

Collection Methods for the 24-Hour Dietary Recall as Used in the *Expanded Food and Nutrition Education Program*

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ABSTRACT

Objective: Identify practices for the collection of the 24-hour dietary recall (24HR) as used by the *Expanded Food and Nutrition Education Program* (EFNEP) to assess the fidelity with which dietary data are collected.

Methods: An electronic survey sent nationally to all 75 EFNEP coordinators to assess methodology for collection, staff training, and coding of 24HR.

Results: A total of 67 surveys were returned, 53 of which were usable: 57% of programs used multiple collection periods (previous day vs previous 24 hours), 36% did not use a consistent number of passes in recall collection; only 17% exclusively used the validated 5-pass method; 88% trained paraprofessionals for ≤ 8 hours on recall collection and >6 different training programs were used; and 86% of programs used multiple coders.

Conclusions and Implications: The wide variation in reported collection, training, and coding practices raises concerns about the validity of the recall data and the appropriateness of combining data from multiple programs. To improve consistency, EFNEP could establish standardized methods for training, data collection, and data entry for the 24HR. These results may encourage the national program office to establish programmatic change that will support the fidelity of collection methods across all programs.

Key Words: 24-hour dietary recall, EFNEP, 5-pass dietary recall, survey, dietary intake (*J Nutr Educ Behav.* 2016; ■:1-7.)

Accepted October 10, 2016.

INTRODUCTION

The *Expanded Food and Nutrition Education Program* (EFNEP) is a federally funded program that provides nutrition education to low-income families through community-based classes taught by paraprofessionals (peer educators) who are often indigenous to the population being served. The classes cover topics related to diet quality and physical activity, food resource management, food safety, and food security.¹ In fiscal year 2015, 75 EFNEP programs reached 119,351 adults and 377,702 youth directly and approximately 340,000 family members indirectly.²

The programs are administered by land-grant institutions in every state, the District of Columbia, and the 6 US territories.¹ Eighteen states have multiple EFNEP administrative units because these states have more than 1 land-grant university. The EFNEP is divided into 7 tiers based on funding for the purposes of communication, program planning, and reporting.³

The US Department of Agriculture's Office of Management and Budget requires federal departments to evaluate programs' ability to achieve established goals and objectives annually.⁴ One goal of EFNEP is to assist individuals and families with limited resources to

obtain the knowledge, skills, and attitudes to change behaviors, resulting in improvement in nutritional intake by the individual and family.¹ The methods used to evaluate EFNEP include 24-hour dietary recalls (24HR) and a behavior checklist that assesses the frequency of performing certain behaviors (using a shopping list and washing hands before preparing food) in each of the 5 topics required to be taught: diet quality, physical activity, food resource management, food safety, and food security.⁵⁻⁷

The 24HR has been used in large population studies since the 1960s⁸ and by EFNEP since its inception in the late 1960s.⁹ The 24HR requires respondents to remember and report all foods and beverages eaten in a 24-hour period.^{10,11} The trained interviewer asks what was eaten over 24 hours and probes for detailed description of foods and quantities before moving on to the next eating occasion. When EFNEP provided the program one-on-one in participants' homes, a single-pass method was used to collect the dietary recall.⁹ In 1980, the program began offering the lesson series in group settings as a

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Conflict of Interest Disclosure: The authors' conflict of interest disclosures can be found online with this article on www.jneb.org.

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<http://dx.doi.org/10.1016/j.jneb.2016.10.009>

more cost-effective delivery system. There is no evidence to suggest that modification of the 24-hour recall collection for group settings was addressed with this change in venue (M. Townsend, PhD, written communication, 2016).

In the 1990s, multiple-pass methods were developed and refined by the US Department of Agriculture, including 3- and 5-pass methods.¹² These methods allow respondents to remember and report additional foods compared with the single-pass method. The 3-pass method included a quick list, for an uninterrupted listing of foods and beverages consumed during the day; detailed questions to prompt the description of foods and amounts eaten, aided by the use of food models and measuring guides; and a review. Over time, this was expanded to the 5-pass method, which added 2 passes: forgotten foods (categories of foods that are frequently forgotten), and time and occasion when foods were consumed. Observation studies validated the 5-pass methodology in adults when collected in a one-on-one setting.^{11,13}

