FIES Report Template

*This template provides you with a space to collect all details and results of your application of the FIES. Include the information that is most relevant to your specific report, depending on its intended purpose and audience. For additional information about how to present FIES-based results, see Lesson 5 of the FIES e-learning course, “Using the FIES to make a difference: presentation and communication of results.”*

## Survey details

1. Name of survey

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Version of FIES survey module used HH ☐ individual ☐
2. Reference period 12 months ☐ 30 days ☐

## Sample

1. Original sample size (number of households or individuals surveyed)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Number and % of incomplete cases (those with missing responses to FIES items)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Observations and decisions following descriptive analysis of missing responses

*Consider the distribution of missing responses across the items; if an* ***item*** *has more than 10% of missing responses, it may have been difficult for respondents to understand and answer. The decision may be made to drop it from the scale.[[1]](#footnote-1) You may also want to look at the* ***characteristics of cases*** *with missing responses, taking note of whether they are disproportionately from one subpopulation.*

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1. Number and % of cases with extreme raw scores (0 or highest number of scale items)

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1. Sample size used to perform **statistical validation** to check the quality of the data

*After any items may be dropped due to a high percentage of missing responses (point 6 above), this is the original sample minus incomplete and extreme cases. It is important to ensure that a large enough number of cases remain after those with incomplete responses or extreme raw scores are omitted in order for statistical validation to be reliable.[[2]](#footnote-2)* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Statistical validation

*Application of the Rasch model to assess the performance of the FIES in the present context and check the quality of data collected[[3]](#footnote-3):*

## Summary of output: item parameters and fit statistics

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item | Item parameter | Standard error | Infit | Outfit | Proportion of affirmative responses | Number of affirmative responses |
| WORRIED |  |  |  |  |  |  |
| HEALTHY |  |  |  |  |  |  |
| FEWFOOD |  |  |  |  |  |  |
| SKIPPED |  |  |  |  |  |  |
| ATELESS |  |  |  |  |  |  |
| RANOUT |  |  |  |  |  |  |
| HUNGRY |  |  |  |  |  |  |
| WHLDAY |  |  |  |  |  |  |

## Troubleshooting

*The tables below can be used to summarize the results of applying the Rasch model to assess the quality of the data. Three copies of the table are provided to facilitate “troubleshooting,” as the results may suggest dropping problematic items or discrepant cases from the analysis, in which case the analysis may be re-run multiple times to evaluate these decisions. You may indicate which items you included at the top of each table, i.e. “Trial 1: all items included,” or “Trial 2: dropped HUNGRY.”*

Trial 1: all items included

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Output | Acceptable range | Problematic items | Interpretation | Decision/action/notes |
| Infit | 0.7-1.3 |  |  |  |
| Outfit | <2 |  |  |  |
| Residual correlation | < |0.4| for a pair of items |  |  |  |
| Rasch reliability | >0.7 (8-item scale) or  >0.6 (7-item scale) |  |  |  |

### Trial 2:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Output | Acceptable range | Problematic items | Interpretation | Decision/action/notes |
| Infit | 0.7-1.3 |  |  |  |
| Outfit | <2 |  |  |  |
| Residual correlation | < |0.4| for a pair of items |  |  |  |
| Rasch reliability | >0.7 (8-item scale) or  >0.6 (7-item scale) |  |  |  |

### Trial 3:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Output | Acceptable range | Problematic items | Interpretation | Decision/action/notes |
| Infit | 0.7-1.3 |  |  |  |
| Outfit | <2 |  |  |  |
| Residual correlation | < |0.4| for a pair of items |  |  |  |
| Rasch reliability | >0.7 (8-item scale) or  >0.6 (7-item scale) |  |  |  |

## Conclusion: Final scale to be used for food insecurity prevalence calculation

1. Which items were dropped, if any?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Reason \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Notes for future applications of the FIES

*Report on any investigation of how well the scale performed among sub-groups. The results from above may point to the need for extra attention to translation/cultural adaptation of certain items and/or for certain languages or sub-populations in future surveys.*

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# Calculation of food insecurity prevalence rates

## Sample

*Food insecurity prevalence rates should be calculated using* ***only*** *cases with “yes” or “no” responses to ALL of the FIES questions included in the final scale. While cases with extreme raw scores were not used for the statistical validation step, they* ***should be included*** *now for the calculation of prevalence rates.*

1. Sample size used for calculation of prevalence rates (after removing incomplete cases with missing responses to any of the scale items).

