



Household Food Insecurity Access Scale (HFIAS)

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Abstract

In 1996, the World Food Summit reaffirmed the inalienable right that each person across the globe has to access safe, adequate and nutritious food. At that time a goal was established to reduce by half the number of undernourished persons worldwide by 2015, in other words the year that we are now commencing. Different countries and organisations considered the necessity of reaching consensus and developing indicators for measuring household food insecurity. The availability of a simple but evidence-based measurement method to identify nutritionally at-risk population groups constitutes an essential instrument for implementing strategies that effectively address relevant key issues.

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Abbreviations

ACF International: Action Against Hunger-Acción Contra el Hambre.

CFSSM: Child Food Security Survey Module.

CCHIP: Community Childhood Hunger Identification Project.

FAO: United Nations Food and Agriculture Organization.

FANTA: Food and Nutrition Technical Assistance.

FI: Food insecurity.

FS: Food Security.

EPISA: Food Security Perception Scale.

ELCSA: Latin American and Caribbean Scale.

HFIAS: Household Food Insecurity Access Scale.

HFSSM: Household Food Security Supplemental Module.

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ESCALAS DE EVALUACIÓN DE LA INSEGURIDAD ALIMENTARIA EN EL HOGAR

Resumen

En 1996, la Cumbre Mundial sobre la Alimentación reafirmó el derecho inalienable de los habitantes del mundo a tener acceso a una alimentación adecuada, inocua y nutritiva, y se planteó como meta disminuir a la mitad el número de personas subnutridas en el mundo para el año 2015, es decir, este año que iniciamos. Diversos países y organizaciones se plantean la necesidad de consensuar y desarrollar indicadores para la medición de la inseguridad alimentaria en los hogares. Disponer de un método de medición simple pero con base científica para identificar los grupos de población de mayor vulnerabilidad nutricional, se considera una herramienta básica para poder implementar estrategias que permitan afrontar el problema de un forma efectiva.

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Palabras clave: *Seguridad alimentaria. Inseguridad alimentaria. Cuestionarios.Escalas.*

HFSS: Household Food Security Scale.

HDDS: Household dietary diversity score.

LIDNS: Low income diet and nutrition survey.

MFP: Main Food Provider.

NHANES: National Health and Nutrition Examination Survey.

SBP: School Breakfast Program.

SENC: Spanish Society of Community Nutrition.

USDA: United States Department of Agriculture.

Introduction

The World Food Summit (FAO 1996) defined food security (FS) as the situation in which “*all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life*”. Food security can be classified into three main components – availability, access and utilisation¹.

Food availability exists when households have access to sufficient quantities of adequate and necessary foods

obtained through local production, commercial imports or agency donations. Access refers to having necessary resources for the purchase or interchange of goods with the aim of obtaining a variety of foods to comprise a nutritionally adequate diet. Utilisation addresses the safe distribution, storage and preparation of foodstuffs.

Food insecurity (FI) is defined as the limited or uncertain availability of nutritionally adequate and innocuous foods or the limited or uncertain capacity for acquiring adequate foods by socially acceptable means¹.

Low food security occurs when individuals experience a reduction in food quality, variety, or desirability, and at times a reduction in food intake. Very low food security describes disrupted eating patterns and reduced intake because of insufficient resources².

In developed countries, among children very low food security has been associated with greater dietary intakes of total calories and percentage of calories from fat and added sugar³. A study conducted by Action Against Hunger-Acción Contra el Hambre (ACF International) in collaboration with the Spanish Society of Community Nutrition (SENC) in the Region of Madrid (Spain) reported less frequent consumption of fruits, vegetables, meat, fish and dairy products in low food security or food insecure families compared to food secure households. Additionally, Food Diversity Scores among children decreased as household food security decreased⁴. Food insecure women in the USA have been found to have a higher body mass index (BMI) and prevalence of overweight and obesity. There is also evidence from studies conducted in the UK, USA, Canada and Australia that adults who are food insecure consume lower amounts of fruit and vegetables.

