

# Better measurement of food insecurity in the context of enhancing nutrition<sup>1</sup>

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Access to enough nutritionally adequate food is a basic need shared by all human beings. In 1949, the right to adequate food was declared a basic human right. It was only during the Rome World Food Summit in 1996 that the discussion on the right to food was revitalized, and it took another eight years before the “Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security” were established in order to draw the world’s attention to this basic human right.

To monitor implementation of this human right, it is particularly important to provide timely and valid information regarding the prevalence of food insecurity in populations world-wide. The FAO “Voices of the Hungry” project<sup>2</sup> aims to take a step closer to meeting this demand.

ELCSA) [2]. It represents a significant change in approach to food insecurity measurement compared to traditional ways of assessing it indirectly through determinants such as food availability or consequences such as poor quality diets, anthropometric failures and other signs of malnutrition.

The FIES is simple to use and is designed to measure the lived experience of food insecurity in a valid and comparable way across different populations. For world-wide application of the FIES, the Voices of the Hungry project will leverage on the Gallup® World Poll (GWP), a branch of Gallup Inc. that has conducted nationally representative surveys in more than 140 countries annually since 2005 [3]. Starting in 2014, the FIES will be incorporated into the GWP questionnaire and the data will be used to derive estimates of the prevalence of food insecurity at different levels of severity, gathered from a nationally representative sample of adults in all of the countries covered by the world poll.

The FIES consists of a set of eight questions that focus on reported food-related behaviors associated with difficulties in accessing food due to resource constraints. Developed by professionals from the nutrition field, it is based on a well-grounded construct of the experience of food insecurity composed of three domains (worry/anxiety, changes in food quality and changes in food quantity) (◆ Box 1). The relative positions of the domains on the underlying scale of severity are shown in ◆ Figure 1.

## The “Voices of the Hungry” project

The FAO Voices of the Hungry (VOH) project is developing an experience-based measure called the Food Insecurity Experience scale – FIES (◆ Box 1) [1]. The FIES is a tool that allows direct measurement of people’s **access to food**, derived from two widely-used and validated experience-based food security scales: the US Household Food Security Survey Module and the Latin American and Caribbean Food Security Food Security Scale (Spanish acronym –

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<sup>1</sup>For purposes of international publication slightly altered version of the German article.

<sup>2</sup>The FAO “Voices of the Hungry” project as a new approach to measure hunger was introduced in *Ernährungs Umschau* 05/2013, p. M254.

## Experience-based measurements of food insecurity: challenges for the VOH project

Experience-based food insecurity scales like the FIES rely on self-reported information regarding food-related behaviors in the face of limited access to food. The items on the scale are based on well-grounded empirical research regarding the experience of hunger and poor food access, and are intended to be answered according to respondents' own perspectives regarding the adequacy of their food consumption, rather than that of nutritionists or economists.<sup>3</sup>

One item on the scale, for example, asks respondents about their consumption of "healthy and nutritious" foods, a concept which may raise questions whether respondents have the knowledge to judge the nutritional quality of their own diets. Accumulated experience with this type of question in Latin America and elsewhere has shown that people are surprisingly good judges of what constitutes a healthy and nutritious or balanced diet, and numerous validation studies have shown a close association between responses to food insecurity scale items including this particular question and dietary quality measured by traditional nutrition indicators.

Response bias due to expectations of receiving assistance is a potential problem for many types of surveys. The risk can be addressed through sound survey methodology to explicitly inform respondents that their

**During the last 12 months, was there a time when, because of lack of money or other resources:**

1. You were worried you would not have enough food to eat because of a lack of money or other resources?
2. You were unable to eat healthy and nutritious food because of a lack of money or other resources?
3. You ate only a few kinds of foods because of a lack of money or other resources?
4. You had to skip a meal because there was not enough money or other resources to get food?
5. You ate less than you thought you should because of a lack of money or other resources?
6. Your household ran out of food because of a lack of money or other resources?
7. You were hungry but did not eat because there was not enough money or other resources for food?
8. You went without eating for a whole day because of a lack of money or other resources?

