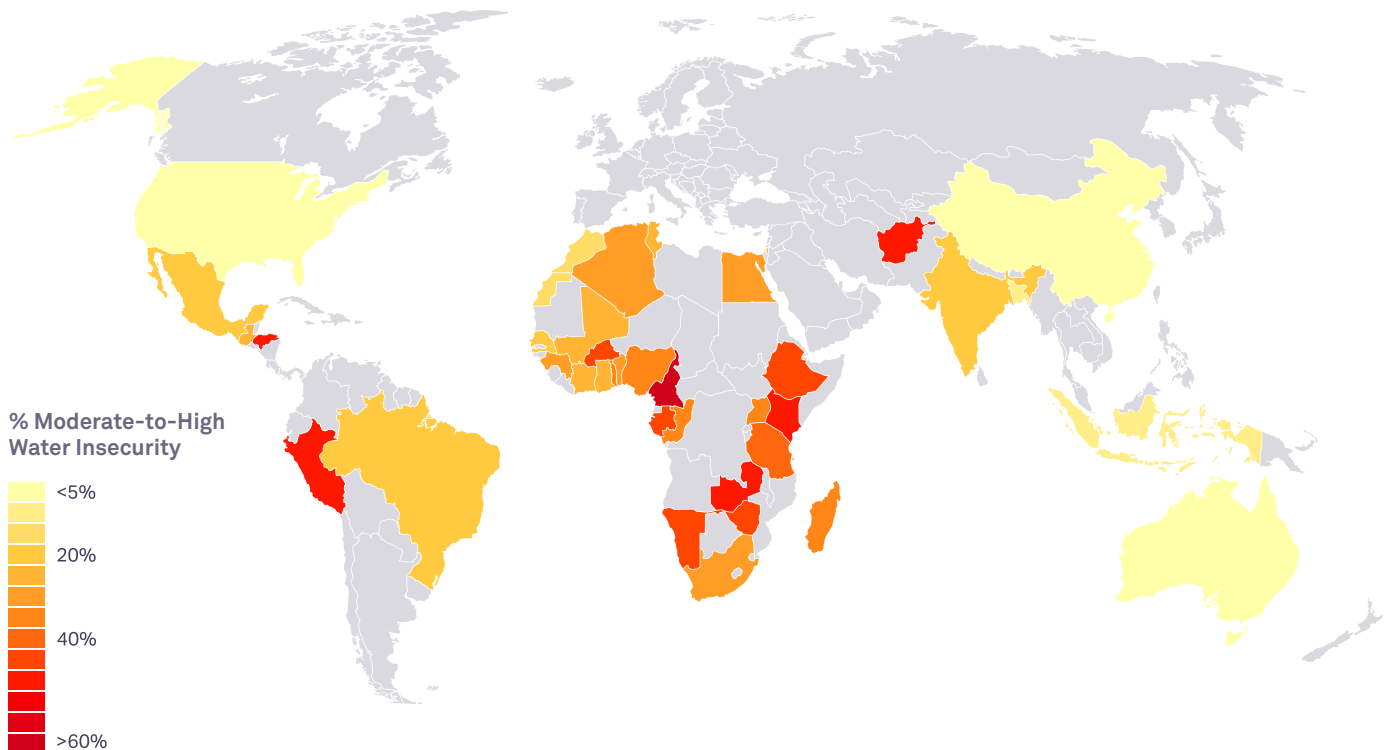
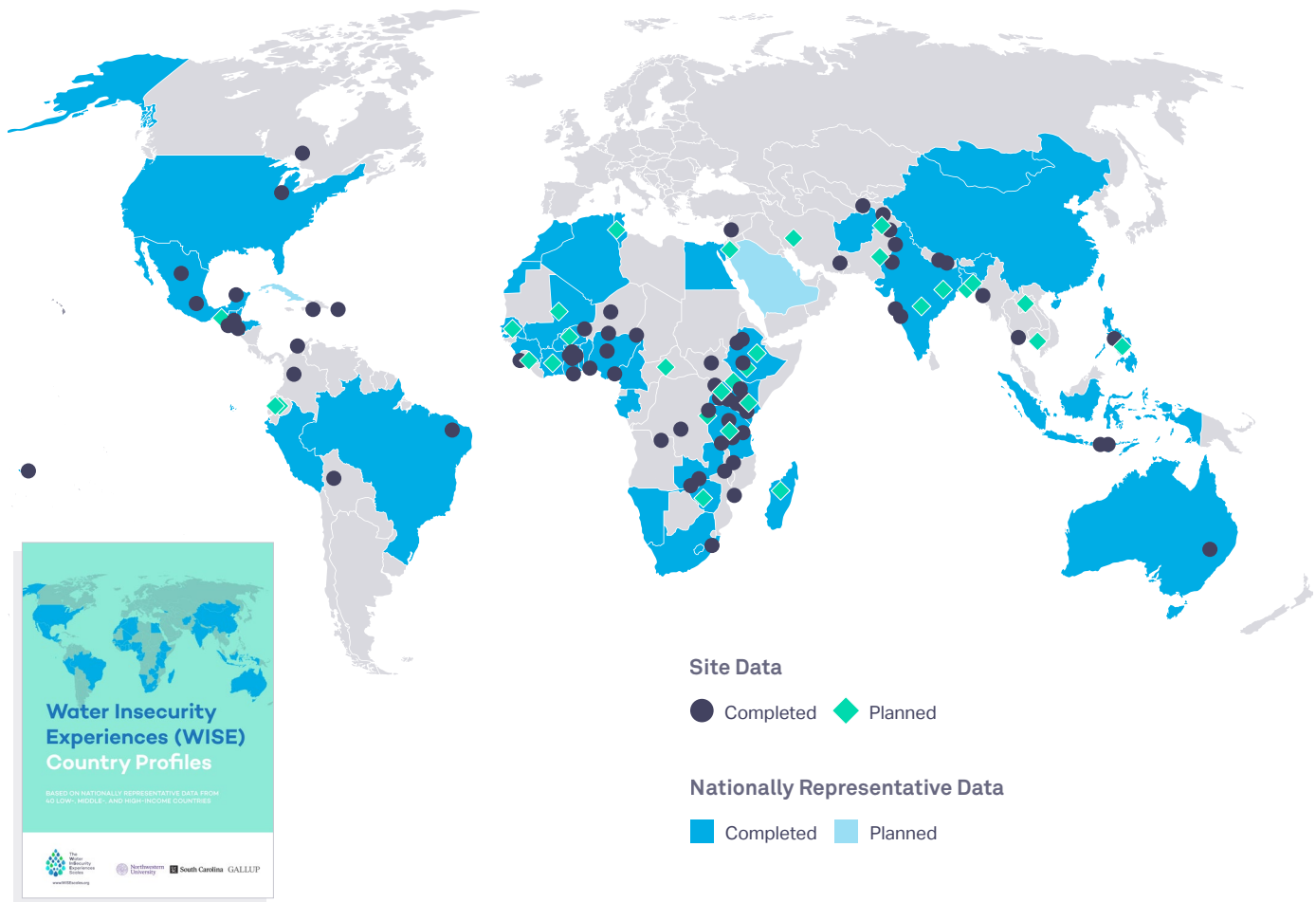


figure 4 Prevalence of moderate-to-high water insecurity across 40 countries in which nationally representative data have been collected. Data come from the 2020 & 2022 Gallup World Poll (IWISE Scale); Mexico's 2021 National Health and Nutrition Survey (HWISE Scale); and Tonga's 2022 Equality Insights Rapid Survey (IWISE-4 Scale). The portion of this figure based on 2020 Gallup World Poll data is replicated from a prior publication, with permission.²⁴ Countries in grey are those without nationally representative WISE data. The data used to make this map are available in country reports on the [WISE Scales website](#).

2c. Where have the WISE Scales been implemented?

The WISE Scales have now been used by 100+ organizations in more than 55 countries.



You can find in-depth profiles for 40+ countries based on nationally representative data at www.WISEscales.org and interactive visualization by the CSIS at www.csis.org/wise-infographic.¹⁶

figure 5 Dots indicate places where site-specific data have been collected. Shaded countries are those for which nationally representative data have been, or soon will be, collected. To date, we have estimates of water insecurity experiences for approximately half of the world's population.

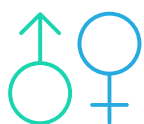
A photograph of two young girls walking on a dirt path, carrying large white plastic water jugs. The girl in the foreground is wearing a colorful patterned sweater and a dark skirt, looking directly at the camera. The girl behind her is wearing a brown sweater and a dark skirt, looking slightly to the side. The background is a lush green field. The entire image is overlaid with a semi-transparent blue filter.

3

Ten multisectoral lessons from WISE data

The WISE Impact Report¹⁰ offers 10 brief examples of how WISE data have been used globally to advance water security for all.

These thematic briefs, which are summarized below, demonstrate how experiential data about water can catalyze action not just for WASH, but across many sectors.



Gender

KEY MESSAGE

WISE data reveal gender differences in water insecurity that are obscured by household- and watershed-level measures.



Advocacy

KEY MESSAGE

Data from the WISE Scales can be used by community members for advocacy efforts and to galvanize government action.



Climate

KEY MESSAGE

Measuring water insecurity experiences makes evident the toll of climate change.



Program targeting

KEY MESSAGE

Governments are using WISE data to better understand community needs and target poverty-reduction programs.



Food insecurity

KEY MESSAGE

To achieve global food security targets, water insecurity must be considered.



Monitoring & evaluation

KEY MESSAGE

Data from the WISE Scales provide a more comprehensive understanding of how interventions impact water accessibility and use.



Prosperity

KEY MESSAGE

Tracking how water insecurity varies by multiple dimensions of prosperity can help to ensure everyone benefits.



Health

KEY MESSAGE

Improving water insecurity has the potential to improve numerous dimensions of human health and well-being.



Governance & oversight

KEY MESSAGE

WISE data provide valuable insights for sustainably and equitably managing water services.



Humanitarian settings

KEY MESSAGE

Experiential measures of water insecurity provide actionable data in places affected by natural hazards, conflicts, and disease outbreaks.



**Which WISE Scale
is most suitable for
your needs?**

4a. Overview of the options

There are several versions of the WISE Scales available to accommodate the diverse reasons one may be measuring water insecurity. As of 2024, WISE Scales have been developed for comprehensively measuring water insecurity experiences among households (HWISE)³ and individuals (IWISE)⁴. Additionally, abbreviated 4-item versions (the HWISE-4⁵ and IWISE-4⁶) have been created to rapidly assess the prevalence of household and individual water insecurity. There are also choices to be made about the recall period to use; the most commonly used are 4 weeks and one year.

