

Lessons Learned From an Assessment of the Individual-Level Core Food Security Module¹

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In an attempt to meet the demand for individual-level indicators of hunger among adults and children, national experts in food security measurement created the Individual-Level Core Food Security Module (ICFSM). The ICFSM consists of the 18 original questions in the Core Food Security Module (CFSM), 10 new individual-level questions asked to assess the extent of hunger among the individual respondent or an individual child, and three additional temporal duration questions asked in attempt to fill gaps in the CFSM scale measure. Our objective was to assess the construct validity of the ICFSM scale measure. Comments from respondents and interviewers were recorded and analyzed for common themes. Despite a total sample size of 1,664, item fit of the individual items could not be adequately assessed. Interviewers found the ICFSM questions to be threatening and demeaning to the respondents, particularly the series of questions about hunger among children. The additional temporal duration questions did not improve the CFSM scale measure. Clarification is recommended of measurement needs and consideration of food security measures that to the extent possible are simple, meaningful, and maintain the dignity of the respondent.

Introduction

The CFSM is used by the Federal Government to assess the extent and severity of household food insecurity in the preceding 12 months due to inadequate money for food (Carlson et al., 1999). Both the CFSM scale measure and its corresponding categorical algorithm were developed from a national sample to monitor household

food security status (Hamilton et al., 1997a; and Hamilton et al., 1997b). A complete description of Rasch scale validation methods (Wright and Stone, 1979), technical description of the CFSM scale measure and categorical algorithm (Hamilton et al., 1997b), and our primary validation effort with the CFSM with Asians and Pacific Islanders can be found elsewhere (Derrickson, 1999).

The CFSM was not designed to determine the number of individuals actually affected by hunger, only the upper bounds of the number of people in households experiencing hunger (Carlson et al., 1999). Yet, policymakers and advocates (Personal communications: N. Kuntz, Director of the Family Health Services, Hawaii State Department of Health, Honolulu, HI, July 1998; and J. Baldwin, Executive Director of the Hawaii Foodbank, Inc., Honolulu, HI, February 1998) are very interested in the actual number of hungry adults and hungry children that the CFSM does not provide. Furthermore, gaps between the items along the CFSM scale measure have been identified as a weakness of the scale measure (Derrickson, 1999).

Individual-Level Core Food Security Measure (ICFSM)

To attempt to meet the demand for individual-level indicators of hunger among adults and children, U.S. Department of Agriculture experts in food security measurement created the ICFSM from the original CFSM (USDA, FNS, and ERS, 1999). As depicted in table 1, ICFSM contains three types of questions:²

- (1) The 18 original CFSM questions (Q): Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q8a, Q9, Q10, Q11, Q12, Q12a, Q13, Q14, Q15, Q15a, and Q16, which in themselves were found to create a valid and reliable scale measure of food security status (Hamilton et al., 1997b);

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²Tables are at the end of this paper.

- (2) Ten new individual-level questions: Q8I, Q8Ia, Q12I, Q12Ia, Q13I, Q14I, Q14Ia, Q15I, Q15Ia, and Q16I (Hamilton et al., 1997b); and
- (3) Three new follow-up or temporal duration questions, i.e., “How often did this happen?” based on three original CFMS questions (Q9a from Q9, Q10a from Q10, and Q14a from Q14) asked in an attempt to narrow gaps between item calibrations of key hunger indicators in the CFMS scale measure.

Q1 was a four-part food-insufficiency question not included in the CFMS.

Households containing two or more adults and children answered a maximum of 31 ICFSM questions. Households without children answered a maximum of 16 ICFSM questions. As with the CFMS (Price et al., 1997), the ICFSM questions were preceded by the Q1, four-part food-insufficiency question (Rose et al., 1995). This study represents the first time the ICFSM was used in applied research.

Development of the CFMS Scale Measure Using the Rasch Model

The CFMS scale measure was developed using a log-linear measurement model called the Rasch model (Hamilton et al., 1999a; Hamilton et al., 1997b; and Wright and Stone, 1979). Applied to the CFMS, the assertions of the simple Rasch model are:

- The more food secure a respondent, the more likely she/he is to respond negatively to easier items, e.g., those indicating food security would answer “almost never” to Q2 “Worried that food would run out”; and
- Food insecurity items (Q2-Q6) are more likely to be answered

affirmatively than the hunger items (Q7-Q16), e.g., more respondents will respond affirmatively to the least severe Q2, than the more severe Q10, in which the respondent indicates that they had hunger in the last 12 months.