The eight questions of the FIES (Food Insecurity Experience Scale) form the items of a coherent test to measure the severity of experienced food insecurity along a unidimensional scale.

The patterns of responses to the eight questions, collected from a representative sample of individuals, will provide the information in order to (a) test the coherence of the selected questions to explore the range of food insecurity severity, (b) classify respondents into food insecurity severity classes (food secure, moderately food insecure, severely food insecure) and (c) estimate the prevalence of people experiencing food insecurity at various levels.

Before accepting the results as valid, they will be subjected to a test that measures how closely they correspond to a priori expectations given the logic of the underlying model. This model is based on a logistic function to represent the probability of observing those experiences, given the measure of food insecurity severity. It is an application of Item Response Theory or of Latent Trait modeling, methods that are commonly used in the measurement of personality, attitude and other psychological traits, in educational testing and in econometrics.

Box 1: FIES questions, analysis and validation

replies will have no influence on potential benefits and that their personal identification will not be provided to authorities or aid agencies. It would be advisable to avoid using interviewers known to be associated with assistance programs to collect data. If information is being collected

specifically for programmatic purposes, an independent crew not identified with the agency responsible for service delivery should be employed to carry out the survey. For data deriving from the FIES within the GWP, item response theory analyses will be applied to the data to explore response patterns and verify if this potential bias exists.

Professionals from the nutrition field in Canada, US, Latin America and the Caribbean have contributed to developing and validating experience-

<sup>3</sup>This approach has drawn criticism; see e.g. the comment by BELLIN-SESAY in *Ernährungs Umschau* 05/2013, S. M254.

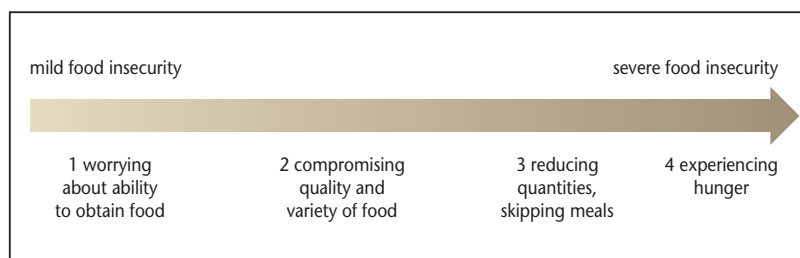


Fig. 1: Food insecurity severity along a continuous scale

based food security scales [4–9]. The main challenge for the VOH project at this point is to identify the most appropriate methods for ensuring comparability in the measurement of food insecurity across different cultures. One important component of this is to acknowledge that cultural and linguistic characteristics may influence how the questions are understood and responded to. The VOH project is approaching this problem in several different ways. Care is being taken to verify that the translated versions of the FIES questions for administration through the GWP reflect the original meanings. In addition, FAO is collaborating with the Economic Research Service of the U.S. Department of Agriculture to develop statistical methods that allow meaningful comparisons of the severity of the food insecurity experience across cultures [10, 11]. The result of this collaboration between researchers in nutrition and methodologists will be a global measure of food insecurity severity based on people's experiences that allows comparisons across cultures in a methodologically sound yet transparent way.

### **For what purpose was the FIES designed and what are its limitations?**

#### **Using the FIES to estimate food insecurity prevalence in populations**

The FIES is designed to provide population estimates of the prevalence of individuals experiencing food insecurity at sub-national, national and international levels. When the FIES is included in surveys together with existing indicators of potential determinants, it can help identify the different risk factors for individual and household food insecurity<sup>4</sup> in different contexts.

<sup>4</sup>The FIES is a flexible tool that can be adapted for application at the household level in accordance with the purpose of the survey being carried out.