Studies in the USA and Canada have also shown that women who were food insecure had lower intakes of a number of nutrients thus increasing the risk of nutrient deficiencies⁵.

Food insecurity (FI) among young children is often invisible, because although young children who experience FI may experience negative health and developmental outcomes, their growth is often unaffected⁶. A direct link has been established between inadequate food quality and quantity and poor mental and physical health, psychosocial, behavioral, learning, family stress, and academic outcomes⁷⁻¹⁰.

Children's Health Watch found that children younger than 3 years who live in food-insecure households have 90% greater adjusted odds of being in fair/poor health, 31% greater adjusted odds of being hospitalized since birth, and 76% greater adjusted odds of being at increased developmental risk compared with food-secure families⁷.

In 2011, in the USA 17.9 million households were identified as food insecure. Among them, 9.2% experienced low food security while 5.7% had very low food security. Very low food security arises when at least one household member experiences "*multiple indications of disrupted eating patterns and reduced*

food intake". In 2011, food insecurity at the child level was present in 10% of U.S. households with children under 18 years of age. Of households with food insecurity experienced by children, 9% had low food security among children and 1% of households had at least one child with very low food security¹¹.

The high prevalence of food insecurity, especially in developing countries, has also reached countries in the European Union (Greece, Portugal, Spain) as a consequence of the severe economic crisis occurring in the last few years (2009-2014)¹².

Environmental and household conditioning factors influence food insecurity. Social risk factors, including employment, economic and relational dimensions, can be mentioned among the environmental factors; household resources and capacity to confront and adapt to food insecurity are among the household factors. In the present global financial crisis unemployment and poor living conditions are important drivers for food insecurity and most vulnerable people are particularly affected by price changes and financial shock, while current economic policies in many European countries have deteriorated welfare systems and are unable to provide adequate protection to increasing numbers of affected people.

In 2010, 185 million meals were served by food banks and 740,000 people visited these organizations in France, compared to 663,000 in 2008. Furthermore, a study conducted in 2011 in the Paris metropolitan area reported 6.30% of households had experienced FI, 3.90% low FS and 2.40% very low FS; i.e. an estimated 326,000 adults were living in food-insecure households, with 124,200 of them living in households with very low FS¹³. The study conducted by ACF-International in Madrid in 2014 reported 5.7% food insecure households and a further 12.8% low food security households⁴. UNICEF reported a 10% increase in 2012-2013 of children at risk of poverty in Spain.

The availability of a simple but evidence-based measurement method that has demonstrated validity and reliability to identify these phenomena, scope and degree of severity, is essential for the detection of nutritionally vulnerable population groups and the implementation of effective strategies addressing these issues. As such, diverse countries and organisations have set out to reach consensus and develop indicators for measuring household food insecurity¹⁴⁻¹⁶. There are multiple effects of household food insecurity, and are principally related to risks of malnutrition/undernutrition and disease; risks of social and political conflict and instability and reduced productivity and the community's economic capacity.

A conceptual framework of Food Insecurity

Figure 1 depicts a conceptual framework about the onset and process of household food insecurity. In the