Rasch computer programs such as the FACETS model mathematically impose these assertions (Linacre, 1986-94) while transforming raw item scores into equal-interval scales (Wright and Stone, 1979). The item calibration values represent the position of the item along the constructed food security measurement scale. As can be seen in table 2, an item such as Q16, with a high positive item calibration value (4.19), indicates a greater degree of insecurity and hunger, while an item with a low negative calibration value, e.g., Q2: -4.31, indicates more food security. Also note at times that the difference in item calibration values between adjacent indicators is smaller (Q3: -3.55, Q4: -3.19, difference of 0.36), while other times the difference is larger (Q2: -4.31, Q3: -3.55, difference of 0.76).

An inspection of the ordering of the items by calibration values can be used to evaluate the conceptual validity of the scales. Mean square residuals (MnSq), ratios of the observed versus the expected scores, are used to assess the goodness-of-fit of each item, compared with the assertions of the Rasch model. In the development of the CFMS, MnSq values > 1.2 were judged indicative of a poorly fitting or erratic item, especially when values of z , the standard residual, were ≥ 2 . MnSq values < 0.8 indicate that the item was redundant with respect to the information it shares with another item (Hamilton et al., 1997b, p. 15), particularly when values of z , the standardized residual, were ≤ -2 (Wright and Stone, 1979).

Objective

Our original purpose was to determine whether the ICFSM scale measure is a valid and stable instrument to use in Hawaii, where at least 50 percent of the population is of Asian or Pacific Islander descent (Derrickson, 1999). However,

findings in this paper are limited to assessment of construct validity of the ICFSM scale measure and preliminary qualitative reports of content validity. Thus, this study represents the first independent assessment of the robustness of the ICFSM scale measure with Asians and Pacific Islanders in Hawaii. We originally hypothesized that the ICFSM would not be an adequate scale measure to use with ethnically diverse samples in Hawaii.

Methods

Samples

To validate the full range of food insecurity in a State where 9.2 percent of the population is thought to have experienced some degree of food insecurity (Hamilton et al., 1997b), three samples were surveyed over the phone (n = 1,664):

- (1) A convenience sample of 144 food pantry recipients;
- (2) A retest sample that included 61 of the initial 77 food pantry respondents who completed the ICFSM a second time, a mean of 11 days later; and
- (3) A statewide random sample of 1,469 respondents gathered through the Hawaii Health Survey (HHS).

Data Collection

We used the *Guide to Implementing the Core Food Security Module* (Price et al., 1997) to direct data collection and survey design. Data collection methods previously described to validate the CFMS (Derrickson, 1999) are applicable to this study. All data were collected in Hawaii between June and November 1998, using the same ICFSM instrument and similar data collection methods (Price et al., 1997).

Survey Instrument

To expedite appropriate survey administration, basic demographic information (sex, household composition, and ethnic disposition) was queried prior to the food security questions. Thus, questions that did not apply to households without children were not asked, and the terminology of “I” or “we” was appropriately used. The question “With what ethnic group do you identify with most?” was used to assess ethnicity. A total of 19 ethnic response categories were collected, including one for no response and another for mixed ethnicity.

As outlined in the guidelines (Price et al., 1997), the 18 food security questions were preceded by the four-part food insufficiency question (Rose et al., 1995). Exact wording of the questions and responses was maintained, and suggested skip patterns were employed to decrease response burden (Price et al., 1997; and USDA, FNS and ERS, 1999). The adult individual-level items, by design, were asked of the participant only after she/he had responded affirmative to the previous relevant indicator, e.g., if “yes” to Q8 “Adults cut the size or skip meals,” then Q8I “Did you cut the size of your meals or skip meals” was asked. Subsequently, all temporal duration questions were asked only if the response to the preceding question was affirmative, e.g., Q8Ia asked only if Q8I was affirmative. Questions pertaining to individual-level child hunger were asked about the child who most recently had a birthday, although the name of the child was not discussed or recorded.

Quantitative Data Analysis

Food security responses were coded as zero (0) = negative response and one (1) = affirmative response (Price et al., 1997). However, instead of assuming negative responses for questions not answered because the participant was screened out, responses to questions not asked were left blank. If a participant responded negatively when asked a question that also had a temporal

duration follow-up question (Qs.8 to 8a, Qs.9 to 9a, Qs.10 to 10a, Qs.12 to 12a, Qs.14 to 14a, and Q15 to Q15a), a negative response was assumed for the follow-up question as well.