Within the GWP, food insecurity questions will be asked in reference to individual respondents rather than households. This will provide valuable insights into differences in the lived experience of food insecurity between men and women. Information that highlights discrepancies in food insecurity prevalence by gender can be used to advocate for better efforts to strengthen the status of women in family and society for better access to food, comprehensive land rights, political participation, and use of the household income.

The FIES can also be applied by national governments, non-governmental organizations and researchers in surveys that allow disaggregation at sub-national levels and across different population groups, making it possible to identify more specifically who the food insecure are and their geographic distribution. This will improve governments' ability to design policies, programmes and projects that target the food insecure population groups.

The expectation is that the Voices of the Hungry project will contribute to advances in food insecurity measurement on a global basis and play a significant role in monitoring of the Zero Hunger Challenge set forth by the Secretary General of the United Nations in 2012, as well as any food security target considered for the post 2015 Development Agenda. Local governments, non-governmental organizations and advocacy groups can also use this relatively simple instrument to monitor food insecurity in their regions, engaging diverse stakeholders in the process, and building bridges between people of different backgrounds. This may in fact be where its greatest potential lies to effect change and contribute to guaranteeing the Human Right to Adequate Food.

### **Is the FIES a nutrition or a food security indicator?**

While the FIES does not provide specific information on actual food consumption, dietary quality or nutritional status, nutritional aspects associated with changes in food intake due to restricted food access are an important part of the underlying construct of food insecurity on which the FIES is based.

The FIES does not quantify food consumption nor does it provide a quantitative assessment of dietary quality. It is not a measure of malnutrition, and it cannot be used to detect nutritional deficiencies or obesity; thus, it is not the appropriate tool for assessing nutrition-specific outcomes of food security programmes and policies. However, the FIES provides a tool for the nutrition and food security community to build on existing knowledge regarding relationships between the experience of food insecurity and indicators of malnutrition

Stunting (low height-for-age) and wasting (low weight-for-age), especially in the case of young children, are influenced by many other factors besides access to food, including sanitation, maternal care and access to health and social services. Timely monitoring of food insecurity, with special attention to the different levels of severity, could possibly serve as an early warning indicator of an impending increase in food insecurity potentially leading to acute malnutrition.

Within the nutrition community, there has been much focus on stunting as the principal outcome of long-term exposure of children (and of their mothers during pregnancy) to food deprivation. However, stunting is not an "early" sign of undernutrition, but rather a late outcome of chronic food deprivation and poor utilization. Measures like the FIES are

therefore needed to identify situations where food insecurity is present so that timely and sustainable action can be taken to prevent long-term and irreversible effects of malnutrition due to food insecurity.

It should also be noted that the nutrition transition in many countries, characterized by decreased stunting and wasting and a growing prevalence of overweight among the poor, points to the need for a new conceptual framework regarding the anthropometric outcomes of food insecurity. Numerous studies have shown that food insecurity and overweight/obesity co-exist, in children as well as adults [12, 13].

In summary, the FIES is a measure of individual food security based on a theoretical construct that includes dietary quality and food quantity; it does not, however, quantify food consumption, dietary quality or malnutrition. It may be considered a nutrition indicator to the extent that food security is strongly associated with good nutrition, and nutritionists play a role in guaranteeing the Human Right to Adequate Food. Used together with traditional measures of food consumption, dietary quality and nutritional status, the FIES has the potential to contribute to a more comprehensive understanding of the causes and consequences of food insecurity, including nutritional and dietary impacts.

## Conclusion

The research undertaken by the VOH project over the next several years will provide evidence regarding whether or not FIES represents the best basis for a valid experience-based measure of food insecurity worldwide. The VOH project has the potential to make contributions in three priority areas: 1) monitoring the right to food on a global level, 2) promoting gender equality and empowerment, and 2) assisting sub-na-

tional food security planning and programming. This relatively simple instrument can be used by governments, non-governmental organizations and professionals from diverse fields, including nutrition, to monitor food insecurity and contribute to implementation of the human right to adequate food.

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