

Advances in Developing Country Food Insecurity Measurement

Development of a Universally Applicable Household Food Insecurity Measurement Tool: Process, Current Status, and Outstanding Issues¹⁻³

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ABSTRACT The United States Public Law 480 Title II food aid program is the largest U.S. government program directed at reducing hunger, malnutrition, and food insecurity in the developing world. USAID and Title II implementing partners face challenges in measuring the success of Title II programs in reducing household food insecurity because of the technical difficulty and cost of collecting and analyzing data on traditional food security indicators, such as per capita income and caloric adequacy. The Household Food Insecurity Access Scale (HFIAS) holds promise as an easier and more user-friendly approach for measuring the access component of household food security. To support the consistent and comparable collection of the HFIAS, efforts are under way to develop a guide with a standardized questionnaire and data collection and analysis instructions. A set of domains have been identified that is deemed to capture the universal experience of the access component of household food insecurity across countries and cultures. Based on these domains, a set of questions has been developed with wording that is deemed to be universally appropriate, with minor adaptation to local contexts. These underlying suppositions, based on research in multiple countries, are being verified by potential users of the guide. The key remaining issue relates to the process for creating a categorical indicator of food insecurity status from the HFIAS. *J. Nutr.* 136: 1449S–1452S, 2006.

KEY WORDS: • food security • food insecurity • access • measurement • indicators

The United States Public Law 480 Title II food aid program is the largest U.S. government program directed at reducing hunger, malnutrition, and food insecurity in the developing world. The U.S. Agency for International Development (USAID)⁵ manages

the Title II program, which distributes more than \$1 billion worth of food commodities annually. The World Food Program and Private Voluntary Organizations and Cooperatives (PVOs) are USAID's Title II implementing partners.

All Title II programs aim to reduce food insecurity. As defined by USAID, food security has three components, availability, access, and utilization (1), and has both short- and long-term aspects. Title II is used to respond to emergencies where loss of life is likely in the absence of a food response and to implement longer-term, multiyear programs aimed at addressing the root causes of food insecurity. Multiyear Title II programs implemented by PVOs largely focus on the access and utilization components of food security, often in rural areas where food insecurity in many countries is concentrated. Activities aimed at addressing the access component of food insecurity include work with small farmers and their families, providing technical assistance and training to promote sustainable farming practices, more productive and more diversified farming systems and nonagricultural income sources, and improved postharvest management and marketing. Utilization components focus on maternal and child health and nutrition and water and sanitation activities, including community-based growth-promotion programs, improvement in infant and young child feeding and care practices, prevention and treatment of childhood diseases, and improvements in antenatal care.

¹ Published in a supplement to *The Journal of Nutrition*. This publication was made possible through the support provided to the Food and Nutrition Technical Assistance (FANTA) Project by the Office of Health, Infectious Disease and Nutrition of the Bureau for Global Health and the Office of Food for Peace of the Bureau for Democracy, Humanitarian Assistance and Conflict at the U.S. Agency for International Development, under terms of Cooperative Agreement No. HRN-A-00-98-00046-00 awarded to the Academy for Educational Development (AED). The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of the U.S. Agency for International Development. Guest Editors for this publication were Jennifer Coates, Edward A. Frongillo, Anne Swindale, Beatrice Lorge Rogers, Patrick Webb, Paula Bilinsky. Guest editor disclosure: Jennifer Coates received compensation from AED for additional, noneditorial support for the management of the supplement publication; Edward A. Frongillo has no relationships to disclose; Anne Swindale is Deputy Director of the Food and Nutrition Technical Assistance Project, employed by the Academy for Educational Development; Beatrice Lorge Rogers has no relationships to disclose; Patrick Webb has no relationships to disclose; and Paula Bilinsky is an employee of AED.

² Author disclosure: see above.

³ A manual for the use of the household food insecurity access scale, "Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator Guide," is available as Online Supporting Material with the online posting of this paper at www.nutrition.org.

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⁵ Abbreviations used: FANTA, Food and Nutrition Technical Assistance Project; HFIAS, Household Food Insecurity Access Scale; PVO, Private Voluntary Organizations and Cooperatives; USAID, U.S. Agency for International Development.

Central to USAID's strategy to effectively use Title II resources to reduce food insecurity is strengthening the capacity of implementing partners to monitor, evaluate, and report on the impact of the programs on food insecurity. There have been significant improvements in performance reporting by the Title II PVOs over the past decade, although further improvements are needed (2).