Analysis was completed with the FACETS Rasch computer program (Linacre, 1986-94). Three separate Rasch scale analyses were run for:

- (1) the 18 CFSM items and 6 key ICFSM indicators (8I, 12I, 13I, 14I, 15I, and 16I);
- (2) the 9 ICFSM items without Q16I; and
- (3) the 18 CFSM items and 3 additional questions (Q9a, Q10a, and Q14a).

Including the 61 food pantry survey responses that comprised the retest sample was not viewed as a threat to validity (Derrickson et al., 1999).

In addition, comments from interviewers about the questions and respondents' reactions were handwritten on surveys during the stability study ($n = 77$: Derrickson, 1999). After all data were collected, the interviewers were queried by a project investigator in an informal group format regarding their thoughts on the questions and interviewee's reactions to the 31 ICFSM items. Both sources of information were entered into a word processing file and analyzed by hand for common themes across food security questions, using standard qualitative data analysis methods (Miles and Huberman, 1994).

Results and Discussion

Overall, 1,411 (84.8 percent) households were classified by the CFSM categorical algorithm as food secure, 158 (9.5 percent) as food insecure without hunger, 64 (3.8 percent) as food insecure with moderate hunger, and 31 (1.2 percent) as food insecure with severe hunger (Price et al., 1997). Fifty-five percent of the 1,664 respondents identified themselves as an Asian or Pacific Islander. Fifty-seven percent identified them-

selves as a household without children, and 43 percent had one or more children.

If a household responded to the CFSM items but not to any of the individual items, the data would not contribute to the evaluation of the CFSM, and thus the responses were excluded from the evaluation of the individual items. Furthermore, 61 respondents who had one or more responses to individual indicators were also excluded in Rasch analysis because these participants responded affirmatively to all individual indicators asked of them (Wright and Stone, 1979). Thus, despite a total sample size of 1,664, responses from only 29 respondents who were asked one or more of the individual indicators could be used in Rasch analysis of the ICFSM. Because of the inadequate number of available responses to the individual indicators, scale validity assessment of neither the 18 CFSM indicators with the 10 individual indicators nor the subset of 10 individual items by themselves could be adequately assessed.

The results of the goodness-of-item fit of the Rasch analysis of the 18 CFSM items and the three additional temporal duration items (Q9a, Q10a, and Q14a) are presented in table 2. A comparison of item calibration values confirms the conceptual validity of the additional questions: the item calibration of Q9 was -1.38 versus -0.48 for Q9a. Likewise, Q10a was more severe than Q10, (0.89 versus 0.36) and Q14a was more severe than Q14 (1.77 versus 1.28), respectively. The item calibration value of Q9a is similar to that of Q8a (-0.48 versus -0.44), Q10a similar to Q11 (0.89 versus 0.79), and Q14a similar to Q12 (1.77 versus 1.64).

Based on standard Rasch goodness-of-fit criteria used previously to develop and test the CFSM (Hamilton et al., 1997; and Derrickson et al., 1999a), the three additional items resulted in a poor fit of several original items:

- Q12 "Any adult did not eat whole day" (Outfit MnSq = 2.2, $z = -2$) and Q4 "(Un)able to eat

balanced meals” (Outfit MnSq = 2.5, $z = 3$) were both deemed erratic; and

- Q8, Q8a, Q9a, Q10, and Q10a, all had outfit MnSq ≤ 0.7 indicative of redundancy.

Therefore, the additional indicators seemed to fall in the right places conceptually along the food security scale measure continuum, but they did not enhance the goodness-of-fit of the scale or the scale’s ability to differentiate food security status. If improving the ability of the CFSM to differentiate stages of early food insecurity is a top priority, findings suggest that the value of additional less severe food insecurity indicators would be valuable. In particular, indicators less severe than Q2, between the severity levels of Q2 and Q3, and between Q4 and Q9 may be useful in closing the gaps in indicators and should be evaluated in future studies of this nature (Derrickson, 1999).