In the following, we describe the intended uses and benefits of each version to help you select the one that best meets your needs.

4b. Asking about individuals vs. households

The IWISE and IWISE-4 Scales ask only about the participant's experiences ("How often have *you* ..."). This makes it possible to assess disparities in water-related issues by individual characteristics like gender, age, and physical ability ([Table 1](#)). Individual-level measures^a are important because people living in the same household can have very different experiences with water,¹¹ as we have seen with research about food access and use.¹² The ability to quantify differences by individual characteristics is a major reason that the percentage of individuals experiencing water insecurity, as measured using the IWISE-4 Scale, was recommended as a gender-specific indicator for measuring progress toward Sustainable Development Goal 6.⁹



image 3 Water security is important across all climates and seasons.

^a Individual data are sometimes used to estimate household experiences. For example, with the Food Insecurity Experiences Scale (FIES), if a child lives in a household where at least one adult experiences food insecurity then it is assumed children within that household face similar challenges.²⁹



Sometimes, however, surveys are designed to understand the household environment, such as studies examining the determinants of child growth. In this case, household-level measures may be suitable, i.e., asking about the frequency of experiences of “*you or anyone in your household*”. The HWISE Scale may also be well-suited to programs currently using household surveys for monitoring and evaluation or programs needing to capture more people’s experiences using fewer surveys.

Note, when household-level questions are asked, it is not possible to assess differences by individual characteristics. For example, HWISE cannot be used to suggest that female respondents have higher rates of water insecurity as the female respondents have answered on behalf of the household (*Table 1*). However, HWISE can be used to explore disparities in water security by different household characteristics, such as region, household income, and the head of the household’s gender.

We recommend that if you use the household version, you first explore if there could be intra-household variation, that is, differences between household members’ experiences with water. This could be done qualitatively, with a few short interviews with people knowledgeable about how water experiences can vary by individual characteristics like gender, age, and education. This could also be done quantitatively, by surveying members of the same household separately about their experiences with water and then comparing responses.^b

4b. In summary: the unit of analysis should align with the purpose of the study and other questions in the survey. Asking about individuals is more suitable for understanding exposure with more precision, whereas asking about the household can capture the experiences of more people.

Table 1. Considerations when asking questions about individual vs. household experiences

	Individual	Household
	Most granular measure of who experiences water insecurity; can be used to assess disparities by individual characteristics in a population	Can represent more peoples’ experiences using fewer resources (i.e., time and number of surveys); can estimate disparities across households
	Must implement among multiple household members to assess intra-household disparities	Cannot be used to draw conclusions about differences by individual characteristics

^b If intra-household variation is of great interest, we recommend exploring differences by gender and age. The amount of variation that is “meaningful” will depend very much on the setting. Possibilities are to perform t-tests across groups, descriptive analyses of the total amount of variation or discordance. Assessments of intra-household variations in food insecurity experiences have been previously published.^{12,13}

4c. The recall period

Recall periods of four weeks and one year have been validated and are the most commonly used; each have strengths and important considerations (Table 2).



One advantage of a four-week recall period is that it likely yields a more accurate answer; it is easier to remember experiences over a shorter period of time. With a more accurate measurement of exposure, predictions about relationships with outcomes can be more robust. A disadvantage is that a four-week recall period does not capture annual variation in water issues, for example due to seasonal factors, which in some places can be enormous.¹⁴ This shortcoming of a four-week recall period can be overcome if multiple rounds of surveys are implemented (e.g., in the rainy and dry seasons).

The advantage of a one-year recall period is that it captures the range of temperature, precipitation, and other annual changes that can affect water insecurity. It is therefore a better choice when the purpose of measurement is to make comparisons in prevalence across sites or countries.

Some researchers have used other recall periods, such as two weeks.¹⁵ This was appropriate because it matched the recall period for the outcomes of interest. If, for example, the main outcome of interest is food insecurity in the prior three months, it would be fitting to implement the WISE Scales using a 3-month recall period. Elsewhere, it may be informative to tie the recall period to a particular event, such as a volcanic eruption, earthquake, or other humanitarian crisis.

4c. In summary: It is best to use a recall period that corresponds to the exposures and outcomes of interest. Respondents can struggle when numerous recall periods are used within the same survey. A shorter recall period is recommended when the purpose of measurement is to understand how water insecurity shapes well-being, to measure the impact of interventions over time, or to understand variation in water insecurity across different seasons within the year. An annual recall period is more suitable when the purpose is to compare prevalence across sites.

Table 2. Considerations when asking about experiences in the prior year vs. in the prior four weeks

	One-year recall period	Four-week recall period
	Captures annual variation; better for comparing prevalence across sites	More accurate; better for investigating impact on well-being and changes in water insecurity
	Subject to greater recall bias and may be less accurate	Can miss annual variation

4d. Using the full (12-item) vs. abbreviated (4-item) scale

The 12-item HWISE and IWISE Scales take approximately three minutes to ask aloud (Table 3).^{3,4} When time is short, an abbreviated scale can be used. The HWISE-4 and IWISE-4 each take approximately one minute to verbally administer, and are based on the subset items in the full scales.^{5,6}

There are many advantages to asking the full 12-item scale. First, more information is captured. Although the four-item scales were designed to include the experiences that predict the most variation in water insecurity scores globally, they may not capture certain experiences that are important for understanding the scope and magnitude of water insecurity in a particular site. For instance, in high-income countries, we are seeing that the question about water supply interruptions is often affirmed, but this experience is only asked about in the full 12-item version.



Second, by capturing 12 water insecurity experiences, there are sufficient data to assess four categories

of water insecurity. In contrast, the four-item version can only be used to classify individuals as having moderate-to-high water insecurity or not. Having all four water insecurity categories (no-to-marginal, low, moderate, and high) has been useful for understanding relationships with phenomena as disparate as climate events and mental health.^{10,16}

A clear advantage of the HWISE-4 and IWISE-4 Scales is that they are shorter to administer (Table 3). This feature was particularly appealing during many telephone surveys during COVID-19. However, they cannot be used to estimate different categories of water insecurity, only the presence or absence of moderate-to-high water insecurity. A further disadvantage of the abbreviated scales is that they have only been validated in low- and middle-income countries. Validation work is still needed in high-income countries.

4d. In summary: The 12-item WISE Scales should be asked whenever resources permit.

Table 3. Considerations when using a 12-item vs a 4-item scale

	12 items	4 items
	Captures more information; 4 ordinal categories of water insecurity can be calculated; higher variance in total score which is useful for measuring smaller impacts	Quicker to administer (~1 minute)
	Longer to administer (~3 minutes)	Only 2 categories of water insecurity can be calculated; not yet validated in high-income countries

4e. Real-world examples of decisions about which WISE Scale to use

The WISE Scales have been used for many purposes. Here are six real-world use cases and the factors that informed which WISE Scale was ultimately implemented:

- To **estimate the burden of water insecurity globally**, the IWISE Scale was implemented in the 2020 and 2022 Gallup World Polls in 38 countries. Individuals were asked 12 items using a one-year recall period. A one-year recall period made it possible to make comparisons of prevalence estimates that accounted for seasonal variation in temperature and precipitation (*figure 4*). Measurement at the individual level revealed important differences by personal characteristics, such as gender and age.^{24,27} The observed gender differences in water access and use were subsequently highlighted in the 2023 JMP report.²⁷

- To **evaluate program impacts**, the NGO Helvetas used the 12-item HWISE Scale with a 4-week recall period in Nepal. Household-level evaluations were made before and after an intervention that delivered piped water to households. Asking about the frequency of a range of water insecurity experiences was useful for understanding which issues were no longer experienced and which persisted, even “rarely” or “sometimes” (*figure 9*). Understanding these impacts guided the design of future interventions in that region and elsewhere. Similarly, the World Bank has implemented the 12-item HWISE Scale before and after a large-scale water intervention in Karnataka, India.¹⁰
- To **assess the role that water insecurity may play in food insecurity for making policy decisions**, the HWISE-4 Scale will be implemented with a 4-week recall period in 20 Feed the Future countries (Feed the Future is the U.S. Government’s global hunger and food security initiative, led by USAID). This tool was selected because it aligns with other household-level measures in their surveys and did not add substantially to their lengthy surveys. Data from the mid-line Zone of Influence surveys are used to monitor initiative-level progress and inform strategic and programmatic decision-making across target countries.

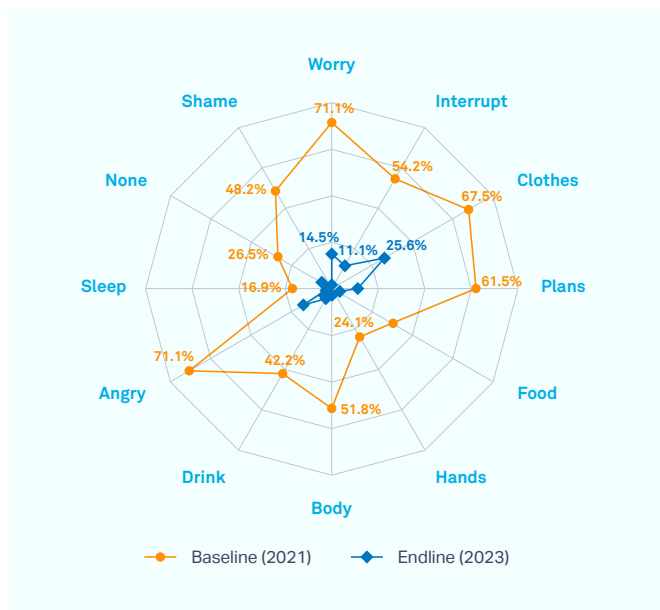


figure 9 The proportion of households affirming the 12 HWISE Scale items substantially decreased in Karnali State, Nepal, after piped water connections were implemented (n=83).¹⁰

- For determining **consequences of water insecurity**, observational repeated measures in the same populations or intervention data with comparison groups (before and after or matched controls) are useful. A study in Kenya in which food and water insecurity were measured with a 4-week recall period every three months, has shown that water insecurity is predictive of food insecurity.¹⁷ A four-country panel study about drivers of nutritional intake during COVID-19 by the International Food Policy Research Institute found that the **HWISE-4, implemented with a 2-week recall period**, predicted both lower individual food security and dietary diversity (figure 10).¹⁹ A two-week recall period was appropriate because it matched the other outcomes of interest.

