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Adaptation of the U.S. Food Security Survey Module for Low-Income Pregnant Latinas: Qualitative Phase

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Abstract

The objectives of this study were to: 1) assessed the face validity of the 18-items US Household Food Security Scale Module (US HFSSM) among low-income pregnant Latinas and 2) adapt the US HFSSM to the target population. This study was conducted in the United States in Hartford, Connecticut where 40% of residents are of Latina descent. Three focus groups ($N=14_{total}$) were held with pregnant and postpartum Latinas from April – June 2004 to assess the understanding and applicability (face validity) of the US HFSSM as well as adapt the US HFSSM based on their recommendations. This was followed by pre-testing (N=7) to make final adaptations to the US HFSSM. Overall, the items in the US HFSSM were clear and understandable to participants, but some questions sounded repetitive to them. Participants felt the questions were applicable to other pregnant Latinas in their community and shared food security related experiences and strategies. Participants recommendations led to key adaptations to the US HFSSM including reducing the scale to 15-items, wording statements as questions, including two time periods, replacing the term “balanced meals” with “healthy and varied”, replacing the term “low cost foods” with “cheap foods” and including a definition of the term, and including a coping mechanism of avoiding running out of food. The adapted US HFSSM was found to have good face validity among pregnant Latinas and can be used to assess food insecurity among this vulnerable population.

Introduction

Food insecurity, defined as the limited availability to acquire nutritionally adequate and safe foods in socially acceptable ways[1], is a global issue, affecting developed and developing countries alike. In the United States alone, 12.6 million households (10.9%) were food insecure in 2006, with 4.0 million experiencing severe levels of food insecurity.[2] Populations at higher risk of food insecurity include Latinos, who experience rates 2-3 times higher than the national level.2 Pregnant Latinas experience these same high rates of food insecurity.[3]

The concept of food insecurity has been documented extensively among non-pregnant populations.[4,5] When financial resources first become limited in a household, adults begin to manage what they have available. This “managed process” includes strategies that attempt to prevent the progression of food insecurity. Initially, adults begin decreasing the quality of the foods purchased by buying less nutrient dense foods.[5] As financial resources continue to

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dwindle, adults begin to decrease the amount of food they consume to provide more food for the children in the household.[5] Studies conducted among non-pregnant mothers found that when they experience severe food insecurity they lower their caloric intake to be able to provide their children with enough energy for them to satisfy their hunger.[6]

To capture this complex phenomenon that occurs when access to nutritionally adequate and safe foods is limited, an instrument was developed by the United States Department of Agriculture and applied in a national sample in 1995. This instrument, called the U.S. Household Food Security Scale Module (US HFSSM), consists of 15 'stem' items and 3 sub-items that assess the existence and frequency of food insecure events to capture the severity of food insecurity in a household. For example, the questions assess whether a household is worried about not having enough food and whether the quality or quantity of the food consumed by adults or children diminishes as a consequence of limited financial resources.

The US HFSSM has been adapted for use among diverse populations to ensure that the questions in the scale retain the same meaning for each group.[7-9] Cultural and language differences as well as situations, such as pregnancy, or age or gender may influence the understanding and meaning of words, thereby biasing the way individuals respond to the questions. Thus it is important to document and evaluate the understanding of the US HFSSM questions to ensure they are appropriate for the target population and measure what they intend to measure. Adaptation of an instrument based on feedback and recommendations from the target population ensures the questions retain their original meaning and measure the concept correctly.

Little is known about how pregnant women experience food insecurity and whether the events described in the US HFSSM accurately reflect their experiences. Only one published study conducted with pregnant Latinas examined food insecurity[3], however it did not evaluate the understanding and applicability of the US HFSSM to this population. Therefore, this study sought to: 1) assess the face validity of the 18- item US Household Food Security Scale Module (US HFSSM) among low-income pregnant Latinas, and 2) adapt the US HFSSM to the target population. This project included the qualitative phase reported herein followed by the psychometric testing phase.[10]

