To understand program effectiveness, we need tools to measure behavioral outcomes among program participants. Tools should assess the range of outcomes addressed by a particular program or curriculum and be easy to use.

We developed and tested a tool to assess change in behaviors targeted by a childhood obesity prevention program implemented within EFNEP (Expanded Food and Nutrition Education Program). The focus was on family behaviors related to healthy eating, active play, and parenting strategies for shaping children's choices and environments.

The objectives of the research were:
1. to develop a brief tool to assess change in relevant behaviors during a program on nutrition, active play, and parenting,
2. to ensure that items were well-understood and covered the key behavioral objectives, and
3. to test whether responses were consistent over time and correlated with in-depth measures of the same behaviors.

Collaboration for Health, Activity and Nutrition in Children’s Environments (CHANCE)

CHANCE is a multi-component childhood obesity prevention initiative targeting key behaviors and environmental influences on behavior. CHANCE combines community collaborations to create healthy environments with educational workshops for parents or caregivers of 3-11 year-olds in EFNEP’s low income audience. Workshops use “Healthy Children, Healthy Families: Parents making a difference” (HCHF), a curriculum integrating nutrition, active play and parenting skills.

A brief tool measures behavior change from start to end of a parent workshop series

To monitor program effectiveness, parents report the frequency of behaviors at the beginning and end of the 8-week program. The HCHF Behavior Checklist measures behaviors relevant to preventing unhealthy weight gain:

- eating more fruits and vegetables, drinking low-fat milk and water instead of sweetened drinks, limiting energy-dense foods (e.g. high-fat, high-sugar snacks and convenience foods), and eating “sensible servings,”
- limiting TV and other screen time and being more physically active on a daily basis, and
- using parenting skills such as role-modeling, being supportive, offering choices within limits, and shaping home environments to promote healthy food and activity.

Questionnaire items and response choices were reviewed and edited by an expert panel of county-based Cooperative Extension professionals (nutrition and parenting experts). Based on panel input, the research team created an initial Behavior Checklist.

Feasible for program use

The Checklist was field-tested in the HCHF pilot program by community nutrition educators. It was feasible for staff and participants to use within the program setting and timing.

We analyzed variation in participants’ scores at program entry. Scores on many items were in the middle range, leaving room to improve by program end. However, revising other items so that entry scores are lower would leave greater room for improvement and help detect change.
Participants understanding of the questions and responses

All questions were tested to see if they were understood as intended. In interviews, 12 respondents were asked to “think aloud” as they answered questions, and to explain what key phrases meant to them. Data were analyzed qualitatively to identify key themes. Cognitive testing identified some unexpected interpretations and led to 3 rounds of revisions and testing to ensure that items were appropriate for participants in HCHF.

Revisions to fit the audience

Most people understood the questions but minor changes were made to better fit the audience. Asking about food intake “in the last week” was not a valid measure of usual intake when families’ intake varied week to week due to limited resources and infrequent shopping. Items were revised to ask about usual intake.

A question about the frequency of moderate physical activity for 30 minutes a day provided the following examples: “brisk walking, gardening, and biking.” Many participants do not have gardens and do not bike so examples were revised to include dancing and playing actively with children, more relevant activities which are recommended in the curriculum.

Interviews and revisions improved the Checklist but testing also revealed some limitations. For example, parenting skills were more difficult to assess than food and activity choices with this type of questionnaire.

Test-retest reliability

To see if behavior change is due to HCHF rather than from taking the test again, we checked whether answers were consistent over time. Eligible parents who were not in HCHF completed the Checklist two times, about two weeks apart, with no intervening nutrition or parenting education.

The scores within-person at the two times were significantly correlated (r = 0.83, p = 0.001), evidence of good test-retest reliability.

Convergent validity

Scores were compared with in-depth validated measures of parenting practices, adult and child eating and physical activity behaviors. Comparison found that the Checklist results were correlated with information gathered by the more detailed measures. It is difficult to use longer assessment tools in the program, but the convergence of scores is evidence that the Behavior Checklist scores are a valid measure of these behaviors.

Implications for programs

The Checklist is currently in use as part of HCHF and is integrated into EFNEP’s evaluation system in NY. Including an appropriate evaluation tool as part of the curriculum is essential for focusing attention on participant behavioral outcomes and program quality.

Challenges of developing the tool included:

- using simple, clear wording to allow self-report by low-literacy participants,
- minimizing respondent burden and program time needed for data collection, and
- developing response categories that include the range of current practices as well as recommended practices.

Program assessment tools must be feasible to use and cover program content, but this is not enough. Testing of validity and reliability takes additional effort and resources but strongly enhance the meaningfulness of the data and help us demonstrate program success.

The process of developing the HCHF Behavior Checklist resulted in a tool that is brief, valid, reliable and easy to understand and use.

For more details:

Dickin K, Lent M, Lu A, Sequeira J, Dollahite J. Developing a measure of behavior change in a program to help low-income parents prevent unhealthy weight gain in children. J Nutr Educ Beh (Published online:14-10-11).

CHANCE website:
http://www.fnec.cornell.edu/Our_Initiatives/CHANCE.cfm