Although there is still room for improvement in the measurement of outcomes related to utilization, including determinants such as infant and young child feeding and care practices and health status and impacts such as nutritional status, this measurement has benefited from a fairly well-defined set of interventions that allow agreement on a fairly standard set of indicators. In addition, there are standardized and easy-to-use measurement tools available to support the consistent and comparable collection of information. The Knowledge, Practice and Coverage survey is 1 example of such a tool (3).

The definition and operationalization of a standard set of indicators for activities that address the access component of household food insecurity has been a greater challenge. In part this is because of the greater variety of activities implemented; the lack of a typical set of activities makes definition of a common set of indicators more difficult. This is especially true for indicators of the determinants of household food access, which are addressed through program interventions that include agricultural production, processing, and marketing; microcredit; and other income- and employment-generation activities. Because the interventions vary depending on the context, the appropriate way to capture their impact on the determinants of household food access is problematic. In addition to the challenges posed by the range of activities implemented, data for many indicators used to measure the determinants of household food access, such as income and expenditure, are expensive and technically demanding to collect and analyze.

Regardless of which determinants of access these programs address and how, the desired result of these activities is improved household food access. Data for direct measures of improved household access to food, such as caloric adequacy, can be equally expensive and technically demanding to collect as those that measure any specific determinant of access. Citing these challenges, in 1999 Title II implementing partners identified the measurement of household food access as a priority area requiring assistance.

As described in the Introduction to this supplement, the work reported herein is part of a multiyear and multipronged effort by the USAID-funded Food and Nutrition Technical Assistance Project (FANTA), managed by the Academy for Educational Development, to identify scientifically validated, easier, and more user-friendly approaches to measuring the impacts of Title II programs on the access component of household food insecurity [hereafter referred to as food insecurity (access)]. In addition to work on the development of the Household Food Insecurity Access Scale (HFIAS) approach, which is based on the underlying concept that food insecurity (access) is a measurable experience that can be described and analyzed to categorize households by level of food insecurity (access), FANTA has led an effort to identify additional indicators of household food insecurity (access) that are simple to use and to develop methods to support the consistent and comparable measurement and reporting of these indicators. Two indicators of household food insecurity (access) have been identified as a result of this process, which included extensive input by Title II implementing partners: household dietary diversity score and months of inadequate household food provisioning. Guides have been developed for these indicators that provide a standardized questionnaire with data collection and analysis instructions (4).

FANTA and its partners have implemented several key steps in a process aimed at developing a similar standardized, universally applicable tool for the collection and analysis of the HFIAS in different country and cultural contexts to facilitate its use as a consistent and comparable impact indicator for Title II food security programs. The results of several of those steps are reported in the articles in this supplement.

The first step was to determine whether the U.S. Household Food Security Survey Measure approach of developing an experiential food insecurity (access) scale could be used in developing country contexts. FANTA funded 2 multiyear field validation studies in Burkina Faso and Bangladesh that developed experiential scales and validated them as indicators of household food insecurity (access) (5,6). These field validation studies were implemented by Cornell and Tufts University in collaboration with Title II implementing partners (Africare and World Vision).

The Burkina Faso and Bangladesh studies showed that the experiential food insecurity (access) scale approach can be applied successfully in different developing country contexts. The food insecurity (access) questionnaire proved to be a simple tool that could be used in these settings by organizations to assess, evaluate, or monitor the household food insecurity (access). The studies found that the resulting scales were valid measures of food insecurity (access) in diverse developing country settings and were sensitive to changes in household food insecurity (access) status as assessed by other related indicators (5,6).

The field studies helped answer the question of whether the experiential food insecurity (access) scale approach would result in a valid measure of household food insecurity (access). However, the household food insecurity (access) questionnaires used were developed specifically for each of the field study settings. The feasibility of developing a standardized HFIAS questionnaire depends on there being sufficient universality in the way household food insecurity (access) is experienced across different countries and populations so that a standard set of questions can capture this experience and be used to create a valid and sensitive measure.

In addition to the FANTA-supported field validation studies, researchers and food security program managers have used and adapted the experiential food insecurity (access) scale approach in a number of countries for a range of different purposes. A review of these efforts identified a set of 5 common types of experiences that were reflected in 1 or more questions in the majority or all of the questionnaires reviewed. These were: 1) anxiety/uncertainty about whether the food budget or supply would be sufficient to meet basic needs; 2) perceptions of inadequate quality or quantity of food; 3) reductions of adult food intake; 4) reduction of child food intake; and 5) coping actions taken by the household to augment the food budget or food supply (7).

As part of the effort to develop an easy-to-use, valid measure of household food access for food security programs, FANTA held 2 workshops with academic researchers, program implementers, and donors. The goal of the first workshop (April 2004) was to arrive at a consensus on feasibility of a generic, universally applicable HFIAS measurement tool and begin its development.