Methods

Setting

Hartford, Connecticut has the largest population of Latinos in the state and ranks third throughout the New England states.[11] Hartford's Latino population is unique because over 80% of Latino residents in Hartford are of Puerto Rican descent. However, Hartford, Connecticut is one of the poorest midsize cities in the United States. Over one-fourth of families living in Hartford live below the poverty line.[12] Child poverty is a deep concern, reaching 43% in 2006 and ranking Hartford as the city with the 6th highest child poverty rate in the United States.[12] Hartford is also one of the least food secure communities in Connecticut. Several studies of Puerto Ricans within Hartford have reported food insecurity rates (ranging from 41%-88%) that are disproportionately higher than the national average of 19.5% for Latino households.[2]

Study design

This study fulfilled the specified objectives through focus groups and pre-test interviews of the US HFSSM. Approval from the Human Subjects Committee of the Institutional Review Boards from the lead institution, the University of Connecticut, and collaborating institutions,

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Hartford Hospital and the Hispanic Health Council, was received prior to study implementation.

Fourteen pregnant and postpartum Latina women living in Hartford, Connecticut participated in one of three focus groups conducted from April-June 2004 to assess the face validity of the US HFSSM. Participants were recruited from an existing maternal and infant service program at a local community agency, community programs (such as the Special Supplemental Nutrition Program for Women, Infants, and Children), area homeless shelters and street outreach. Women were eligible to participate if they were a) Puerto Rican, b) pregnant or had delivered an infant within the past 6 months, c) enrolled in WIC or were WIC eligible, and d) 18 years of age or older.

All participants provided written informed consent in their language of choice, English or Spanish, and completed a brief demographic questionnaire which gathered information on age, # of months' gestation (if pregnant), prenatal care initiation, acculturation (i.e. length of time in the United States, preferred language, and place of birth), and participation in food assistance programs.

Focus groups were conducted in Spanish and followed the methodology described by Morgan and Krueger.13 Participants in the first focus group were presented with the Spanish translation of the US HFSSM.[14] Participants were asked to read each of the 15 'stem' items aloud one-at-a time. After each question had been read, they were asked to express and discuss: 1) what they felt the question meant to pregnant women in their community, 2) whether the question was clear and understandable to them as well as other pregnant women in their community, and 3) whether the question was applicable to pregnant women within their community. Since the 3 sub-items each ask the frequency of specific events participants affirm (i.e. *How often did this happen – almost every month, some months but not every month, or in only 1 or 2 months*), participants were asked to discuss how often specific events occurred to pregnant women in their community and recommend how often to assess each event: monthly, weekly, or daily.

Following each focus group, the US HFSSM was modified to reflect the themes and recommendations discussed. Participants in focus groups 2 and 3 were presented with the subsequent adaptations of the US HFSSM, respectively, and asked to express the same thoughts about each question as discussed with the first focus group.

Within each focus group, participants were also read specific terms found in the US HFSSM questions to assess their 1) understanding of the terms, and 2) the meaning of the term for them. Various concepts and phrases were explored within different focus groups including: *food insecurity, enough/available money, balanced meal/diet, nutritious meal/diet/foods, few foods, food run out, hunger, low-cost foods, healthy and nutritious foods, healthy and varied meal, healthy foods, have you worried (about food), cheap foods, cutting the size of the children's meal, not eating enough/eaten less, less quantity of food, haven't eaten all day, skipping a meal/ate less*.

In addition to discussing each question in the US HFSSM, participants were asked to recommend an appropriate time period to assess food insecurity for pregnant Latinas. Discussion centered on the time period before pregnancy as well as during pregnancy. Since the reference amount of time specified in the US HFSSM is *the past 12 months*, participants were encouraged to discuss various lengths of time to assess food insecurity before pregnancy as well as during pregnancy.

Lastly, participants' perceptions and experiences regarding participation in food assistance programs such as the Food Stamp Program and WIC, shopping habits using food stamps, length

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of time food stamps last, purchasing food on credit, and access to transportation were also explored but are not described in this paper.

All focus groups lasted approximately 3 hours. Transportation and childcare were provided to participants on the day of their focus group. Refreshments were provided during the focus group and incentives were given after participation.

A bilingual/bicultural moderator, two to three bilingual/bicultural nutrition staff members from a local community agency, and study coordinators were present at each focus group and took written notes. The moderator, staff members, and study coordinators met immediately after each focus group to discuss the key topics as well as participants' recommendations and to propose modifications to the US HFSSM based on the focus group discussions. All focus groups were also tape recorded. Tapes were transcribed, translated, and cross-checked for accuracy.