Dietary diversity

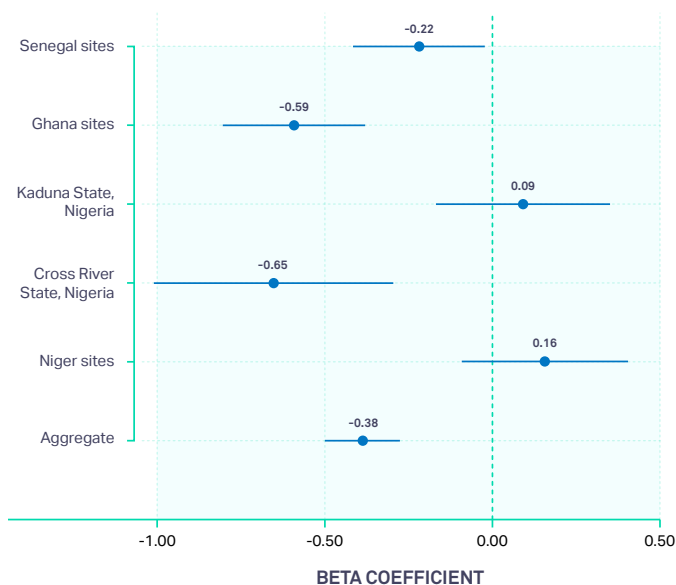


figure 10 Associations between household water insecurity (HWISE-4 score ≥ 4) and individual dietary diversity scores (0–10), in a panel study among adults engaged in agriculture in sub-Saharan Africa in 2020–2021, by study region and in aggregate.

Point estimates and 95% confidence intervals estimated using multilevel mixed-effects ordered logistic and linear regressions, adjusting for putative confounders. Reproduced, with permission, from a prior publication.¹⁵

- To ensure appropriate **targeting**, the NGO charity: water asks its grantees in 58 WASH programs across 22 countries in Africa and Asia to measure water insecurity in the prior 4 weeks using the 12-item HWISE Scale (image 4).



image 4 The NGO charity: water uses the 12 HWISE items to understand the impact of its programs in 22 countries.

- To understand **the public health burden of water insecurity**, the **HWISE-12 with a 4-week recall** has been implemented annually in the nationally representative “Encuesta Nacional de Salud y Nutrición” by Mexico’s National Institute of Public Health since 2021.³¹ Inclusion of the HWISE Scale alongside numerous measures of health, nutrition, and poverty among adults and children is revealing associations between water insecurity and many outcomes of public health interest.



5

**How do you ask the
WISE questions?**

5 HOW DO YOU ASK THE WISE QUESTIONS?

5a. IWISE and HWISE item phrasing

The IWISE and HWISE items ask about the same universal experiences with water issues. The difference is that IWISE items ask only about the experiences of the participant (*“How often have you ...”*) (Appendix 1, Worksheets A & C), whereas HWISE items ask about experiences of the entire household (*“How often have you or anyone in your household ...”*) (Appendix 1, Worksheets B & D).

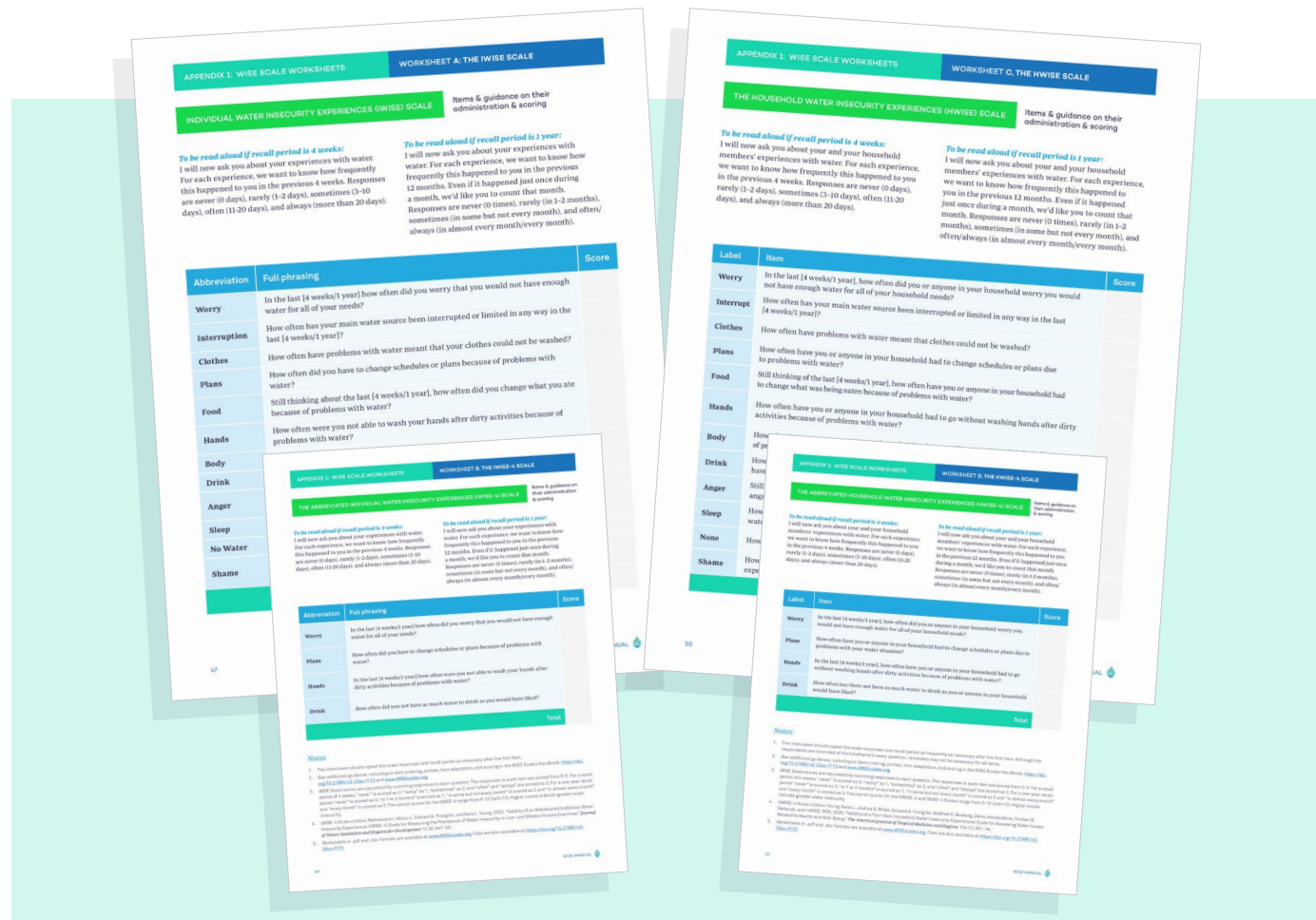


image 5 Worksheets with complete item phrasing and scoring guidance are available for all four WISE Scales, in both .pdf and .doc versions in Appendix 1. Files are also available at <https://doi.org/10.21985/n2-xsw5-mz63>.

5b. Response options for a four-week recall period

A four-week recall period^c is typically introduced by reading a prompt: *“I will now ask you about your experiences with water. For each experience, we want to know on how many days^d this happened in the prior four weeks.”* The phrasing of the four-week recall period is also built into the questions: *“In the last 4 weeks, how frequently did you or anyone in your household ...”*^e

Possible responses are “never”, “rarely”, “sometimes”, “often”, and “always” (Table 4). Some participants ask for clarification on the definitions of these terms, such that enumerators can offer guidance on the number of days associated with each. “Never” means it occurred on 0 days; “rarely”, on 1–2 days; “sometimes”, on 3–10 days; “often” on 11–20 days; and “always” on more than 20

days. “Often” and “always” are combined during scoring, but it can be useful to distinguish them when assessing program impact.

It is important that the participant answers all questions; a score cannot easily be generated if an answer to any of the questions is missing (more on this in [Section 6](#)).

We have not found a situation when “not applicable” is appropriate, as a lot of work has gone into ensuring that the items are universal. Probes can be useful when respondents are replying with “not applicable”. If participants have trouble estimating the frequency in the prior 4 weeks, it sometimes helps to ask about how many times the experiences occur in a week. Multiply this weekly number by four to get a cumulative response. “Don’t know” should only be used after providing additional explanation or prompts to the respondent (see [Section 5d](#)).

Table 4. WISE Scale responses and scores for 4-week and 1-year recall periods

Responses for 4-week recall	Responses for 1-year recall	Score
Never (On 0 days)	Never (0 months)	0
Rarely (On 1-2 days)	Rarely (During 1-2 months)	1
Sometimes (On 3-10 days)	Sometimes (In some but not every month)	2
Often (On 11-20 days)	Often (In almost every month)	3
Always (On more than 20 days)	Always (In every month)	3
Not applicable / Don’t know	Not applicable / Don’t know	No score

^c Initially we used “times” as the unit, instead of days, e.g., “rarely” was defined as 1 or 2 times. However, “days” brought more uniformity to people’s understanding and avoided overestimating experiences with water insecurity. For example, with “days” instead of “times”, if there were 7 water interruptions on a single day it would only count as 1 experience, i.e., “rarely”.

^d The optimal recall period for WISE Scale questions is one that matches the response options of key outcomes of interest; see [Section 4c](#) for guidance on recall period selection.

^e We have found that “in the last 4 weeks” was less ambiguous for participants than asking about “the prior month.” This is because some participants understood “the prior month” to mean “in the previous calendar month”, i.e., if it was February 14, the participant thought they were being asked about their experiences from January 1–January 31. If participants are not confused by “the prior month,” either phrasing is suitable.

5c. Response options for a one-year recall period

A one-year recall period is introduced by reading a prompt: *“I will now ask you about your experiences with water. For each experience, we want to know in how many months this happened to you during the last 12 months. Even if it happened just once during a month, we’d like you to count that month.”*

The response options are “never”, “during 1 or 2 months”, “in some but not every month”, “in almost every month”, or “in every month” ([Table 4](#)).

5d. Probes

A score cannot easily be generated if a participant does not answer all the items. (More on scoring in [Section 6](#)). When participants say that they “don’t know”, or that an experience is “not applicable”, probes (sometimes called “prompts”) may help. The prompts below have helped participants to answer questions by conveying the underlying intention of each item. The IWISE phrasing is used, but the prompts are applicable for HWISE items as well. They may need to be further tailored for your particular setting (see also [Section 5g](#) on adapting and translating).