Qualitative Reports of the ICFSM

Overall, both interviewers and interviewees reported that the extensive list of child hunger indicators felt threatening and demeaning to the respondents (Q13 to Q16I). It is not clear whether this was only due to additional individual questions, or simply the perceived repetition of sensitive questions. Parents repeatedly complained, “Why are you asking me this again?” A few of the more hungry respondents appeared to be near tears; and a few were annoyed by the perceived repetition. Completion of the entire ICFSM took up to 15 minutes, an estimated 5 minutes longer than answering only 18 questions, and often emotionally drained interviewers.

Perceptions to individual indicators varied with each set of indicators. In general, Q8I and Q8Ia were thought to be fair and well-received questions with responses that were likely to be true; respondents generally did not complain about these questions. On the other hand, because Q12I and Q16I were so infrequently asked ($n = 4/14$ affirmative responses for Q12I), the utility and face validity of these questions could not be

assessed. Alternatively, it would appear that these severely hungry questions would not be useful in many samples.

The individual-level questions of severe hunger among children (Q13I, Q14I, and Q15I) were problematic for several reasons:

- These questions appeared to cross the threshold of parental comfort and indirectly judge a parent. Despite good interviewer rapport, many parents felt uncomfortable discussing this severe degree of hunger and may have underreported the truth because of their pride and embarrassment.
- The questions are quite repetitive; it is not clear to some respondents why so many similar questions were repeatedly asked.
- Many parents who answered either Q13I, Q14I, or Q15I indicated that the child who most recently had a birthday was their youngest, was often still bottle-fed, and was thus protected from the nutritional shortfalls other household members had to experience, although it was clear from other responses that other children did experience inadequate intake. Therefore, responses based on an infant may underestimate severity of hunger among other children in the household.
- Some households answered Q14 “children hungry” affirmatively, after negatively responding to Q13 “children skip meals.” Thus, contrary to the design of the ICFSM, the question about which child most recently had a birthday had to be asked after Q14, which altered the original data collection protocol for this question. Given that our previous work demonstrated that the item calibration value of Q14 (1.37) was lower than the item calibration of Q13 (1.72) (Derrickson, 1999), switching the order of

these questions may be warranted if the ICFSM is used again.

- Questions Q14 and Q14I, despite the subjective vagueness of “being hungry,” appeared to have high face validity for respondents. Interviewees usually responded immediately to Q14 and Q14I, but considered factors that affect cutting the size or skipping meals (desired weight loss, busy schedule) prior to answering Q13, Q13I, Q15, and Q15I. Although it was made clear that an affirmative response was appropriate only if the cause was “inadequate resources for food.”

Based on our quantitative and qualitative findings, we do not recommend that the individual-level items be added to the CFSM. Rather since Q9 “Respondent ate less than she/he should” and Q10 “Respondent hungry” are current CFSM indicators that are asked of the respondent rather than for the entire household, we recommend using these items as the basis of an adult individual-level hunger measure. Based on our experience, we believe that children age 8 and above, with grade-level reading ability, may be able to adequately respond to simple questions pertaining to adequate intake of food because of perceived resource constraints. Investigation of a child individual-level hunger measures for school-age children could be considered an alternative to parent report of food security status (Q13 to Q18 of the CFSM).

Implications

This is the first study to report results based on the ICFSM with an ethnically diverse sample. Preliminary findings and implications shared in a preliminary form at the Second Food Security Measurement and Research Conference (Derrickson et al., 1999) have been identified as priority areas for food security research (USDA, ERS, 1999). In summary, findings do not support the incorporation of the ICFSM indicators into the CFSM. Furthermore, the additional items, tested to improve the scale, failed to do so

because they did not eliminate gaps between items with a large spread in item severity. Moreover, importantly, we believe that interviewers and respondents found the survey experience threatening and redundant. It is not clear whether this survey burden was only a function of the additional individual-level questions, or if it is because the child hunger items in the CFSM are repetitive and cross a threshold of parent discomfort.

Since respondent burden should be an important consideration in survey design (Perkin, 1992), we recommend that food security measurement experts clarify the purpose and use of food security measures in clinical and food security monitoring situations prior to widespread use of the ICFSM or CFSM measure. To the extent possible, we suggest striving for household and individual-level measures of food security status that are simple, reliable, and consistent with the conceptual understanding of food insecurity (Radimer, 1990; and Derrickson and Anderson, 2000) and that maintain the dignity of all respondents.