Following the third focus group, the adapted US HFSSM was pre-tested with seven Latinas using an interview format. Participants were community nutritionists, maternal/infant case workers, and youth leaders from various countries of origin employed at a community-based, non-profit organization located in Hartford, CT. The adapted US HFSSM was administered to each participant in either English (n=3) or Spanish (n=4). Following the administration of the US HFSSM, each participant expressed her thoughts about the wording and complexity of instrument and bilingual, bicultural interviewers recorded her feedback. Minor adaptations were made to the US HFSSM based on all participants' recommendations during the pre-testing phase resulting in the final version of the modified US HFSSM (Table 1).

Data analyses

Focus group transcripts were read and discussed by two public health nutritionists and one social worker to assess convergence and reach consensus on the focus groups themes and recommendations. Discussion centered on key themes within each question for each focus group. Convergence was reached if all experts agreed on the themes that emerged. Discussions were tape recorded and transcribed to ensure accurate reporting. Thematic codes were then developed as a result of the consensus. The codes were assigned to statements in the focus group transcript and entered into ATLAS.ti version 7.0 for Windows to extract statements within each code. Statements were first extracted and organized using thematic codes similar to all focus groups for each US HFSSM item. Statements were then extracted by codes within all questions used to reflect the conceptual framework of food insecurity and these are reported in this article.

Results

Focus group participants were on average 23 years of age and had lived in the United States for an average of 12.6 years (Table 2). The majority of participants (64.3%) had been born in Puerto Rico, while the rest had been born in the United States. For almost half of participants, their preferred language was either English or Spanish, indicating that they were bilingual. Over 90% of participants were enrolled in WIC and had been pregnant on average 3.83 months at WIC enrollment. Almost three-fourths of participants (71.4%) were multiparous. Two of the participants had already delivered their infants within the past 6 months. Of those that were pregnant, the majority (66.7%) were in their 3rd trimester, while the rest were in their second trimester. All pregnant participants were receiving prenatal care and had initiated care in the first trimester of pregnancy.

Participants who pre-tested the adapted US HFSSM were non-pregnant Puerto Rican (71.4%) and non-Puerto Rican Latinas (28.6%). Those who were not from Puerto Rico were of

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Colombian and Mexican descent. All participants were bilingual, had at least a high school education, and had been born outside of the United States (data not shown).

Clarity and understanding of the US HFSSM questions

Overall, focus group participants demonstrated a general understanding of the US HFSSM questions. Participants defined most questions well and typically used their own examples to further explain their meaning. Two questions posed some difficulty for participants to explain: *worrying about food running out before getting money to buy more* and *relying on only a few kinds of low-cost foods to feed the children because (they) were running out of money to buy food*. Instead, participants provided only examples. The first question was explained this way by a participant: *"…but sometimes, yes it worries me because of the nourishment, the food do (es) not last…"*. The second question was clearly described: *"…if there is a little money and I have to buy foods stuff, like sometimes we do buy a piece of cake, juice, and give that to the child, because there is no more money…"*

Participants felt several questions sounded repetitive. Similar phrasing among questions made it more difficult for them to understand the difference between questions. Participants expressed concern that repetitive questions might produce inaccurate responses and offered suggestions to adapt the format and words in some questions:

> "…us by nature, when we see questions that are alike, that are similar, we don't want to continue reading it so then we are going to answer the same always. We don't pay attention when especially…all the questions you think are the same. My opinion would be to change the format…change the words…"

Finally, the personal nature of the questions was raised. Participants felt the questions should be asked only after women had established rapport with the interviewers otherwise they might be hesitant to admit these events had happened.

Applicability of the US HFSSM questions

Participants felt that pregnant women in their community, as well as themselves, had at times experienced several of the events described in the US HFSSM. Since participants described these events as they related to specific questions, their experiences are presented following the food security conceptual framework sequence: psychological worry, poor quality of food, and reduced quantity of food.

Psychological worry—Pregnancy increased the general daily worry for Latinas about not having enough food, enough money to buy food, or nutritious foods. Participants felt increasing stress and worry about having enough food to feed themselves, their unborn baby, and their family.