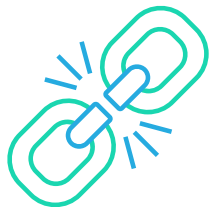


WORRY

How frequently did you worry you would not have enough water for all of your needs?

Your needs could include washing clothes, bathing yourself or your children, providing water to animals, washing dishes and utensils, cleaning your home, or other activities that require water.

In this question, we are wondering about the worry of not having enough water of appropriate quality for your needs.



INTERRUPT

How frequently has your main water source been interrupted or limited (e.g., low water pressure, less water than expected, river dried up)?

There are many types of interruptions. By interrupted, we mean that your water could have been turned off by the government or company that provides it. It could have stopped flowing due to issues with the supply or supplier, a storage tank no longer containing water, or the vendor you regularly use to purchase water from not being available. Or perhaps there is a drought and the spring you normally use is dry such that you have to use another source to get water. This item does not exclusively refer to piped water sources.

FREQUENCY TIP

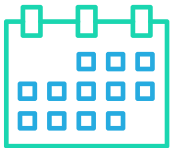
When estimating frequencies in the prior 4 weeks, if participants do not feel confident in their answers, or are having a difficult time responding, ask the participant about how many times these items have occurred in one week. Multiply this number by four to get a cumulative response.



CLOTHES

How frequently could your clothes not be washed because of problems with water?

Water used for laundry can come from within the household or outside the household (e.g., at a tapstand, river, or laundromat). This question is not meant to assess the frequency with which people wash their clothes, but rather the frequency with which they could not wash their clothes when they wanted to.



PLANS

How frequently have you had to change schedules or plans due to problems with your water situation?

This question refers to your day being interrupted by problems with water. Activities that may have been interrupted include caring for others, doing chores, agricultural work, income-generating activities, sleeping, etc. In some places, people have to travel to get water, which takes time and can interrupt plans. Interruptions include if you want to go visit a friend but cannot because you have to go get water, or because there are problems caused by flooding that you have to deal with instead.



FOOD

How frequently have you had to change what was being eaten because there were problems with water?

This question refers to water used for cooking or preparing foods. This question means that you may have changed what was eaten because there was not enough suitable water to wash, prepare, or cook a preferred food. For example, you couldn't wash vegetables, or didn't have water to boil beans.



HANDS

How frequently have you had to go without washing hands after dirty activities because of problems with water?

This question refers to water for washing hands. Sometimes you may need to do dirty/unclean activities like changing diapers, using a toilet, smearing mud or dung on walls or floors to insulate your home, cleaning, or taking care of animals, and you may not have enough water to wash your hands after. If you choose not to wash your hands, this is different than not having enough water to wash them.

**BODY**

How frequently have you had to go without washing your body because of problems with water (e.g., not enough water, water is dirty or unsafe)?

This question refers to not being able to wash one's body because there isn't enough water for bathing. This could be because the water is dirty, unsafe, or limited in quantity. It can be possible that there may be enough water for some members of the family to bathe but not others.

**DRINK**

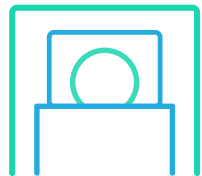
How frequently did you not have as much water to drink as you would have liked?

This question refers to drinking water. In some places, there is not always enough water for everyone to drink as much as they would like. Or, there may be water available, but you are unable to drink it because it is dirty or unsafe.

**ANGRY**

How frequently did you feel angry about your water situation?

This question refers to anger or other negative emotions you feel because of water. By your water situation, we mean how you get water, not having enough water, not having enough of the kinds of water you prefer, being worried about the quality of your water, water issues affecting your life and schedule, and anything else related to getting and using water that may cause you to feel angry.

**SLEEP**

How frequently have you gone to sleep thirsty because there wasn't any water to drink?

This question refers to not having enough water to drink and feeling thirsty when you are going to sleep. For example, people can go many hours without drinking water because they do not have enough, they are saving it for other family members, or for other reasons. This question does not refer to those who do not drink before sleeping to avoid urinating during the night.

**NONE**

How frequently has there been no usable or drinkable water whatsoever?

This question refers to not having any water that can be used for domestic activities or for drinking. For example, in some places, people do not have enough storage to keep water or are unable to get enough water to have for immediate needs. In other places, water may flood a home, and none of the water can be used for drinking, washing, cooking, or other activities.

**SHAME**

How frequently did you feel shame because of problems you were experiencing with water?

Shame is one of the more sensitive words to translate. There are many reasons why people might feel ashamed, excluded, or stigmatized because of problems with water. This could include not being able to provide visitors with water if they stop by your home or being too dirty or stinky to be around other people.

5e. Modality

WISE items have been asked to tens of thousands of individuals using face-to-face interviews. This is the most common mode of implementation. Gallup demonstrated that telephone interviewing was also a suitable modality for the IWISE Scale²⁴; telephone interviewing has now been used in over 30 countries. A few unpublished studies have been conducted in which WISE items have been asked via text message or self-administered using study tablets. More research is needed on the suitability of these modalities, but they do show promise.

In general, advantages of face-to-face interviews include higher response rates, greater rapport, and a better ability to assess if the person understands the questions. Disadvantages include that an enumerator's presence in the home may be unwanted, and travel to households can be time consuming and expensive.

Advantages of telephone interviews is that they can get at hard-to-reach populations, are less expensive, and less invasive for participants. They are also useful

in contexts where low-contact surveys are needed (e.g., during COVID, Ebola, or MPox outbreaks). On the other hand, telephone coverage may not be sufficiently high, such that samples will not be representative.

5f. Data collection software

While the WISE scales are agnostic about modality – meaning data can be collected using a wide variety of tools, from mobile apps to pen and paper – data collection software can help with collecting, analyzing, and managing the survey responses. The WISE Scales have been programmed into a number of data collection platforms for facilitating surveys. Some programs that have been used for WISE data collection include:

- Open Data Kit was used for HWISE scale development. A template HWISE survey using a 4-week recall period is available here <https://bit.ly/HWISE12odk>

- KoboToolbox has been used by Helvetas and other international partners. A template for implementing the HWISE Scale with a 12-month recall period is available here (<https://bit.ly/HWISE12kobo>), with upload instructions here (<https://bit.ly/WISEkobo>).
- REDCap has a publicly available, pre-programmed module for implementing the IWISE Scale with a 12-month recall period. Directions for accessing the IWISE template on REDCap's Shared Library can be found here (<https://bit.ly/IWISEredcap>).

These three platforms all permit forms to be filled out offline and later uploaded, which can be useful in remote settings. These platforms can also be used on mobile phones and tablets.

An additional benefit of collecting data electronically is the possibility of real-time data analysis. This can help identify enumerators with high rates of “don’t know”, “not applicable”, or unusual responses, so that the enumerators can be offered more support in terms of understanding and probing on WISE items (see [Section 5d. “Probes”](#)). It can also be useful in areas where rapid decision-making is needed, such as in (the early onset of) responses to humanitarian crises.

5g. Adapting and translating the scales

When adapting and translating the scales, it is critical that the intended meaning of the items is preserved to ensure that WISE Scale scores are equivalent and comparable. The Scales have already been translated into more than 45 languages, available at www.WISEscales.org. (Care should be taken to note if the translation is for HWISE or IWISE as well as potential idiosyncracies).

Even when the language is locally appropriate, dialects and phrasing can change dramatically. As such,

certain phrases may need to be further adapted to the local context to ensure that respondents understand their meaning. For example, the interviewer may need to read a locally appropriate definition (e.g., of “household”) the first time the term is used. Certain questions may require that the interviewer provide locally relevant examples, e.g., of “dirty activities” (for the handwashing item) (see [Section 5e](#)).

To ensure that questions are understood appropriately, translated or adapted phrases, definitions, and examples should be reviewed with key informants and then refined with a small group of respondents before implementation. Cognitive interviews, focus group discussions, back translation, and field pre-testing are common methods for identifying potential mistranslations and other errors. A more in-depth discussion of scale adaptation is available elsewhere.^{20,21}

5h. Additional water-related information

It is undoubtedly useful to understand an individual’s or household’s state of water insecurity using WISE data. Additional water-related information may also be relevant. Reviewing [Figure 1](#) may help to ensure that the necessary data about causes and consequences of water insecurity are being collected.

There are many sources of water-related questions. For example, a number of candidate items for the HWISE Scale were cut because they were not universally applicable, including questions about water for agricultural production and caring for children ([Appendix 2](#)). However, these have proven to be useful in certain contexts. For example, the International Rice Research Institute and the International Water Management Institute developed an “AgWISE module” using some of these items to investigate experiences with water for food production and processing in Bangladesh.²²

WISE data have been shown to be complementary to other water indicators. For example, a number of studies have included the JMP's drinking water ladder alongside a WISE module to illustrate how supply-side data complement information about the sufficiency of water for people's needs; these papers are forthcoming. Both types of data are useful for evaluating the local water landscape and designing policies and programs to improve water security.

The inclusion of geospatial coordinates makes it possible to link the WISE scales with relevant data from other sources, e.g., remote sensing data on climatic events or conflict to understand the associations of these events with water insecurity.¹⁰

5i. Additional data collection considerations

The purpose of this handbook is to give guidance on the WISE module, not on overall survey implementation. However, we are glad if we can prevent heartbreak and headaches with a few more general suggestions:

- Informed consent should always be obtained from respondents before starting a survey. The survey might include a script for the enumerator to read to obtain verbal consent or a signature spot for the respondent. No data can be published in peer-reviewed journals without approval by an appropriate Institutional Review Board.
- Household and enumerator IDs are useful for tracking and analyzing data. Many software packages can be set up to automatically generate an ID for respondents and an enumerator ID based on which enumerator is logged in.
- There are different considerations for telephone interviews than in-person interviews, such as reminding people to turn off speaker phone.
- Geospatial coordinates are useful for layering experiential data with other publicly available datasets, e.g., about conflict and climate events. Many software packages can be set up to take coordinates automatically. When collecting sensitive personal data, including GPS coordinates of a household, it is important to take care to protect personal data and follow data privacy regulations.
- We highly recommend “*Survey Methods in Social Investigation*” by Moser and Kalton (2017), for further reading on best practices for survey implementation.²³



image 6 Water gives life, both physical and spiritual.



