Combining self-report dietary assessment instruments to reduce the effects of measurement error

(Webinar 10)

Objectives:

- Describe methods of combining self-report dietary instruments to reduce measurement error and improve the power to detect diet-health associations.
- Understand situations in which combining information from various instruments may provide the most benefit.

Recommended resources:


Key terms:

- **Bias**: Systematic deviation of observations or estimates from the truth.
- **Energy adjustment**: Adjustment of nutrient intake for total energy intake.
- **Food frequency questionnaire (FFQ)**: A dietary instrument that asks respondents to report their usual frequency of consumption of each food in a list of foods over a specific period of time.
- **Food record**: A dietary instrument in which a respondent is asked to record all foods and beverages and amounts of each consumed over one or more days.
- **Long-term instrument**: A dietary instrument that captures intake over a long period of time, such as a food frequency questionnaire.
- **Power**: The probability that a test correctly rejects the null hypothesis when the alternative hypothesis is true.
- **Regression calibration**: A statistical method for correcting estimated regression coefficients for bias due to measurement error in one or more continuous covariates.
<table>
<thead>
<tr>
<th><strong>R-squared</strong></th>
<th>A statistical measure of how much variation in the outcome is explained by the variable or set of variables in a linear regression model.</th>
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<tbody>
<tr>
<td><strong>Self-reported intake</strong></td>
<td>Intake as reported by the individual who actually consumed the dietary component; can be measured using various dietary instruments.</td>
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<td><strong>Short-term instrument</strong></td>
<td>A dietary instrument that captures intake over a short period of time, such as a food record or 24-hour recall.</td>
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<td><strong>Standard error</strong></td>
<td>The standard deviation of the sampling distribution of an estimated population parameter; used to assess the precision of an estimate.</td>
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<td><strong>Twenty-four-hour dietary recall (24HR)</strong></td>
<td>A dietary instrument that requires the respondent to remember and report all foods and beverages consumed in the preceding 24 hours or during the preceding day.</td>
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