> "With the money you receive…you already have planned what you are going to buy, what you are going to spend, ok I have this much until next week, it means next week I'll buy this much. When you are pregnant things change, you start to worry would I have enough food, would I have enough money, I have to feed myself somehow…"

Some participants expressed an increase in worries if children were in the household because food ran out faster. Participants also struggled with the decision of which child to feed first, their children or their unborn baby:

> "It gets more difficult [with pregnancy], because we have to try to eat nutritious. What I mean is that it is not like before… when you had a cup of coffee, a little piece of bread so that the child eat well… but then we are worried about the one that we have inside, and then everything becomes more difficult because now not everything can

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> be a little coffee or a little piece of bread. We have to obligate ourselves to a nutritious food so we can nourish ourselves, thinking about the baby that we got inside."

Despite this struggle, participants adamantly expressed that they would feed their children first rather than themselves. They explained that they were worried that their unborn baby may not have enough or the right kinds of foods, but when they have children who are telling them they are hungry, they have to make choices. For them, it is hard to feed themselves before their children, especially when there is little or isn't any money. One participant explained the heart wrenching decision this way:

> "If there is nothing else and the only thing is that little plate and I have two children, I know that I have one inside me but, I have two children here telling me, mom I'm hungry, we have to calm their hunger and then we repeat again a cup of coffee. I have not eaten well but I'm not going to leave them."

Poorer quality foods—Participants identified several reasons why they purchased foods that were not healthy: not planning ahead, not having enough money, living in a shelter environment, and cultural differences in food preferences. Planning ahead was necessary to stretch the money to purchase enough food. Participants explained that if they did not plan ahead, they would then have to purchase unhealthy foods, like junk food, or food they already had in their household rather than the food they wanted. They also explained that they don't have the financial "luxury" to purchase healthy and nutritious foods. Instead, purchasing less expensive, less healthy foods was a key strategy to avoid running out of the little money they had during the month. This was an important concept raised in the focus groups and led to the addition of this strategy in one of the questions. Participants also stretched their money during the month by shopping at different stores to find the best prices for foods. If their money ran out before the end of the month, some participants explained they would buy food on credit at small local stores (bodegas) and repay the owner when they received their food stamps.

Living in a shelter also made it difficult to eat proper, healthy meals. Of the two participants who lived in a shelter, one explained that she was not able to store foods while the other shared that she had only the meal they give her at the shelter and at times it wasn't culturally appropriate and palatable for her.

Participants also suggested that their food preferences might influence the type of foods purchased. They felt that eating a meal of rice, beans and meat was healthy, satisfying and more affordable than a meal of typical healthy foods such as fruit and fruit juice:

> "For us, (it) is like if I eat a plate of rice and beans and meat, that's a complete and healthy meal for me, but if I buy fruit and eat fruit with a glass of juice, it's more expensive and it does not last and you are still going to be hungry. For us, the plate (referring to the meal of rice, beans and meat) would be better and it would last longer."

Reducing quantity of food—Participants responded that pregnant women in their community did reduce the quantity of food consumed by cutting down or skipping meals. The reasons offered for cutting down or skipping meals were: a) not enough money to buy more food, b) saving food to be able to have enough to eat at the next meal, c) using the food to feed the children in the household.

The experience of hunger was explored and described for pregnant women and children. One participant shared her own experience of having to go without food for a whole day because they didn't have money for food.

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> "Sometimes when I don't have money, I don't eat throughout the whole day until 6:00 p.m. They come and bring me $5.00 or something and thanks to God I buy my things and I buy for the kids. With $5.00 a sack of rice, a can of beans, and a package of meat and there it is.

Women experienced hunger to provide food for their children. One participant explained that she would give her food to the children first before taking any herself and illustrated the importance of social networks at helping to provide for her children:

> "I was 2 months with nothing in my house, but there is always the neighbor, she … brings me a plate of rice for the kids. That was before I was pregnant. I use to take it and give them half, a little for the boy and a little for the girl, and what was left I use to take it for me. But if nothing was left, I used to go upstairs and ask if I can have a little more for me."

Hunger among children was also visible within the community. One participant shared her experiences and expressed the deep emotion that comes from knowing a child is going hungry:

> "…he had nothing to eat all day just the ice cream they gave him in the shelter, in the room…he is pale and thin…the kid said he didn't eat. My God because I go through this. [It] is not that my child is eating the best, but you know when a child that is barely 5 years old to tell you he had only an ice cream to eat at 8 pm…it touches your soul."