6

**How do you create
WISE scores?**

6 HOW DO YOU SCORE THE WISE RESPONSES?

6a. Total WISE scores

WISE Scale **scores are calculated by summing responses to each item** (figures 10 & 11). Each item is scored from 0-3 (Table 4). For a recall period of 4 weeks, “never” is scored as 0, “rarely” as 1, “sometimes” as 2, and “often” and “always” are scored as 3. For a one-year recall period, “never” is scored as 0, “in 1 or 2 months” is scored as 1, “in some but not every month” is scored as 2 and “in almost every month” and “every month” are both scored as 3.

The overall scores for the HWISE and IWISE Scales range from 0-36 (12x3=36). For the abbreviated versions, HWISE-4 and IWISE-4, each of which have 4 items, the range is 0-12 (4x3=12). Higher scores indicate greater water insecurity.

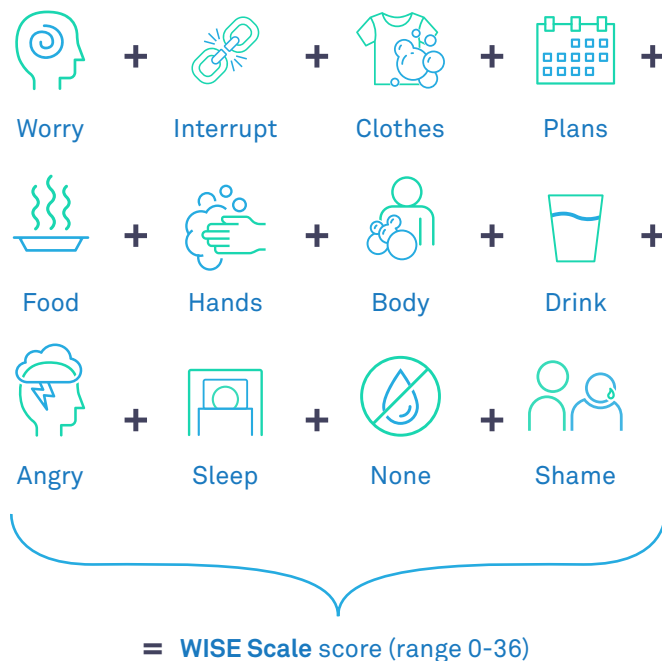


figure 10 WISE Scale scores are calculated by summing all 12 items.



figure 11 WISE-4 Scale scores are calculated by summing 4 items.

The summative score is one measure of water insecurity; this is the value that offers the highest possible variance. It may be particularly useful when one is interested in identifying changes in water insecurity or associations with other outcomes. Moreover, it may be helpful in understanding how data are distributed and for certain graphical representations, e.g., scatter plots.

6b. Calculating water insecurity categories for the 12-item WISE Scales

The prevalence of water insecurity is another important indicator. When the HWISE & IWISE Scales were first published, scores of 12 and higher were considered indicative of water insecurity. This was useful for beginning to understand and compare global prevalences.²⁴

Additional cut-points provide more nuanced insights. For example, they can tell us if low water insecurity is associated with adverse outcomes, or distinguish the effects of moderate water insecurity from high water insecurity. We therefore identified cut-points for water insecurity scores to establish four ordinal categories: no-to-marginal (scores of 0-2), low (3-11), moderate (12-23), and high (24-36) water insecurity.²⁵

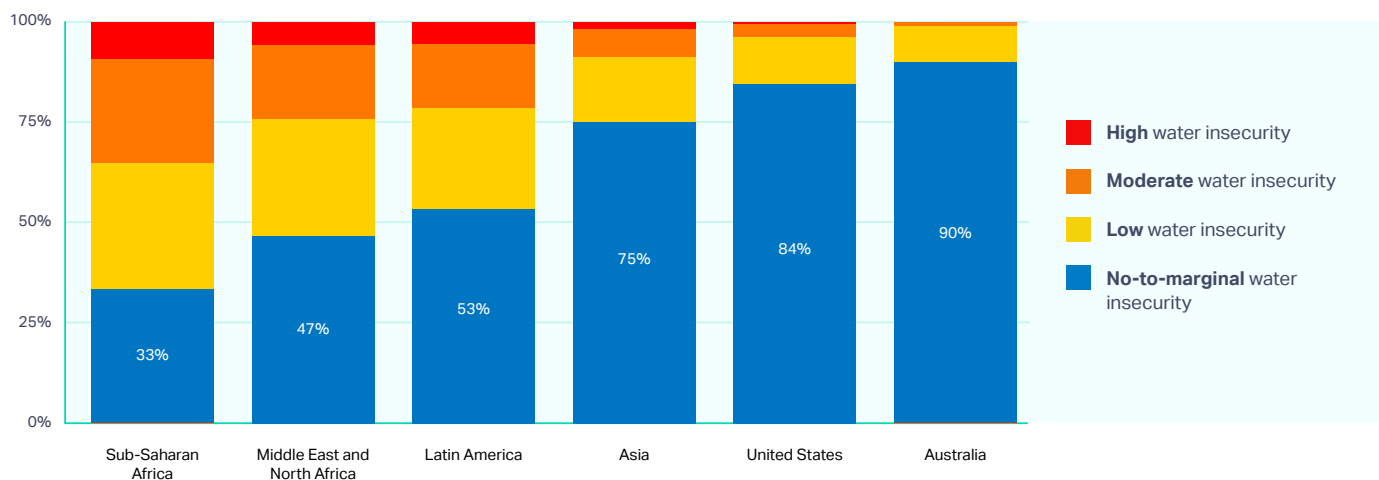


figure 12 For looking at regional differences in water insecurity using Gallup World Poll data, four categories provides more nuance than simple dichotomization. Reproduced with permission from a prior publication.²⁵

6c. Calculating water insecurity categories for the 4-item WISE Scales

For the abbreviated versions, a cut-point of 4 and higher has been established as being indicative of moderate-to-high water insecurity.^{5,6} The abbreviated scale range (0-12) is too narrow to establish more than two categories due to the limited number of experiences captured.

6d. Missing data

It is best to avoid having missing data. Missing data can be the result of a participant responding “don’t know” or “not applicable” to any item. To mitigate

this, we have developed probes to help if participants are struggling to respond (see [Section 5d, “Probes”](#)). Missing data can also be the result of enumerators skipping items. To mitigate this, we encourage the use of software for survey administration (see [Section 7c](#)).

If responses for one, two, or three of the 12 WISE items are missing, we have previously used imputation to generate plausible responses based on available data. Please note that if 4 or more items are missing then this method is not recommended.

A photograph of a woman and two children in a rural setting, possibly a village. The woman is crouching down, holding a small bowl, and looking at it. A young child is standing next to her, also looking at the bowl. Another child is standing further back, looking down. The background shows a simple building and some foliage. A large white number '7' is overlaid on the image.

7

**How do you present
WISE findings?**

7 HOW DO YOU PRESENT WISE FINDINGS?

7a. Overarching considerations

There are many ways to present WISE data; the presentation should be tailored to the audience's interests. Figures are almost always more engaging than tables and sentences, especially for a non-technical audience.

As an example, we developed a template to graphically convey country-level “snapshots” of water insecurity based on nationally representative data (image 7). One-page overviews of 40 countries are publicly available.¹⁶

In a county-level assessment of water insecurity in Kenya, we were able to collect more data than we could in nationally representative surveys (image 8). In this case, we could include data on water expenditures and differences in water insecurity by water source.

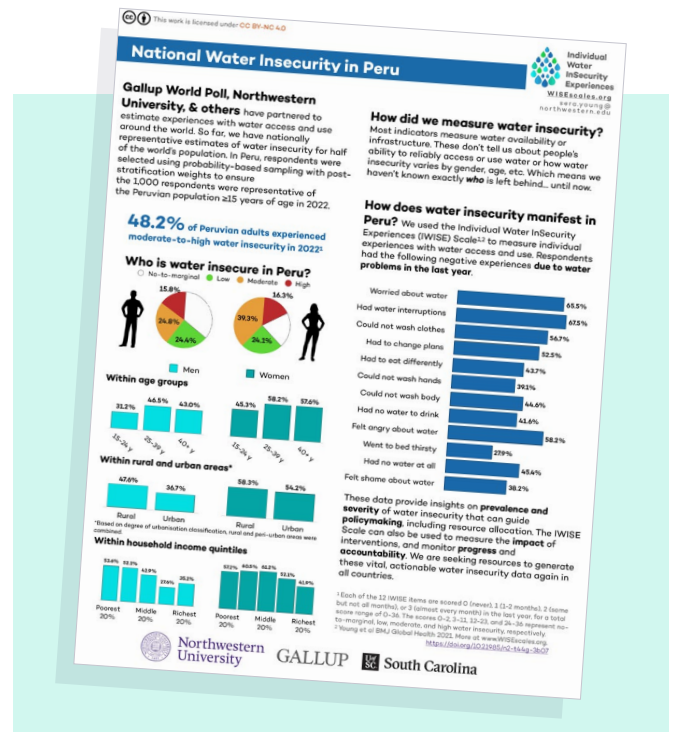


image 7 Water insecurity country profiles are currently available for 40 countries.¹⁶

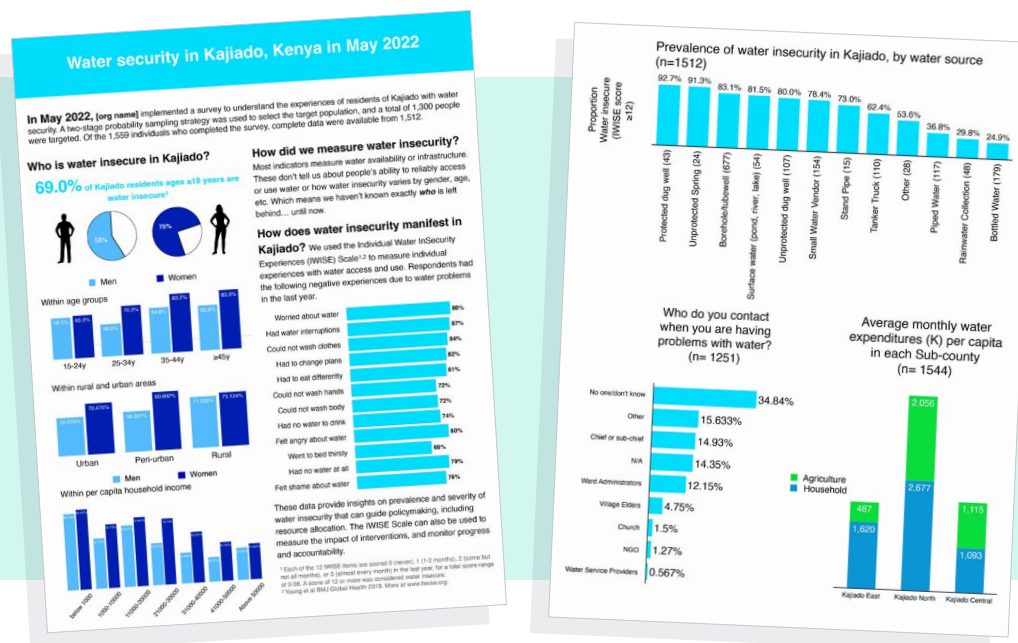


image 8 Brief summaries of findings can be useful to government officials, policymakers, and donors, as well as sharing findings with participating communities.