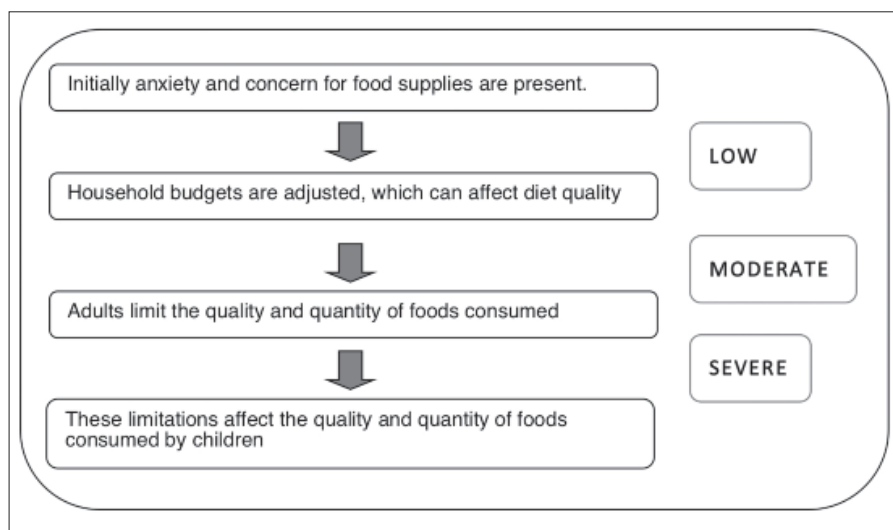


Fig. 1.—Onset and process of household food insecurity^(4,5).

In the last 4 weeks...

Anxiety and uncertainty about household food supplies

1. Did you worry that your household would not have enough food? Yes No

How often did this happen?

Rarely (1-2 times)

Sometimes (3-10)

Often (more than 10)

Insufficient quality (including food variety and preferences)

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 have to eat a limited variety of foods due to a lack of resources?

4. ... did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?

How often did this happen?

Rarely (1-2 times)

Sometimes (3-10)

Often (more than 10)

Insufficient food intake and physical consequences

5. ... did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?

6. ... did you or any household member have to eat fewer meals in a day because there was not enough food?

7. ... was there ever no food to eat of any kind in your household because of lack of resources to get food?

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 and night without eating anything because there was not enough food?

How often did this happen?

Rarely (1-2 times)

Sometimes (3-10)

Often (more than 10)

Fig. 2.—Household Food Insecurity Access Scale (HFIAS) generic questions Food and Nutrition Technical Assistance III Project (FANTA)⁽⁵⁾.

development of household food insecurity a gradient occurs that begins with the uncertainty and concern about accessing food. Next, adjustments are made in the family budget on food spending, reducing food quality and variety. As food insecurity progresses further adjustments are made that begin to affect not only the quality but also the quantity of food consumption. Food portions are reduced and some meals are omitted. In the next stage where food insecurity becomes more severe, hunger appears, initially appearing in adults and finally affecting children¹⁵.

Methods of measuring food insecurity

Each one of the following methods provides information that may be complementary. However it's worth noting that the first four methods are extensive, long, costly and rather than directly measuring the problem, they inform us of the consequences of food insecurity: 1) Food balance sheets; 2) Household budget and spending surveys; 3) Individual food intake surveys; 4) Anthropometric and biochemical assessment and 5) Measurement of the perception of household food security/insecurity.

Food Insecurity questionnaires usually employ a series of 9 to 15 questions that detect the level of concern and the lack of access to, variety and/or quantity of food. The questions retrospectively refer to a period between 4 weeks to 3 months. They reflect 3 different domains of food insecurity: 1) Anxiety or uncertainty; 2) Insufficient quality and 3) Insufficient quantity.

Each of one of the questions shown in figure 2 refers to a previous period of four weeks (30 days). The subject interviewed is first asked about the occurrence of food insecurity, in other words if the condition reflected in the question took place in the last four weeks (yes or no). If the subject answers affirmatively to this type of question, another question is asked about the frequency to determine if the condition has occurred a few times (once or twice), sometimes (between three to ten times) or frequently (more than 10 times) in the last four weeks.

In the 1980s, the Community Childhood Hunger Identification Project (CCHIP) developed a series of 4 questions about children's food conditions as part of a survey module to assess hunger conditions in households¹⁷. Radimer et al. developed a methodology for measuring food insecurity that included assessments of the adequacy of food quality and quantity at household, adult, and child levels, and of food anxiety at the household level¹⁸.