Participants at the April 2004 workshop arrived at a consensus on the following common domains that describe the experience of food insecurity (access): anxiety/uncertainty about and actual depletion of the household food supply; insufficient quality, which includes variety, preferences, and social acceptability; insufficient food intake and its physical consequences; and coping strategies to increase household resources (8).

Participants then developed a set of questions that captured a household's experiences under each of these domains and

identified the degree of adaptation needed for specific contexts. The participants drew on a review of previously tested questions to determine which would most universally elicit a household's experience under each domain. For each suggested question, participants discussed the level of adaptation needed to provide accurate data related to a specific context and whether the degree of adaptation required would make it infeasible to include the question in a universal model questionnaire (8).

Drawing on the experience of the field validation surveys and the results of the workshop, a model questionnaire of 13 questions for the measurement of the HFIAS was developed. A draft guide was developed, including instructions on how to adapt the model questionnaire to a specific setting, instructions for the interviewers, a description of how the questions can be tabulated, and recommendations for using and interpreting the indicators. Although the intent is to develop a model questionnaire that is as universally applicable as possible, parts of some questions may need to be adapted to the local context or local examples provided to ensure that respondents understand what is being asked. The draft guide describes a 2-step process of reviewing the model questionnaire with a group of key informants to get suggestions on interviewer prompts and changes in wording followed by the selection of a small sample of people to respond to the questions and provide feedback on how they interpreted them, to make sure that the questions are understood as intended by the respondents in each specific context.

FANTA distributed the draft guide widely to generate feedback designed to validate some of the key suppositions behind the guide. Based on user feedback, a revised set of questions was developed that reflect the following conclusions (see Table 1): 1) The key domains of household food insecurity (access) have been identified. The description of these domains changed slightly as a result of feedback. Typical experiences of household food insecurity (access) can be categorized under the following domains: anxiety/uncertainty about food access, quality of food, and quantity of food. 2) The set of questions identified for each domain adequately represents the range of severity of experience of food insecurity (access) under that domain. 3) The questions are worded so that, with minimal adaptation, they are universally understood in the same way. One of the main goals of the effort to develop the HFIAS has been to provide a universal questionnaire that can be used across countries with consistent results. In order for this to be true, the questionnaire must not change significantly as it is used around the world. However, some adaptation of the wording of the questions may be necessary and would be acceptable as long as the underlying concepts remain consistent. 4) In the first iteration of the HFIAS, each question asked how often a household has experienced a given behavior or situation in the past 30 d. The inclusion of the phrase "In the past 30 d, how often did you..." resulted in leading questions. The questions have been reworded to elicit a yes/no response: "in the past 30 d, did you...". 5) In the first iteration of the HFIAS, respondents were offered 6 possible responses (never, rarely, sometimes, often, mostly, always). To simplify analysis, these categories were then collapsed into 2 response options (0 = never, rarely; 1 = sometimes, often, mostly, always) for each question. In the revised HFIAS, a "yes" response will be followed by a question on the frequency of experience; answers will be recorded using a 3-point scale (rarely, sometimes, often). 6) In the first iteration of the scale, a wide range of questions on coping strategies were included. Feedback and further consultation led to the conclusion that questions on coping strategies that relate to a reduction, redistribution, or reconfiguration of

TABLE 1

Household Food Insecurity Access Scale (HFIAS) domains and generic questions

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- A. Anxiety and uncertainty about household food access:
 1. Did you worry that your household would not have enough food?
 - B. Insufficient quality (includes variety, preferences, and aspects of social acceptability):
 2. Were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?
 3. Did you or any household member eat just a few kinds of food day after day because of a lack of resources?
 4. Did you or any household member eat food that you did not want to eat because a lack of resources to obtain other types of food?
 - C. Insufficient food intake and its physical consequences:
 5. Did you or any household member eat a smaller meal than you felt you needed because there was not enough food?
 6. Did you or any other household member eat fewer meals in a day because there was not enough food?
 7. Was there ever no food at all in your household because there were no resources to get more?
 8. Did you or any household member go to sleep at night hungry because there was not enough food?
 9. Did you or any household member go a whole day without eating anything because there was not enough food?
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food consumption (e.g., reduce meals, adult eats less, buys and eats inferior foods) should continue to be included in the HFIAS. However, questions on coping strategies that relate to a means of augmenting the household resource base (e.g., taking cash loans, finding a second job, or accepting food aid) should be excluded from the HFIAS for the following reasons: a) They represent a distinct dimension of household food insecurity (access) from the dimension measured by the domains in the HFIAS. b) Not all of these strategies are accessible or available to all households. This makes it difficult to interpret the meaning of a household implementing a given coping strategy. For example, a household may not have taken out a loan because they did not need one or because they are too poor and too much of a risk to qualify for one. The former may indicate a food-secure household, and the latter a very insecure one. c) These strategies do not always represent the same level of food insecurity (access) across cultures. 7) Adding a domain to capture shame/social unacceptability would increase the sensitivity of the HFIAS in classifying households experiencing the most severe level of food insecurity (access). However, because shameful or socially unacceptable actions and feelings are a very sensitive issue and likely to be context-specific, further work is needed to determine the feasibility of and most appropriate way to include the shame/social unacceptability dimension in a standardized HFIAS.