References

- Carlson, S.J., M.S. Andrews, G.W. Bickel. (1999) “Measuring Food Insecurity and Hunger in the United States: Development of a National Benchmark Measure and Prevalence Estimates,” *Journal of Nutrition*. Vol. 129. pp. 510S-516S.
- Derrickson, J.P., J.A. Anderson, and A. Fisher. (1999) “Assessment of Food Insecurity Among Asians and Pacific Islanders.” Second Food Security Measurement and Research Conference, Alexandria, VA. February 22-24.
- Derrickson, J.P., A.G. Fisher, J.A. Anderson. (2000) “Core Food Security Module Scale Measure Demonstrates Validity and Reliability When Used With Asians and Pacific Islanders,” *Journal of Nutrition*. Vol. 130. pp. 2,666-2,675. 2000.
- Derrickson, J.P., and J.A. Anderson. (2000) “Face Validity of the Core Food Security Module

with Asians and Pacific Islanders,” *Journal of Nutrition Education*. Vol. 32. pp. 21-30.

Hamilton, W.L., J.T. Cook, W.W. Thompson, L.F. Buron, E.A. Frongillo, Jr., C.M. Olson, and C.A. Wehler. (1997a) *Household Food Security in the United States in 1995: Summary Report of the Food Security Measurement Project*. U.S. Department of Agriculture, Food and Consumer Service (currently Food and Nutrition Service), Office of Analysis and Evaluation, Alexandria, VA.

Hamilton, W.L., J.T. Cook, W.W. Thompson, L.F. Buron, E.A. Frongillo, Jr., C.M. Olson, and C.A. Wehler. (1997b) *Household Food Security in the United States in 1995: Technical Report of the Food Security Measurement Project*. U.S. Department of Agriculture, Food and Consumer Service (currently Food and Nutrition Service), Office of Analysis and Evaluation, Alexandria, VA.

Miles, M.B., and A.M. Huberman. (1994) *Qualitative Data Analysis: An Expanded Sourcebook*. Sage Publications, Thousand Oaks, CA.

Perkins, J. (1992) “Design and Use of Questionnaires in Research,” *Research: Successful Approaches*. (E.R. Monsen, ed.) American Dietetic Association.

Price, C., W.L Hamilton, and J.T. Cook. (1997) *Household Food Insecurity in the United States: Guide to Implementing the Core Food Security Module*. U.S. Department of Agriculture, Food and Consumer Service (currently Food and Nutrition Service), Alexandria, VA.

Radimer, K.L. (1990) “Understanding Hunger and Developing Indicators To Assess It.” Doctoral dissertation. Cornell University, Ithaca, NY.

U.S. Department of Agriculture, Economic Research Service. (1999) *Food Security: Measurement and Research Priorities Identified: Second Food Security Research and Measurement Conference*. Downloaded May 21, 1999 from <http://www.econ.ag.gov/briefing/foodasst/fsresearch.htm>

U.S. Department of Agriculture, Food and Nutrition Service and Economic Research Service. (1999) *Food Security/ Hunger Core Module: Three-Stage Design, with Screeners*. Downloaded June 23, 1999 from <http://www.ers.usda.gov/briefing/foodsecurity/surveytools/core0699.pdf>

Wright, B.D., and M.H. Stone. (1979) “Best Test Design,” *Rasch Measurement*. Mesa Press. University of Chicago, Chicago, IL.

Table 1—Individual-Level Core Food Security Module (CFSM, individual and additional items)

Indicator type	Essence of Indicators: In the last 12 months. (Question)...because there wasn't enough money for food/couldn't afford it?
CFSM	2. ^a Worried about whether food would run out, etc. ^b
CFSM	3. The food we bought just didn't last, and we didn't have money to get enough more. ^b
CFSM	4. We couldn't afford to eat balanced meals. ^b
CFSM	5. We relied on only a few kinds of low-cost foods to feed our children. ^b
CFSM	6. We couldn't feed our children a balanced meal. ^b
CFSM	7. Children were not eating enough because couldn't afford enough food. ^b
CFSM	8. Any adult in household ever cut the size of meal or skip meals? ^c
CFSM	8a. How often? ^d
Individual	8I. Did you ever cut size of your meals or skip meals? ^c
Individual	8Ia. How often? ^d
CFSM	9. Did you ever eat less than you felt you should? ^c
Additional	9a. How often? ^d
CFSM	10. Were you ever hungry but didn't eat? ^c
Additional	10a. How often? ^d
CFSM	11. Did you lose weight? ^c
CFSM	12. Any adult ever not eat for a whole day? ^c
CFSM	12a. How often? ^d
Individual	12I. Did you ever not eat for a whole day? ^c
Individual	12Ia. How often? ^d
CFSM	13. Did you ever cut the size of any of your children's meals? ^c
Individual	13I. For child with most recent birthday. Did you ever have to cut the size of this child's meals? ^d
CFSM	14. Were the children ever hungry, but you could not afford more food? ^c
Additional	14a. How often? ^d
Individual	14I. For child with most recent birthday was he/she ever hungry? ^c
Individual	14Ia. How often? ^d
CFSM	15. Did your children ever skip meals? ^c
CFSM	15a. How often? Three or more months. ^d
Individual	15I. For child with most recent birthday did he/she ever skip meals? ^c
Individual	15Ia. How often? ^d
CFSM	16. Did any child ever not eat for a whole day? ^c
Individual	16I. For child with most recent birthday, did he/she ever not eat for a whole day? ^c