Context and understanding of US HFSSM terminology

Focus group participants expressed their understanding of several terms in the US HFSSM questions. The terms *balanced meals, low-cost foods, hunger*, and *skipped meals* required further clarification and alternative words were explored to ensure the meaning of each US HFSSM questions was retained.

Balanced meals—Participants defined the term *una comida balanceada (balanced meals)* as having a little bit of everything or everything that is eaten is equal. They differentiated *balanced meals* from *nutritious meals* by defining the latter as foods that had vitamins. One participant summed it up: *"Balance I understand (as) trying to eat a little bit of each thing and not nutritious, nutritious is everything that nourishes, the iron, the protein, exactly that, not putting carbohydrates, not putting sugar, that is what I understand."*

When alternative words of *healthy foods* as well as *varied and healthy meals* were explored, the description one participant gave of the latter fit best the concept of a balanced meal: *"rice, the meat, and my beans on the side accompanied by vegetables or salad, tomato or lettuce like that."* Another participant added to that description: *"and a juice, a glass of milk or water."* Therefore, the term *healthy and varied* was used in the final version of Hartford-HFSSL in place of the term *balanced*.

Low-cost foods—Participants had different understandings of *low-cost foods*. *Low cost foods* were equated to *cheap foods*, considered to be corn beef, spam, Vienna sausages and cake. *Low-cost foods* were also defined as less expensive foods (such as canned foods like Chef Boyardee) and store brand foods (i.e. Price Rite brand). For some participants, the term meant that there was less food in the household and suggested the need to use strategies to prevent from running out of food: *"Where there are lots of children, they made a can of corn beef because they are 5,6,7 in the house because they know they are giving them something to eat."* The description of *low cost foods* that retained the meaning of this term the best was as: food that cost less (i.e. cheap) and that was not healthy, such as *"cans of spaghetti or ravioli, Lipton soups"*.

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Hunger—Participants had a difficult time explaining the concept of hunger, describing it as wanting to eat but not having anything to eat and not having money. Differentiating between *hunger* and *hungry*, participants described the term *hunger* as starving, while the term *hungry* was less severe.

Skipped meals—The phrase, *skipped a meal*, meant not eating breakfast, lunch, and/or dinner for participants. This specific response helped to modify the US HFSSM for the adult and child related questions involving the term, *skipped a meal*.

Adaptation of the US HFSSM

The US HFSSM was adapted based on participants' understanding of the questions and terms as well as their recommendations and feedback. Table 3 illustrates the general changes made to the US HFSSM and describes whether focus group or pre-testing participants made the recommendation.

Changes were first made to the number and structure of the questions. The three frequency questions were removed leaving the 15 ‘stem’ items. The first 6 items in the original US HFSSM were changed from statements to questions. All responses to the questions were modified to be “yes” and “no” responses. Verb tenses were also changed for each question to reflect the present perfect tense (i.e. have eaten vs. ate).

Participants recommended asking the US HFSSM questions across two different time periods, one before pregnancy and one during pregnancy. Therefore, the time period in the US HFSSM was modified to reflect the 1) year before pregnancy *(phrased as: during the year before you became pregnant)* and 2) during the previous month of pregnancy *(phrased as: during the last month)*. The latter was used to provide a standard time period to assess food insecurity status at any stage of pregnancy. To avoid having the questions sound repetitive, participants suggested alternating the placement of the time period phrase in the US HFSSM questions. For example, the phrase ‘during the last month’ was placed at the beginning of question 1 but at the end of question 2. This alternating pattern was continued for the rest of the scale.

The question, “How often did this happen?” was added to assess the frequency of an affirmed event over the year before pregnancy. The options were: a) every month or almost every month, b) some months but not every month, c) one month. Across both time periods, participants who affirmed an event were asked: “Which week or weeks of the month did this usually happen?” with the options being 1st, 2nd, 3rd, 4th week.