The final area where additional refinement and consensus are needed before the universal model questionnaire and revised draft guide can be finalized relates to the process for creating indicators of food insecurity (access) status from the HFIAS.

During the second workshop (October 2005), participants discussed the process for creating a continuous and a categorical variable of household food insecurity (access) from the HFIAS. One approach to creating the continuous variable is to sum the frequencies of experience of each question to create the HFIAS score. This approach captures the importance of severity but may underestimate severity in households that are experiencing the most severe manifestations of food insecurity (access).

An average HFIAS score indicator is likely to be a sensitive indicator of incremental changes in household food insecurity. However, beneficiaries, program implementers, and policy makers usually want to know what proportion of households is food insecure (access) and how that proportion has changed as a result of program activities. An average HFIAS score indicator does not provide this information. A categorical indicator that classifies households into different categories based on the severity of food insecurity (access) is needed.

There are several outstanding questions about the best way to create a universally understandable and comparable categorical indicator of household food insecurity (access) status. These include the following. 1) How to best reflect the nature of household food insecurity (access) captured in each category. There was general agreement among workshop participants on the labels of each category (i.e., food secure, mildly food insecure, moderately food insecure, and severely food insecure), but there are multiple ways that a household might have reached any particular level of food insecurity (access). Each category would have to account for these different pathways to any particular level of household food insecurity (access). 2) How many categories are necessary (i.e., most useful and meaningful) to classify households by level of severity of food insecurity (access)? How should each category be described? 3) How should households be assigned to categories of food insecurity (access) based on their responses to the 9 HFIAS questions? Should they be assigned based on the total number of affirmative answers, on affirmative answers to specific questions, or some combination of both? 4) There was consensus that the revised 9 questions are generally arrayed by increasing severity of household food insecurity (access). Does this mean, therefore, that categories can be created by identifying which of the 9 questions reflects where the level of severity changes (e.g., from moderate to severe)? Can we assume that households from different countries and cultures will always respond in a manner that is consistent with this increasing level of severity (i.e., by not affirming more severe questions unless they have also affirmed the less severe questions)? Should a cutoff rely on this assumption? Will the households in different countries that fall into each category resemble each other sufficiently to allow comparison?

The revised version of the guide, reflecting the conclusions reached in the October 2005 workshop, is available as Online Supporting Material with the online posting of this paper. PVOs have agreed to use the HFIAS over the coming years in their standard monitoring and/or evaluation systems and provide the data to FANTA and its academic partners to test the scale empirically. If the empirical analysis indicates substantial differences among sites, the goal of creating an indicator that is universally comparable will have to be revisited. It is possible that, although the questionnaire itself turns out to be universal, the results will be country and context specific; that is, the tool has universality of content but lacks universality of interpretation.

This next step is critical to the overall objective of creating a measure that is scientifically valid, easy to use, and whose results will be widely accepted and believed. It continues the process of participation, research, and consensus building that

began with the field validation studies, bringing academics, practitioners, governments, and donors together to move ahead with the effort to better understand the impact of programs on household food insecurity (access).

ACKNOWLEDGMENTS

This work could not have been done without the collaboration of Edward Frongillo and Simeon Namana at Cornell University; Jennifer Coates, Beatrice Lorge Rogers, and Patrick Webb at Tufts University; Africare in Burkina Faso, and World Vision Bangladesh. We have also greatly benefited from the vision and support of Eunyoung Chung at USAID. We are grateful to staff from the following institutions who provided very useful feedback on the draft guide: Africare, American Red Cross, Catholic Relief Services, Food for the Hungry International, Freedom from Hunger, Land O'Lakes International Development, National Center for Health Statistics, Save the Children-US, World Vision United States, Food and Agriculture Organization of the United Nations (European Commission Program on Food Security), and US Department of Agriculture's Economic Research Service. We also appreciate review comments on an earlier draft of the article provided by Nadra Franklin at the Academy for Educational Development.

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