7b. Key components

We have found that there are some basic pieces of information *about the survey* that should always be included when summarizing WISE findings:

- the sample size and how the sample was selected.
- start & end date of data collection.
- key partners.
- the WISE scale used, including recall period.
- how water insecurity was defined.

Basic WISE descriptives that are almost always useful to calculate include:

- the overall prevalence of water insecurity, ideally using the 4 categories.
- the frequency with which each item is affirmed.
- how the prevalence of water insecurity differ by key sociodemographic factors, such as gender, urbanicity, age, income, and/or neighborhood.

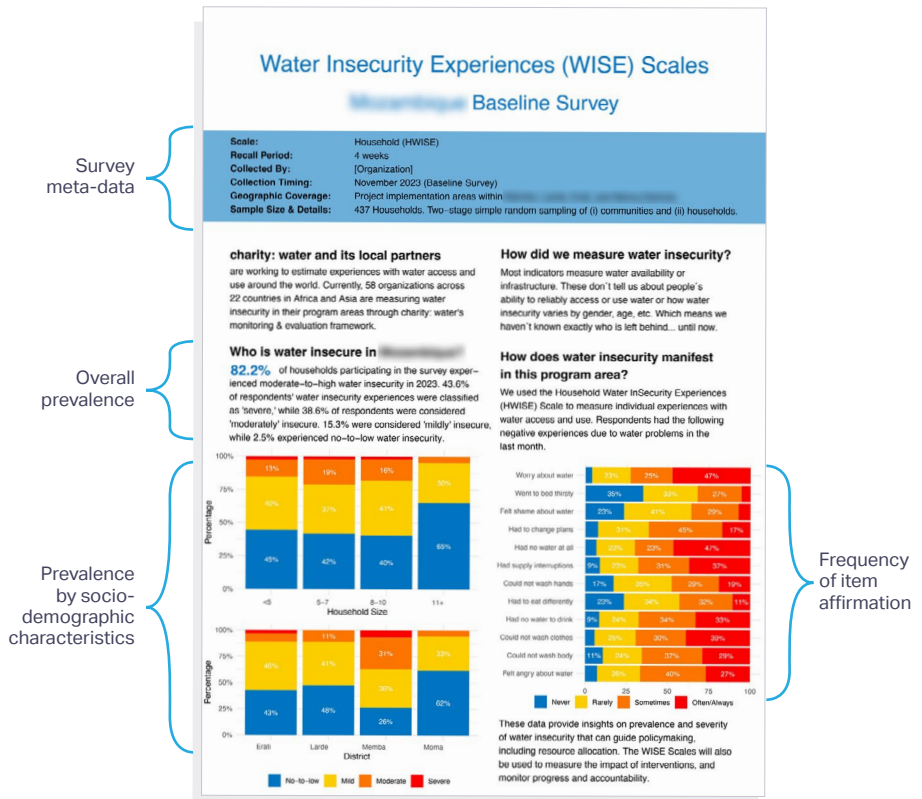


image 9 An example of a WISE data summary sheet that can be produced using a pre-programmed R package created by charity: water.

7c. Software to help analyze and present findings

Scott Miller at charity: water developed a package that can automate some of these analyses. The pre-programmed R package delivers a complete WISE Scale infographic for visualizing water insecurity data (image 9). Specifically, it can be used to calculate the percentage of households experiencing four categories of water insecurity and break down responses by WISE item, region, and household size. These data are then depicted in a series of figures on a pre-defined template.

The code can be found here [<https://github.com/cw-MAP/WISE-Infographic>], and can be adapted to analyze and display WISE Scale data across a variety of use cases. Scott welcomes feedback and queries: scott.miller@charitywater.org.



8

Frequently asked questions and general guidance

Who should answer these questions?

Any person who uses water can answer **IWISE items**. Do note, however, that none of these scales have been validated with people younger than 15 years of age. Water insecurity among children is a fruitful area for further exploration.

Any person who considers themselves knowledgeable about water acquisition and use among *all members* of their household can answer **HWISE items**. (Remember, HWISE items address the situation of all household members, not just the individual who is responding.) Although many household surveys ask a single household member to convey the experiences of the household, it is often difficult for an individual to know about everyone's experiences. For example, we see from the literature on food insecurity that parents frequently underestimate the food insecurity of their children.²⁶ Furthermore, similar exposures can be perceived very differently by, for example, teenagers and adults.

If the questions are being asked as part of a **longitudinal study**, the same individual should be asked in each round whenever possible.

Do IWISE items work similarly for men and women?

Yes. We have recently completed analyses showing that the HWISE and IWISE Scales are understood similarly by men and women, i.e., are invariant. This means that when we see differences in scores of men and women, they can be understood to reflect different experiences of water insecurity, not differences in the understanding of the items themselves. The paper is forthcoming.

What is a household?

The definition of a household is highly context specific. Survey implementers should **develop a standard definition** that is appropriate for the local area in which the scale is being used, e.g., *“a household includes all people who sleep under the same roof and eat meals together.”* This definition should be stated at the start of each interview, and respondents should affirm that they understand this definition.

Can any items be dropped?

Preferably not. The modules, which are only 3 or 1 minute long, should be asked in their entirety. Our previous work demonstrates that the complete set of questions more comprehensively and robustly measures the multiple dimensions of household water insecurity than any single question on its own. Dropping questions means scores will not be comparable across settings and studies.

Items that are very sensitive in one place may be less sensitive in another. In Sudan, key informants advised that the shame question was too upsetting to ask, and so it was dropped. In northern Kenya, key informants thought that it would be absolutely unacceptable for younger male enumerators to ask older women about their bathing habits. On the other hand, in Australia, key informants cautioned that the shame question was upsetting, but felt that the information it provided was too important **not** to ask.

In Sudan, when the shame item was dropped, eleven WISE items could still generate useful information because data were being collected to understand who was most water insecure and what the impact of the intervention was. If the purpose had been cross-site comparisons, this would have been much more difficult.

Can items be skipped if participants do not affirm the first few items?

Possibly. Although this is not ideal, it is important to be considerate of respondents' time. In several studies in which the 12-item scale was used in low prevalence settings, when three items (interruption, worry, anger) were not affirmed, the other nine items were skipped. Another approach is to field a 4-item scale. This is also not ideal, because the HWISE-4 and IWISE-4 have not been validated in high-income countries. Skip patterns still merit further exploration. We encourage you to get in touch if you are considering implementing skip patterns.

Can I add questions?

Of course! It is often helpful to capture experiences specific to your work. They could be phrased to be scored similarly (see [Appendix 2](#)). When the data are used for cross-site comparisons, you will want to use the scores from the 12 (or 4) WISE items.

In what order should the items be asked?

From least to most sensitive. We encourage implementers to work with key informants to identify the sensitivity of items before collecting data. Previous research demonstrates that organizing items in order of increasing sensitivity produces more reliable responses. The sensitivity of items differ globally; as such, items may be asked in different orders across implementation sites.

If additional questions about experiences with water insecurity are added, they should also be asked in order of increasing sensitivity.

Can I change the recall period?

Yes. We recommend using a recall period that matches key outcomes; this may not be 4 weeks or 1 year. However, if very short or very long recall periods are

used, care should be taken when making comparisons to other datasets; extreme recall periods will generate different prevalences.

This manual is too long for field staff to read cover-to-cover! Which pages should we share with them?

Six pages of the implementation Section, 5a-5d. A lot of the information in this manual is meant to inform survey design and analysis; it's not meant for the wonderful people who collect data.

Where can I find translations of the WISE Scales?

Translations into more than 45 languages are available on www.WISEscales.org.

When should the survey be fielded?

It depends. The driest period can be the best time for capturing the greatest variation in population experiences of water insecurity, because those with the fewest resources are the most water insecure. However, in some places, like northern Kenya, the situation during the dry season is so severe that most people experience high water insecurity, i.e. there was no population variation. The timing is far less important when the recall period is one year.

If this is a repeated survey, it is generally useful to do assessments under the same climactic conditions each round. Holding climactic conditions constant helps to distinguish the impacts of an intervention from the impacts, for example, of drought or heavy rains. Do note that climate change can mean that the rainy season or dry seasons vary from year to year.

Does using hand sanitizer count as washing hands?

No, we are asking about experiences with water. If a participant had to use hand sanitizer because there was no suitable water, that would count as an instance of “*having difficulty washing hands because of problems with water*”.

Does this measure water safety?

No. Experiential items are not an objective measure of water contamination. However, perceptions of water safety are implicitly measured in some items, e.g., those about worry, anger, and no usable/drinkable water.

Can the response options be dichotomized?

Probably. Work is currently ongoing to explore the validity and implications of implementing a scale using dichotomized responses to measure water insecurity. In this method, a respondent is asked if they have ever experienced any of the water insecurity issues (“yes/no”), rather than the current method which asks about the frequency of these experiences. Preliminary results indicate that using dichotomized responses may be a viable alternative when time is limited; a dichotomized 12-item scale takes only 2 minutes to ask (vs. 3 minutes when four frequency responses are possible).

At this point, further research about dichotomizing the 12 items is required. We do not recommend dichotomizing a 4-item scale. We encourage you to get in touch if you are considering using this method.

If we are using WISE for monitoring outcomes before and after interventions, how long should we wait after the intervention?

It depends. The timing of the follow-up measurement

should reflect how long it takes the intervention to take effect; effects of governance interventions can be slower to appear than infrastructural changes. The timing should also consider seasonality; the most robust comparisons are those made during similar rainfall/temperature conditions as the “*before*” measurements. To understand if the effects are lasting, consider measuring the impacts a second time, one or two years later.