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Equating for comparability

*Using your output from applying the Rasch model (item and respondent parameters and errors), along with information on the (weighted) number of cases with each raw score, you can fill in the necessary sections under the “Insert Input” worksheet in the* [***FIES Excel Template.***](http://www.fao.org/fileadmin/user_upload/voices_of_the_hungry/docs/EPE_Example.xlsx)

*On this first worksheet, you will already see 1) the adjusted thresholds (global standard items on the country metric) and 2) prevalence rates at two levels of severity (FImod+sev and FIsev). Fill these in below.*

### Trial 1: All items used for equating

1. Adjusted thresholds (global standard thresholds on country metric)

Threshold FImod+sev \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Threshold FIsev \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. FImod+sev \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

FIsev \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Now, use the second worksheet called “Perform Equating” to define which items are common and which are unique, using the three pieces of information provided in this worksheet (absolute difference in item severities, correlation between common items, and the scatterplot) to inform your decision.[[4]](#footnote-4) Notice how the adjusted thresholds on the first worksheet change, depending on your choice of common items. You can explore different equating options using the space for Trial 2 and Trial 3 below, considering the implications of your decision in terms of how the resulting prevalence rates may change.*

### Trial 2:

1. Unique items omitted from the equating process \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Notes on selection of unique items (criteria used, decisions made, scatterplot, etc.)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. FImod+sev \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

FIsev \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Trial 3:

1. Unique items omitted from the equating process \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Notes on selection of unique items (criteria used, decisions made, scatterplot, etc.)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. FImod+sev \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

FIsev \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Final results to be reported following equating

1. FImod+sev \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

FIsev \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Additional information and optional tables

Special consideration for household-level data

*When the individual version of the FIES survey module has been applied and the cases weighted by individual weights,* ***the results are the prevalence of food insecure individuals*** *in the target population (i.e. national population when the SDG indicator is being produced).*

*It is essential to bear in mind, however, that when the household version of the FIES survey module has been applied and cases weighted by household weights,* ***the results are the prevalence of food insecure households.****In this case, to report the prevalence of food insecure individuals (SDG indicator 2.1.2), you must start by* ***estimating the item parameters using the original, household-referenced data****. Next, the distribution of individuals across raw scores has to be produced by using individual weights, that can be obtained by multiplying the household sampling weights by the household size. These procedures can be carried out within the RM.weights application or through another software, but users with household-level data* ***must remember to carry out this additional calculation*** *to ensure that their resulting prevalence rates refer to individuals in the national population.*

Table of information used in prevalence calculation

*This table may be included in a technical annex. Both the respondent parameters and the probabilities can also be used to model food insecurity in analyses. [[5]](#footnote-5)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Raw score | Respondent severity parameter | Measurement errora | Weighted percent of cases with each raw score | Probability of food insecurity (moderate to severe level)c | Probability of food insecurity (severe level) |
|  |  |  | ( A ) | ( B ) | ( C ) |
| 0b |  |  |  |  |  |
| 1 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |
| 4 |  |  |  |  |  |
| 5 |  |  |  |  |  |
| 6 |  |  |  |  |  |
| 7 |  |  |  |  |  |
| 8b |  |  |  |  |  |

Notes:

a Measurement error can be thought of as the standard deviation (around the respondent severity parameter—which is the mean severity within the raw score) of the *true* severity of food insecurity of respondents represented by the sampled individual.

b Respondent severity parameters and measurement error cannot be calculated for raw scores 0 and 8 using the conditional maximum likelihood methods used in this analysis. Hence, an approximation based on pseudo raw scores 0.5 and 7.5 are used.

c Probabilities are based on the thresholds used by FAO to classify respondents into categories of food insecurity.

Disaggregation

1. Were results disaggregated by gender, area of residence or any other characteristic? Were there any significant differences found between groups?

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1. Bear in mind that dropping an item from the scale will affect the criteria for what is considered a “complete” case and an “extreme” response pattern. For example, if one item is dropped, respondents who give valid responses to the remaining seven items are defined as “complete,” and raw scores 0 and 7 would be “extreme.” See FIES e-learning course Lesson 3, slide 42. [↑](#footnote-ref-1)
2. See Lesson 3, slide 43 of the FIES e-learning course for sample size requirements for statistical validation. [↑](#footnote-ref-2)
3. The [RM.weights software](http://www.fao.org/in-action/voices-of-the-hungry/using-fies/en/) for analyzing FIES data is available free from FAO. [↑](#footnote-ref-3)
4. See Lesson 4, slides 18-20 of the FIES e-learning course to learn about how to determine common and unique items. [↑](#footnote-ref-4)
5. See “Modeling Food Insecurity in Bivariate and Regression Analyses:” <http://www.fao.org/3/a-bp091e.pdf> [↑](#footnote-ref-5)