In the early 1990s, the USDA and the U.S. Department of Health and Human Services initiated the U.S. Food Security Measurement project. The project included child-referenced questions as well as household- and adult referenced questions adapted from previous research. In 1995 the United States administered a questionnaire to identify indicators of household

food insecurity (Household Food Security Supplemental Module, HFSSM) as part of NHANES (National Health and Nutrition Examination Survey). The instrument consists of 18 items.

Since 1999, NHANES has included the U.S. Household Food Security Survey Module in its household-level questionnaire. Additionally, since 2001 NHANES also collects information about the food security of sampled individuals (except for adolescents aged 12–15 y). Adults and adolescents ≥ 16 y of age were asked the 7 most severe adult-referenced questions in the HFSSM, adapted to refer specifically to conditions experienced by the respondent¹⁸.

The food security status of older children (≥ 12 y of age) can be assessed using a self-administered survey tool, the Child Food Security Survey Module (CFSSM), developed by adapting questions from the Household Food Security Survey Module for direct administration to children after cognitive testing.

In 2005, NHANES began using 5 slightly adapted questions from the CFSSM to provide individually referenced food security information for children 12–15 y of age¹⁸⁻²¹. HFSSM is considered as a robust measure and a source of information that is useful for orienting policies and for identifying vulnerable populations or regions. A review published in 2008 presents data on the experience of utilizing these types of questionnaires in more than 20 countries²².

The HFSSM includes three questions referring to the household, seven for adults, and eight questions that determine food insecurity at the child level. One weakness of the 18-item Household Food Security Survey Module is that it identifies food insecurity at the aggregate level, and is not able to discern intra-household differences in food security among individual adults and children.

In the Low income diet and nutrition survey (LIDNS)⁵ conducted in the UK, food security was measured using a scale based on 15 questions, 10 for adults and 5 for children. Each question asked whether the condition or behaviour occurred at any time during the previous 12 months due to a lack of money or other resources to obtain food. Questions were directed to the Main Food Provider (MFP) for the household and responses were applied to all individuals within the household. The scale included four constructs: a) Uncertainty, anxiety or perceptions that the household food budget or supply was inadequate or insufficient to meet basic needs; b) Perceptions that the food eaten by adults was inadequate in quality; c) Reported instances or consequences of reduced food intake, such as hunger or weight loss for adults and d) Reported instances of reduced food intake or its consequences, such as hunger for children⁵.

The scale used in the study conducted in Madrid by ACF-International was adapted from the US FIS. Included four domains: anxiety for the provision of food; quality of food; use of social support and welfare networks; d) Reduced or insufficient food intake⁴.

It has been reported that parent proxy reports of children's food security may be inaccurate or incomplete. All household members may not experience food insecurity in the same capacity. Mothers may not be fully aware of children's experiences or actions taken to reduce the severity of food insecurity. Researchers that have investigated whether or not children could reliably report on their own experiences concluded that children ages 6–16y can do so^{17,22–24}.

Connell and colleagues identified quantity, quality, psychological, and social components of children's perceptions of household food insecurity. Previous studies investigating the relationship between self-report and reports by others concluded that, even controlling for issues such as measurement error or poor design, the discrepancy in reports remains high. Therefore, discordance is likely due to the fact that children's experiences and perceptions may differ from those of adults^{21,23,24}.

Children reported more frequently than mothers on reducing portion sizes, skipping meals, or being hungry. Mothers' responses may also be influenced in part by social desirability. Recent research revealed that among a sample of 5–11 year old children and their parents, discordance may be a result of different reasoning methods and response styles²³.