The phrase “you and other adults in the household” was added to one sentence and replaced ‘we’ in five sentences to reflect that these events happen to others as well as the participant in the household. Other specific terms were replaced and some words/definitions were added. For example, the term *balanced* was replaced with *healthy and varied* since participants related this concept closest to the meaning of *balanced*. Other changes included were: a) the term *diet* replaced *meal* in the children's question to indicate a change in the overall composition of the children's diet as opposed to a single meal; b) the phrase *couldn't afford that* was changed to *didn't have/have not had enough money* since participants demonstrated good understanding of the phrase *enough money* and equated it to the word *afford*; c) *low-cost foods* was replaced with *cheap foods* and defined, *“by cheap we mean low cost foods that are not healthy and nutritious”*; d) The phrase, *to avoid running out*, was also added to address the phenomenon that participants plan ahead and purchase cheap foods to avoid running out of food; e) *I/we just couldn't afford enough food* was changed to *there wasn't enough money in your household to buy enough food*, to use words participants had already demonstrated they understood; f) the phrase *skipped meals* was changed to *skipped breakfast, lunch, or dinner* to clarify the

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difference between skipping one meal and all meals; g) the word *afford* was replaced with *get*; and h) the phrase *for food* was replaced with *to buy more food*.

Additionally, *niños* and *jovenes* were included in the child-related questions in the Spanish US HFSSM to clarify that the word *children* referred to both younger as well as older children and youth. Key words participants felt were important to emphasize, such as *worried, bought, children, wasn't enough money for food*, *during the last month*, *the year before pregnancy*, and *you or other adults in the household* were placed in capital letters and bolded for interviewers to emphasize when administering the instrument. The purpose of emphasizing these key words was to assist participants in understanding the question, avoid sounding repetitive, and facilitate a response.

Several other modifications were made to ease the administration of the US HFSSM. Since households with children less than 18 are asked all 15 'stem' items while adult-only households are asked 8 'stem' items, an additional question was added to prevent confusion for the interviewers. Prior to the first child question, participants were asked whether they had children less than 18 years of age in their households. Thus, interviewers would know whether to ask only the questions related to food insecurity among adult questions or to also ask the questions that related to food insecurity among children living in the household.

Discussion

Overall, participants from each of the focus groups demonstrated an understanding of the US HFSSM questions and the applicability of the events they represent to their community. Food insecurity is a "managed process", beginning with the psychological worry and then progressing with actions of reducing quality and then quantity of food within the household.[5] The concept of food insecurity as a managed process was reflected in the focus group discussions. Participants expressed their constant worry with trying to maintain the right quality and quantity of foods during pregnancy. They described their dilemma on how to distribute the food in their household. They no longer can go completely without food for themselves to provide for their children as limiting the quality and quantity of food for them limits food for their unborn babies as well.

Our findings suggest that women in this community see the quality of theirs as well as of their children's diets affected long before they reduce the amount of food consumed in their household. Thus, it appears that pregnant women in our target Latino community have developed strategies to enable them to stretch the food and money longer in times of need. Study participants reported trying to secure enough food using different food acquisition management strategies such as planning what to purchase at the food stores ahead of time, purchasing foods at different grocery stores to find the best prices, and buying food on credit. Therefore, the concept of coping with food insecurity, through strategies such as buying low-cost foods to avoiding running out of money to buy food confirms that food insecurity is indeed a "managed" process in the community.

The findings from the focus groups and the pre-testing interviews suggest that specific words and phrases used in the original US HFSSM are not appropriate for use among pregnant Latinas. Participants had a difficult time defining the phrase 'balanced meals'. However, when probed about the meaning of alternative words, such as 'healthy and varied', participants understood those terms well and their definition fit the concept of a "balanced meal". These findings are consistent with findings from other validation studies that illustrated that the understanding of the concept of a "balanced meal" varies and adaptations need to be made to foster understanding of the concept.[9,15] Similarly, the meanings of other terms such as "low-cost" were not recognized in the same context as they were intended in the US HFSSM. Therefore, adaptations

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were necessary to assure that the meaning of the US HFSSM was upheld. Adaptations were also necessary to avoid repetition of the questions. Participants suggested that if the questions were repetitive, they might bias participants towards giving the same answer to questions they interpret as being the same.

The results from the focus groups were very consistent with findings from studies conducted in other communities. In a study validating the US HFSSM among Asian and Pacific Islanders, Derrickson and Anderson 16 suggested that the inclusion of respondents who had experienced different levels of food insecurity is relevant to ensuring that the comments and feedback they give about the questions are valid. Derrickson and Anderson [16] assessed that participants were only able to be "probed within their range of [food insecurity] experience" (p.28) rendering comments to other questions outside of their experiences "invalid". Although we did not measure household food insecurity status among the focus group participants, they were all low-income and two focus group participants were from area homeless shelters. Their comments and feedback confirmed that our participants had experienced a range of food insecurity experiences, including hunger. When one respondent was asked if she knew whether pregnant women in the community experience not eating a whole day because they have not had money, she replied "*myself, here you have me as live proof*".