How are WISE items different from the Joint Monitoring Program’s drinking water ladder?

The JMP’s service ladder²⁷ measures reliable access to safe drinking water. It is a supply-side measure of access to drinking water services at the household (not individual) level. The WISE Scales can be thought of as a complementary, user-side indicator which captures experiences of drinking water as well as water for many other basic uses.

Why are items formulated about negative experiences?

Because it is adverse experiences that have deleterious consequences for health and well-being.

How can geospatial data be useful?

We highly encourage the collection of geospatial coordinates when possible. This permits linkages of water insecurity with other information (e.g., remotely collected data about climatic events and conflict). Please note that this is sensitive information, so it is important to displace (add noise to the geocoordinates) for privacy.

How can I minimize missing data?

Enumerators who are well-trained have minimal “*not applicable*”, “*don’t know*” or missing responses. Probes are very helpful ([Section 5d](#)). Whenever

possible, real-time analysis of data to identify enumerators with high rates of such responses can help identify issues, so that support can be offered for understanding and probing on WISE items.

What do I do when data are missing?

Guidance on handling missing data can be found in [Section 6d](#).

What are some best practices for fielding a survey?

This is a manual to support implementation of the WISE Scales. One of our favorite resources for survey implementation is “*Survey methods in social investigation*”.²³

I still have questions. How can we reach you?

We are happy to help. Please see author contact information in [Appendix 3](#) and on the [back cover](#).



image 10 Water from many sources can provide water security.

9 GLOSSARY AND ABBREVIATIONS

HWISE Scale	An acronym for the Household Water InSecurity Experiences Scale, a 12-item scale.
HWISE-4 Scale	Refers to the abbreviated Household Water InSecurity Experiences Scale, which uses four of the 12 items in the HWISE Scale.
Indicator	When a cut-off is applied to a numerical value generated by a measure, e.g., the proportion of people who are moderately or severely water insecure, as defined by an IWISE Scale score of 12 or greater.
Intra-household variation	The distribution of resources or experiences within a household. It is often assumed that households share resources equally, but variation can occur by gender, age, employment status, etc. ¹³
Invariance	The extent to which the psychometric properties of the observed indicators are generalizable across groups or over time.
Item	“Item” is sometimes used interchangeably with “question”, but a survey item can contain a sentence, a question, or both. For example: “Please think about where you get most of your water, such as a tap, well, borehole, bottled water, river, or stream. How often was this water source interrupted or limited in any way during the last [4 weeks/1 year]?”
IWISE Scale	An acronym for the Individual Water InSecurity Experiences Scale.
IWISE-4 Scale	Refers to the abbreviated Individual Water InSecurity Experiences Scale, which uses four of the 12 items in the IWISE Scale.
JMP	An acronym for the WHO/UNICEF Joint Monitoring Programme, the custodian of global data on water supply, sanitation, and hygiene.
Measure	A tool for assessing an outcome. For example, the Food Insecurity Experiences Scale is a tool to measure food insecurity. ²⁹
Validity	Scale validity is the extent to which an instrument measures the latent dimension or construct it was developed to evaluate. ²⁰ The validity of an instrument can be examined in numerous ways. Common tests of validity are <i>content validity</i> , which assesses if the items measure what they are presumed to measure. The other two most common types of validity to assess are <i>criterion</i> (predictive and concurrent) and <i>construct</i> validity (convergent, discriminant, differentiation by known groups, correlations). More details are available elsewhere. ²⁰
WASH	An acronym for water (supply), sanitation, and hygiene.
Water insecurity	Water insecurity is the inability to reliably access and use water to meet basic human needs. It can be caused by problems with water availability, accessibility, acceptability, safety, or reliability. ⁷⁻⁹

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image 11 Many of the documents cited here are available, open-access, on www.WISEscales.org.



Appendices

INDIVIDUAL WATER INSECURITY EXPERIENCES (IWISE) SCALE

Items & guidance on their administration & scoring

To be read aloud if recall period is 4 weeks:

I will now ask you about your experiences with water. For each experience, we want to know how frequently this happened to you in the previous 4 weeks. Responses are never (0 days), rarely (1–2 days), sometimes (3–10 days), often (11–20 days), and always (more than 20 days).

To be read aloud if recall period is 1 year:

I will now ask you about your experiences with water. For each experience, we want to know how frequently this happened to you in the previous 12 months. Even if it happened just once during a month, we'd like you to count that month. Responses are never (0 times), rarely (in 1–2 months), sometimes (in some but not every month), and often/always (in almost every month/every month).

Abbreviation	Full phrasing	Score
Worry	In the last [4 weeks/1 year] how often did you worry that you would not have enough water for all of your needs?	
Interruption	How often has your main water source been interrupted or limited in any way in the last [4 weeks/1 year]?	
Clothes	How often have problems with water meant that your clothes could not be washed?	
Plans	How often did you have to change schedules or plans because of problems with water?	
Food	Still thinking about the last [4 weeks/1 year], how often did you change what you ate because of problems with water?	
Hands	How often were you not able to wash your hands after dirty activities because of problems with water?	
Body	How often were you not able to wash your body because of problems with water?	
Drink	How often did you not have as much water to drink as you would have liked?	
Anger	Still thinking about the [last 4 weeks/1 year], how often did you feel angry because of problems you were experiencing with water?	
Sleep	How often did you go to sleep thirsty because there was no water to drink?	
No Water	How often did you have no usable or drinkable water whatsoever?	
Shame	How often did you feel shame because of problems you were experiencing with water during the last [4 weeks/1 year]?	
Total		

Notes:

1. The interviewer should repeat the scale responses as necessary after the first item. Although the respondents are reminded of the timeframe in items 1, 2, 5, 9 and 12, the interviewer should repeat the time frame or responses only as frequently as necessary.
2. See additional guidance, including on item ordering, probes, item adaptation, and scoring in the WISE Scales Manual: <https://doi.org/10.21985/n2-20sc-f113> and www.WISEscales.org.
3. WISE Scale scores are calculated by summing responses to each question. The responses to each item are scored from 0-3. For a recall period of 4 weeks, “never” is scored as 0, “rarely” as 1, “sometimes” as 2, and “often” and “always” are scored as 3. For a one-year recall period “never” is scored as 0, “in 1 or 2 months” is scored as 1, “in some but not every month” is scored as 2 and “in almost every month” and “every month” is scored as 3. The overall scores for the HWISE and IWISE Scales range from 0-36 (12x3=36). Higher scores indicate greater water insecurity.
4. IWISE Scale citation: Young, Sera L., Hilary J. Bethancourt, Zacchary R. Ritter, and Edward A. Frongillo. 2021. “The Individual Water Insecurity Experiences (IWISE) Scale: Reliability, Equivalence and Validity of an Individual-Level Measure of Water Security.” *BMJ Global Health* 6 (10): e006460.
5. Worksheets in .pdf and .doc formats are available at www.WISEscales.org. Files are also available at <https://doi.org/10.21985/n2-xsw5-mz63>.

THE ABBREVIATED INDIVIDUAL WATER INSECURITY EXPERIENCES (IWISE-4) SCALE

Items & guidance on
their administration
& scoring

To be read aloud if recall period is 4 weeks:

I will now ask you about your experiences with water. For each experience, we want to know how frequently this happened to you in the previous 4 weeks. Responses are never (0 days), rarely (1–2 days), sometimes (3–10 days), often (11–20 days), and always (more than 20 days).

To be read aloud if recall period is 1 year:

I will now ask you about your experiences with water. For each experience, we want to know how frequently this happened to you in the previous 12 months. Even if it happened just once during a month, we'd like you to count that month. Responses are never (0 times), rarely (in 1–2 months), sometimes (in some but not every month), and often/always (in almost every month/every month).

Abbreviation	Full phrasing	Score
Worry	In the last [4 weeks/1 year] how often did you worry that you would not have enough water for all of your needs?	
Plans	How often did you have to change schedules or plans because of problems with water?	
Hands	In the last [4 weeks/1 year] how often were you not able to wash your hands after dirty activities because of problems with water?	
Drink	How often did you not have as much water to drink as you would have liked?	
Total		

Notes

1. The interviewer should repeat the scale responses and recall period as necessary after the first item.
2. See additional guidance, including on item ordering, probes, item adaptation, and scoring in the WISE Scales Manual: <https://doi.org/10.21985/n2-20sc-f113> and www.WISEscales.org.
3. WISE Scale scores are calculated by summing responses to each question. The responses to each item are scored from 0–3. For a recall period of 4 weeks, “never” is scored as 0, “rarely” as 1, “sometimes” as 2, and “often” and “always” are scored as 3. For a one-year recall period “never” is scored as 0, “in 1 or 2 months” is scored as 1, “in some but not every month” is scored as 2 and “in almost every month” and “every month” is scored as 3. The overall scores for the IWISE-4 range from 0–12 (4x3=12). Higher scores indicate greater water insecurity.
4. IWISE-4 Scale citation: Bethancourt, Hilary J., Edward A. Frongillo, and Sera L. Young. 2022. “Validity of an Abbreviated Individual Water Insecurity Experiences (IWISE-4) Scale for Measuring the Prevalence of Water Insecurity in Low- and Middle-Income Countries.” *Journal of Water, Sanitation and Hygiene for Development* 12 (9): 647–58.
5. Worksheets in .pdf and .doc formats are available at www.WISEscales.org. Files are also available at <https://doi.org/10.21985/n2-xsw5-mz63>.

THE HOUSEHOLD WATER INSECURITY EXPERIENCES (HWISE) SCALE

Items & guidance on their administration & scoring

To be read aloud if recall period is 4 weeks:

I will now ask you about your and your household members' experiences with water. For each experience, we want to know how frequently this happened to you in the previous 4 weeks. Responses are never (0 days), rarely (1–2 days), sometimes (3–10 days), often (11–20 days), and always (more than 20 days).

To be read aloud if recall period is 1 year:

I will now ask you about your and your household members' experiences with water. For each experience, we want to know how frequently this happened to you in the previous 12 months. Even if it happened just once during a month, we'd like you to count that month. Responses are never (0 times), rarely (in 1–2 months), sometimes (in some but not every month), and often/always (in almost every month/every month).