Since 2002, the 5-pass method has been used by the US Department of Health and Human Services, National Center for Health Statistics for the What We Eat in America (WWEIA) survey as part of the National Health and Nutrition Examination Survey.¹⁴ Over time, a multiple-pass method replaced the single-pass method in some EFNEPs, although the time of this change was not documented. Because the national guidelines do not stipulate methodology for 24HR collection, only the expectation that the 24HR be collected at the start and end of the program, each program selects its own collection method, eg, a 5-pass,¹⁵ a single-pass method,¹⁶ the use of the previous day,¹⁵ or the previous 24 hours.¹⁷

Well-trained interviewers are crucial for collection of the 24HR. Ideally, nutrition professionals with a formal education in nutrition collect the recall.^{8,18} Paraprofessional educators collect the 24HR in EFNEP; most paraprofessionals do not have nutrition degrees but receive training on 24HR collection after being employed by EFNEP.¹⁹

The EFNEP paraprofessionals obtain a 24HR from participants before the first lesson of EFNEP and again after completing the program. The results from the 24HR are coded and entered into the Web-based Nutrition Educa-

tion Evaluation and Reporting System (WebNEERS), which provides a variety of reports that allow EFNEP to evaluate behavior change based on program participation.²⁰ This secure data management and reporting system, which was developed in 2012 to manage EFNEP data, permits the program to capture the participants' 24HR and other self-reported behaviors related to the core content areas in EFNEP. Output from WebNEERS describes nutrient/food group content of the 24HR. The difference in pre-post responses of the 24HR is aggregated at the state and national levels to assess dietary changes as a result of program involvement.^{5,7}

The goal of this study was to identify current EFNEP practices for the collection of the 24HR to assess the fidelity with which dietary data are collected. Consistent collection procedures are required to ensure valid data to document the effectiveness of EFNEP.

METHODS

Procedure and Participants

This nationwide cross-sectional study used a survey of state program coordinators to investigate current 24HR collection procedures. The researchers obtained institutional review board approval from Colorado State University before survey distribution. The survey included 32 questions to identify 24HR collection period (previous day or previous 24 hours), methods used to collect the recall (single or multiple pass), the setting of the recall (one-on-one or group), and group size. Questions addressed tier classification, training of the paraprofessionals and coders, the number of coders, and the educational background of the paraprofessionals. Answers were generally multiple choice or check all that apply, but included options to skip questions or provide comments.

Two nutrition professors and 2 EFNEP professional staff members reviewed the survey for content, clarity, and time requirement for completion. An online pilot survey was completed by a sample of EFNEP staff and nutrition professionals; survey content and format were modified based on responses from the pilot survey. This process established the content and face validity of the survey.

To increase response rates, several techniques outlined by Ansell et al²¹

were used including advanced notification by a personalized introductory letter sent by a familiar individual that explained the project, the relevancy of the survey to respondents, the survey anonymity, and a monetary incentive sent upon completion of the survey. Several reminders were also sent during the collection period.

The survey was sent electronically to all 75 program coordinators via a national EFNEP listserv. The introductory letter with the survey requested that the survey be completed by the EFNEP staff member responsible for training the paraprofessional educators on collection of the 24HR. One response was requested from each program. The survey was open for 3 weeks beginning in August, 2013 and was reopened for 1 week in October, 2013 because multiple coordinators were unable to complete the survey during the first period.

Data Analysis

Responses were tallied using a Microsoft Excel spreadsheet (Redmond, WA, 2012) and were analyzed in SPSS (version 21.0, IBM Corporation, Armonk, NY, 2012). Analyses included descriptive statistics and, as data were nominal or ordinal, Fisher's exact test was used to compare proportion of responses across tiers. Fisher's exact test was used to account for the small sample size within tiers.

RESULTS

A total of 75 EFNEP coordinators received the electronic survey. Fifty-nine responses were received after the first contact and 8 responses were received with the second mailing, for a total of 67 responses. Multiple surveys were received from 7 programs. In 3 of those programs, responses were substantially different and therefore were excluded from analysis. Surveys from the other 4 programs contained consistent responses and 1 survey/program was included in the analyses, for a total of 53 surveys (representing 53 programs). The EFNEP is categorized into 7 tiers based on annual federal funding. Responses from all 21 programs in the top 3 tiers (highest funding) and 59% of the programs in the lower 4 tiers are included in the results.

Respondents indicated the percentage of their program educators who

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