Our findings with the homeless participants indicated that the US HFSSM may not be valid among homeless individuals without further adaptation because it doesn't address the unique food preparation and social challenges associated with living in a shelter.

One limitation to this study was that it did not test the face validity of the US HFSSM with non-Puerto Rican Latina groups. At the time we conducted this study, approximately 80% of the Latinas(os) in Hartford were of Puerto Rican descent. The demographics in Hartford, Connecticut are changing with more Latinas from other countries of origin settling there. This was evidenced by the characteristics of participants in the survey conducted to test the psychometric behavior of the scale. It is possible that different Latina groups may have contributed further to refining and adapting the scale for use among Latinas. However, by including Latinas from various countries in interviews designed to pretest the modified US HFSSM, we were able to modify the US HFSSM further with recommendations from non-Puerto Rican Latinas.

The US HFSSM was found to have good face validity among pregnant Latinas. The adaptations made to the US HFSSM reassured us that the revised scale had a strong potential to reliably assess household food insecurity during pregnancy among Latinas. Indeed, the quantitative validation that followed in this population indicated that the adapted US HFSSM is a valid instrument with highly desirable psychometric properties.[10] Since food insecurity has been linked to many suboptimal health and nutrition outcomes among women, such as poor dietary quality, reduced food quantity, obesity, and depression, these findings have implications for helping practitioners to better understand the non-biomedical needs of the populations they serve. Understanding how pregnant Latinas cope with their food insecurity experiences can increase the awareness of health care providers for the need of culturally appropriate advice to their pregnant Latina patients who may be experiencing food insecurity in a highly challenging environment.

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Table 1

Adapted and original versions of the U.S. Household Food Security Scale Module[a]

Item	US HFSSM Questions
1	Did you or other adults in your household worry whether your food would run out before you got money to buy more?[b,c] *We worried whether our food would run out before we got money to buy more.*[d]
2	Has the food you or other adults in your household bought just not lasted and you didn't have money to buy more? *The food that we bought just didn't last, and we didn't have money to get more.*
3	Has there been a time when you or other adults in your household have not had enough money to eat healthy and varied meals? *We couldn't afford to eat balanced meals.*
4	Has there been a time when you or other adults in your household have relied on only a few kinds of cheap foods to feed the child(ren) to avoid running out or because you were running out of money to buy food? (by cheap we mean low cost foods that are not healthy and nutritious) *We relied on only a few kinds of low-cost food to feed our children because we were running out of money to buy food.*
5	Has there been a time when you or other adults in your household have not been able to feed the children a healthy and varied diet, because you didn't have enough money? *We couldn't feed our children a balanced meal because we couldn't afford that.*
6	Has there been a time when the children have not eaten enough because there wasn't enough money in your household to buy enough food? *Our children were not eating enough because (I/we) just couldn't afford enough food.*
7	Has there been a time when you or other adults in the household ever cut the size of your meals or skipped breakfast, lunch or dinner because there wasn't enough money for food? *Did you or other adults in the household ever cut the size of your meals or skip meals because there wasn't enough money for food?*
8	Have you ever eaten less than you felt you should because there wasn't enough money to buy food? *Did you ever eat less than you felt you should because there wasn't enough money to buy food?*
9	Have you ever been hungry but didn't eat because you just couldn't get more food? *Were you ever hungry but didn't eat because you couldn't afford enough food?*
10	Have you lost weight because you haven't had enough money for food? *Did you lost weight because you didn't have enough money for food?*
11	Have you or other adults in your household ever not eaten for a whole day because there wasn't enough money for food? *Did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food?*
12	Have you or other adults in your household ever cut the size of the children's meals because there wasn't enough money to buy more food? *Did you ever cut the size of your children's meals because there wasn't enough money for food?*
13	Have any of the children in your household ever skipped breakfast, lunch, or dinner because there wasn't enough money for food? *Did any of the children ever skip a meal because there wasn't enough money for food?*
14	Have the children in your household ever been hungry but you just couldn't get more food? *Were the children ever hungry but you just couldn't afford more food?*
15	Have any of the children in your household ever not eaten for a whole day because there wasn't enough money for food? *Did any of the children ever not eat for a whole day because there wasn't enough money for food?*

[a]Adapted questions were used to assess food insecurity across the periods of time, *the year before pregnancy* and the *past month of pregnancy*.