Label	Item	Score
Worry	In the last [4 weeks/1 year], how often did you or anyone in your household worry you would not have enough water for all of your household needs?	
Interrupt	How often has your main water source been interrupted or limited in any way in the last [4 weeks/1 year]?	
Clothes	How often have problems with water meant that clothes could not be washed?	
Plans	How often have you or anyone in your household had to change schedules or plans due to problems with water?	
Food	Still thinking of the last [4 weeks/1 year], how often have you or anyone in your household had to change what was being eaten because of problems with water?	
Hands	How often have you or anyone in your household had to go without washing hands after dirty activities because of problems with water?	
Body	How often have you or anyone in your household had to go without washing their body because of problems with water?	
Drink	How often has there not been as much water to drink as you or anyone in your household would have liked?	
Anger	Still thinking of the last [4 weeks/1 year], how often did you or anyone in your household feel angry because of problems you were experiencing with water?	
Sleep	How often have you or anyone in your household gone to sleep thirsty because there wasn't any water to drink?	
None	How often has there been no usable or drinkable water whatsoever in your household?	
Shame	How often did you or anyone in your household feel shame because of problems you were experiencing with water during the last [4 weeks/1 year]?	
Total		

Notes

1. The interviewer should repeat the scale responses and recall period as frequently as necessary after the first item. Although the respondents are reminded of the timeframe in items 1, 5, 9, and 12, the interviewer should repeat the time frame or responses only as frequently as necessary.
2. See additional guidance, including on prompts, item adaptation, and scoring in the WISE Scales Manual: <https://doi.org/10.21985/n2-20sc-f113>; and www.WISEscales.org.
3. WISE Scale scores are calculated by summing responses to each question. The responses to each item are scored from 0-3. For a recall period of 4 weeks, “never” is scored as 0, “rarely” as 1, “sometimes” as 2, and “often” and “always” are scored as 3. For a one-year recall period “never” is scored as 0, “in 1 or 2 months” is scored as 1, “in some but not every month” is scored as 2 and “in almost every month” and “every month” is scored as 3. The overall scores for the HWISE and IWISE Scales range from 0-36 (12x3=36). Higher scores indicate greater water insecurity.
4. HWISE Scale citation: Young, Sera L., Godfred O. Boateng, Zeina Jamaluddine, Joshua D. Miller, Edward A. Frongillo, Torsten B. Neilands, Shalean M. Collins, et al. 2019. “The Household Water InSecurity Experiences (HWISE) Scale: Development and Validation of a Household Water Insecurity Measure for Low-Income and Middle-Income Countries.” *BMJ Global Health* 4 (5): e001750.
5. Worksheets in .pdf and .doc formats are available at www.WISEscales.org. Files are also available at <https://doi.org/10.21985/n2-xsw5-mz63>.

THE ABBREVIATED HOUSEHOLD WATER INSECURITY EXPERIENCES (HWISE-4) SCALE

Items & guidance on
their administration
& scoring**To be read aloud if recall period is 4 weeks:**

I will now ask you about your and your household members' experiences with water. For each experience, we want to know how frequently this happened to you in the previous 4 weeks. Responses are never (0 days), rarely (1–2 days), sometimes (3–10 days), often (11–20 days), and always (more than 20 days).

To be read aloud if recall period is 1 year:

I will now ask you about your and your household members' experiences with water. For each experience, we want to know how frequently this happened to you in the previous 12 months. Even if it happened just once during a month, we'd like you to count that month. Responses are never (0 times), rarely (in 1–2 months), sometimes (in some but not every month), and often/always (in almost every month/every month).

Label	Item	Score
Worry	In the last [4 weeks/1 year], how often did you or anyone in your household worry you would not have enough water for all of your household needs?	
Plans	How often have you or anyone in your household had to change schedules or plans due to problems with your water situation?	
Hands	In the last [4 weeks/1 year], how often have you or anyone in your household had to go without washing hands after dirty activities because of problems with water?	
Drink	How often has there not been as much water to drink as you or anyone in your household would have liked?	
Total		

Notes:

1. The interviewer should repeat the scale responses and recall period as frequently as necessary after the first item. Although the respondents are reminded of the timeframe in every question, reminders may not be necessary for all items.
2. See additional guidance, including on item ordering, probes, item adaptation, and scoring in the WISE Scales Manual: <https://doi.org/10.21985/n2-20sc-f113> and www.WISEscales.org.
3. WISE Scale scores are calculated by summing responses to each question. The responses to each item are scored from 0–3. For a recall period of 4 weeks, “never” is scored as 0, “rarely” as 1, “sometimes” as 2, and “often” and “always” are scored as 3. For a one-year recall period “never” is scored as 0, “in 1 or 2 months” is scored as 1, “in some but not every month” is scored as 2 and “in almost every month” and “every month” is scored as 3. The overall scores for the HWISE-4 and IWISE-4 Scales range from 0–12 (4x3=12). Higher scores indicate greater water insecurity.
4. HWISE-4 Scale citation: Young, Sera L., Joshua D. Miller, Edward A. Frongillo, Godfred O. Boateng, Zeina Jamaluddine, Torsten B. Neilands, and HWISE-RCN. 2020. “Validity of a Four-Item Household Water Insecurity Experiences Scale for Assessing Water Issues Related to Health and Well-Being.” *The American Journal of Tropical Medicine and Hygiene* 104 (1): 391–94.
5. Worksheets in .pdf and .doc formats are available at www.WISEscales.org. Files are also available at <https://doi.org/10.21985/n2-xsw5-mz63>.

APPENDIX 2: ADDITIONAL WATER-RELATED ITEMS

Below are candidate items for the HWISE Scale¹; they were cut for a variety of reasons, explained elsewhere.^{3,28} You can consider adding them to your survey to capture other water problems that may be relevant in the context you are working. They can be modified to be asked of individuals across a variety of recall periods.

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. How satisfied are you with your water situation on a scale of 1-5? (1 is not at all satisfied and 5 is completely satisfied).</p> | <p>11. In the last 4 weeks, how frequently have you or anyone in your household drank water that looked, tasted, and/or smelled bad?</p> |
| <p>2. In the last 4 weeks, how frequently have you or anyone in your household been unable to access the water that you preferred?</p> | <p>12. In the last 4 weeks, how frequently have you or anyone in your household drank water that you thought was unsafe?</p> |
| <p>3. In the last 4 weeks, how frequently have you or anyone in your household worried about the safety of the person getting water for your household? <i>By getting, I mean: traveling to, collecting the water, and returning with the water.</i></p> | <p>13. In the last 4 weeks, how frequently did you or anyone in your household want to treat your water, but couldn't? By treat, I mean boiling, using chemicals to treat, or other ways you make your water safe to use or drink.</p> |
| <p>4. In the last 4 weeks, how frequently has your household water situation impacted the cultivation of your garden, crops, or fruit trees?</p> | <p>14. In the last 4 weeks, how frequently have you or anyone in your household asked to borrow water from other people?</p> |
| <p>5. In the last 4 weeks, how frequently has your household water situation impacted your raising of animals and poultry?</p> | <p>15. In the last 4 weeks, how frequently have you or anyone in your household loaned water to anyone?</p> |
| <p>6. In the last 4 weeks, how frequently have problems with water prevented you or anyone in your household from earning money (e.g., engaging in paid work, economic activities)?</p> | <p>16. In the last 4 weeks, how frequently have you or anyone in your household not had enough water to take medications?</p> |
| <p>7. In the last 4 weeks, how frequently have you or anyone in your household lacked money needed to buy water?</p> | <p>17. In the last 4 weeks, how frequently have you or anyone in your household not gotten water where you wanted to because you were too sick or weak to get water?</p> |
| <p>8. In the last 4 weeks, how frequently did you or anyone in your household want to buy water but there was nowhere to buy it from?</p> | <p>18. In the last 4 weeks, how frequently did you or anyone in your household have problems with water that caused difficulties with neighbors, water providers, or others in the community?</p> |
| <p>9. In the last 4 weeks, how frequently did the children in your household miss school or go to school late because of problems with water (e.g., time spent fetching water, lack of water for bathing, etc.)?</p> | <p>19. In the last 4 weeks, how frequently did you or anyone in your household have problems with water that caused difficulties within your household?</p> |
| <p>10. In the last 4 weeks, how frequently have you or anyone in your household not washed the faces and hands of children because of problems with water?</p> | <p>20. In the last 4 weeks, how frequently have you or anyone in your household thought of moving dwellings because of the water situation there?</p> |

APPENDIX 2: ADDITIONAL WATER-RELATED ITEMS

There are numerous water-related modules and items available from many other sources. The majority of these focus on causes of water insecurity.

- The World Health Organization and UNICEF's Joint Monitoring Program have developed a number of modules to assess drinking water, sanitation, hygiene, and menstrual health (<https://washdata.org/monitoring>). The JMP service ladder for drinking water is particularly germane for understanding **drivers of experiences with water insecurity**.¹
- The International Rice Research Institute and the International Water Management Institute have developed a guide to **measure experiences with water insecurity for agricultural activities**.² It can be found here: <https://cgspace.cgiar.org/items/6de3bc10-8869-4d0d-9669-0c799138c1c9>.
- Efforts are underway to develop globally equivalent measures of **WASH experiences in institutions, including schools and health care facilities**. Eventually, scales for prisons will also be included. Drafts of these can be found here https://www.dropbox.com/home/Sera%20Young/Documents/Water_projects/INWISE_institutional_WASH/8.%20Output/INWISE%20Surveys.
- Items for questions about water services, **water storage**, **water expenditures**, and many other characteristics have been compiled by a number of organizations, including the World Health Organization (<https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health/monitoring-and-evidence/wash-monitoring>), the Demographic and Health Surveys (<https://blog.dhsprogram.com/new-in-dhs-8-updates-to-wash-indicators/>), USAID (<https://www.globalwaters.org/resources/assets/global-water-strategy-indicator-handbook>), and the World Bank (<https://wbwaterdata.org/organization/>).

APPENDIX 3: ADDITIONAL RESOURCES & CONTACTS

We are here to help! If you have unanswered questions or suggestions, please email them to WISE_scales@northwestern.edu, with a clear subject.

Alternatively you are welcome to contact any of the co-authors directly.

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BE IN TOUCH

We are always happy to hear from you!

If you would like to join the Water Insecurity Experiences – Latin America and Caribbean network, simply send an email to WISE.LAC@ibero.mx.

You don't need to be in touch to use the open-access WISE Scales, but you might want to reach out if:

- You have any questions about scale implementation or data analysis
- You would like access to the nationally representative data on water insecurity experiences
- You have ideas for additional adventures in water (in)security
- You have translations or implementation experiences to share



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