Although the HFSS is widely used, it is time-consuming to administer and has a complex scoring algorithm. Several shortened questionnaires have been published, including the HFSS Short Form (a 6-item version with excellent sensitivity and good specificity). More recently, a single-item screen for hunger has been developed. However, the exclusive focus on hunger may miss food-insecure families that experience stress related to uncertain access to enough food but not the physiologic sensation of hunger. The authors defined adult hunger by responding 'sometimes true' or 'often true' to the statement: "I am hungry but don't eat because I can't afford enough food." Child hunger was defined by responding that the following statement was 'sometimes true' or 'often true': "I know my child(ren) is (are) hungry sometimes, but I just can't afford more food."²⁵

A 2-item FI screen for identifying families at risk for FI was developed and demonstrated sensitivity, specificity, and convergent validity. The FI screen quickly identifies households with young children at risk for FI, which enables providers to target services to ameliorate the health and developmental consequences associated with FI. The questions asked are 1) "Within the past 12 months we worried whether our food would run out before we got money to buy more" and 2) "Within the past 12 months the food we bought just didn't last and we didn't have money to get more."^{3,6}

Other authors have used a household food insecurity and access scale developed by Food and Nutrition Technical Assistance (FANTA) Program of the U.S. Agency for International Development^{6,26}. The scale

is similar to the household food security scale, except that it reflects the past four weeks. There are nine "occurrence" questions; if the household endorses any one of those questions, then there is a frequency question. There is one question on anxiety, three questions on quality, and five questions on food intake and consequences. Sometimes the last three questions are used as a household hunger set.

The Food Security Perception Scale (EPSA) and the Latin American and Caribbean Scale (ELCSA) are based on the principles developed by Wehler in 1992 and are used in Latin American and Caribbean Countries, such as Mexico, Colombia or Venezuela⁴.

The household dietary diversity score (HDDS) developed within FANTA is meant to reflect the economic ability of a household to access a variety of foods. Studies have shown that an increase in dietary diversity is associated with socio-economic status and household food security (household energy availability)²⁷. More recently a food insecurity experience scale has been developed in the context of FANTA as a global standard for monitoring hunger worldwide²⁸.

HFIAS risk factors

The principle causes of food insecurity are social injustice, inequity and the lack of guarantees for the population to be able to access economic, social, cultural and environmental rights as well as the right to food. Food insecurity is more common in households located in rural areas, with children, in single parent families (single mothers caring for a number of children), immigrant groups, displaced persons, refugees, the elderly, among others^{4,29–31}.

Studies carried out in the UK, USA, Canada and Australia have shown the prevalence of food insecurity to be associated with factors such as income, lower educational attainment, whether or not children were present in the household, past homelessness, poorer health, lack of home ownership and living alone⁵.

For low-income families in the USA, the School Breakfast Program (SBP) is an important component of the safety net for children and has been linked to improved nutrient intake¹¹. According to the study conducted in Madrid in 2014, participating in school meals was associated with food security. Conversely, not using that service was associated with poor food security or food insecurity. 5 out of 10 children in food secure households participated in school meals, as compared to only 3 out of 10 children in food insecure households⁴.

Conclusion

Food insecurity continues to be a problem that affects millions of people worldwide. The Committee on World Food Security in the 2012 Global Strategic Framework

for Food Security and Nutrition identified five principles that Food Security and Monitoring Systems should meet: a) They should be human-rights based, with particular reference to the progressive realization of the right to adequate food; b) They should make it possible for decision-makers to be accountable; c) They should be participatory and include assessments that involve all stakeholders and beneficiaries, including the most vulnerable; d) They should be simple, yet comprehensive, accurate, timely and understandable to all, with indicators disaggregated by sex, age, region, etc., that capture impact, process and expected outcomes; e) They should not duplicate existing systems, but rather build upon and strengthen national statistical and analytical capacities²⁸.

To address hunger among children, there are several issues that will need to be addressed. Resolving food insecurity does not necessarily ensure that children meet optimal dietary guidelines. Among others, participation and utilization of school breakfast and school meal programs as well as summer school programs can contribute to reducing the number of children experiencing hunger and the potential need for supplemental nutrition programs school-age children for evening meals and meals on weekends.

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