[b]Adapted version of the U.S. Household Food Security Scale Module.

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[c]Participants who responded affirmatively to any adapted US HFSSM question during the year before their pregnancy were asked: "How often did this happen?" The options were: a) every month or almost every month, b) some months but not every month, c) one month. They were then asked: "Which week or weeks of the month did this usually happen?" with the options being 1st, 2nd, 3rd, 4th week. The latter question was the only frequency question asked over the time period during pregnancy.

[d]Original version of the U.S. Household Food Security Scale Module. Timeframe was 'the past 12 months'. Frequency was asked in two ways: 1) Was that often, sometimes, or never true for your household in the last 12 months? and for the three sub-items 2) How often did this happen – almost every month, some months but not every month, or in only 1 or 2 months?

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Table 2

Focus group participant characteristics

	Mean	N
Age	23.1 ± 5.05	14
Years in the United States	12.6 ± 7.90	14
Months gestation when began receiving prenatal care[a]	2.42 ± 5.15	12
Months gestation when enrolled in WIC[a]	3.83 ± 1.90	12
	Percent	N
Country of Birth		
Puerto Rico	64.3	9
United States	35.7	5
Preferred Language		
English	28.6	4
Spanish	28.6	4
Both	42.9	6
Pregnancy Trimester[a]		
2nd	33.3	4
3rd	66.7	8
Parity		
Primiparous	28.6	4
Multiparous	71.4	10
Food stamp participation, yes[a]	90.0	9
WIC participation, yes	92.9	13

[a]Only asked of women who were currently pregnant at the time of the focus group (N=12).

[b]The four participants who comprised the first focus group were not asked about food stamp participation. This question was included in the questionnaire for subsequent focus group participants (N=10).

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Table 3

General modifications made to the US HFSSM based on the feedback and recommendations provided by focus group and pre-testing participants.

Feedback/Recommendations	Changes made	Source
Asked the questions across two different time periods: • Before pregnancy • During pregnancy	Asked the questions across two different time periods: • Before pregnancy • During pregnancy	FGI FGII
Use the time frame of: • 12 months before pregnancy • Since you became pregnant	Use the time frame of: • 12 months before pregnancy • Since you became pregnant	FGI FGIII PT
Ask participant "how often" the event has happened instead of "how frequently"	Modified wording according to recommendation	FGII
Frequency of how often an event happened: • Ask based on weeks • Ask based on months; include additional question that ask when the food insecurity event was experienced such as the beginning of the month, middle of the month, end of the month	• For the time period before pregnancy, used months to define the frequency • For the time period during pregnancy, added the phrase: *which week or weeks of the month did this happen?* Options were: (a) 1st, (b) 2nd, (c) 3rd, (d) 4th	FGII FGIII PT
Emphasize that each event happens due to not having enough money for food	Put the words in capital letters and italics	FGII
Include all members of the household when asking all the questions	Exchanged the word "you" with "you or other adults in your household"	FGII
Participants understood the term "niños" to mean children younger than 13 years of age not children less than 18 years of age	Used the phrase "niños or jovenes" in the Spanish version to indicate children/youth less than 18 years of age	FGI FGIII
Change the order of the questions, putting the questions about child hunger first	No changes were made	FGIII
Cut down on the number of questions	No changes were made	FGIII
Before asking the questions, explain the purpose for asking the questions	Included an introduction[b]	FGIII
Adapt the questions so that they are not repetitive and similar	• Emphasized words, phrases • Modified words • Alternated the placement of phrase "during the past month" and "the year before pregnancy" in each question	FGI FGII FGIII

[a] FGI, focus group 1; FGII, focus group II; FGIII, focus group III; PT, pre-testing.

[b] Introduction: *I am going to ask you questions about the year before you became pregnant. The questions will ask about food and whether you have enough of it for your household. All the information we are asking now and in this questionnaire is completely confidential.*