Notes:

a. The four-part food insufficiency question is not part of the CFSM, but is the first question used for screening households: Which of these statements best describes the food eaten in your household in the last 12 months, that is, since July 1997? (1) We always have enough and the kinds of foods we wanted; (2) We have enough to eat but not always the kinds of foods wanted; (3) Sometimes we don't have enough to eat; or (4) Often we don't have enough.

b. Affirmative responses are "often true" or "sometimes true." A negative response is "never true."

c. An affirmative response is "yes."

d. An affirmative response is "almost every month" or "some months but not every month." A negative response is "in only 1 or 2 months."

Source: USDA, ERS and FNS, 1999.

Table 2—Hawaii item measurement report of the CFM with three additional items (9a,10a, and 14a)

Question/Item: In the last 12 months have . . .(item) because of not enough money for food	Item responses				Goodness-of-fit statistics			
	Number of affirmative responses	Item sample size ^a	Rasch item calibration (logits)		Infit ^e		Outfit ^d	
			Value ^b	SE	MnSq	z	MnSq	z
2 Worried food would run out	289	359	-4.31	0.17	1.2	2 ^f	1.8	1
3 Food did not last	256	361	-3.55	.14	1.0	0	1.2	0
4 Adults eat unbalanced meals	235	357	-3.19	.15	1.1	1	2.5	3 ^f
5 Children rely few foods	159	251	-2.90	.17	1.0	0	1.0	0
6 Children unbalanced meals	120	250	-1.85	.18	1.1	1	1.0	0
7 Children not eat enough	60	245	.07	.21	1.1	0	.9	0
8 Adults cut size meals	126	354	-1.00	.17	.8	-3 ^f	.6	-2 ^f
8a Adults cut size meals, often ^e	102	353	-.44	.18	.8	-2 ^f	.5	-2 ^f
9 Respondent eat less ^e	143	355	-1.38	.16	.9	-1	.7	-1
9a Respondent ate less, often ^e	103	355	-.48	.17	.9	-1	.7	-1
10 Respondent hungry ^e	73	356	.36	.19	.9	-1	.6	-1
10a Respondent hungry, often ^e	57	355	.89	.21	.8	-1	.5	-1
11 Respondent lost weight ^e	59	353	.79	.19	1.0	0	1.0	0
12 Adults not eat for a whole day	37	182	1.64	.23	1.1	0	2.2	2 ^f
12a Adults not eat for a whole day, often ^e	25	179	2.32	.26	.9	0	1.7	1
13 Children cut size meals	28	122	1.62	.26	1.0	0	.8	0
14 Children hungry	33	121	1.28	.26	.9	0	1.1	0
14a Children hungry, often ^e	26	121	1.77	.28	.9	0	1.4	0
15 Children skip meals	23	120	1.97	.30	.9	0	.8	0
15a Children skip meals, often ^e	19	119	2.21	.31	.9	0	.9	0
16 Children not eat for a whole day	5	123	4.19	.53	.9	0	.3	0

Notes:

- a. Total number indicates the number of respondents who were asked the question.
- b. Item calibration value is the Rasch model scale value indicating item severity.
- c. Infit Mnsq = Infit mean square residual goodness-of-fit statistic, and standardized z.
- d. Outfit Mnsq = Outfit mean square residual goodness-of-fit statistic, and standardized z.
- e. Often indicates more frequently than in only 1 or 2 months of the last 12 months.
- f. Items failed to demonstrate adequate goodness-of-fit statistics.