

Validation Study of a Diet Adequacy Screening Tool for Participants in the Older Americans' Act Nutrition Program

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Background

The Older Americans Act (OAA), enacted in 1965, and since reauthorized 14 times, established the Administration on Aging (AoA). The goals of the OAA are to provide services to older individuals with the greatest economic and social need, especially to low-income minorities and residents of rural areas. The AoA funds a network of state units on aging and area agencies on aging (AAA) to coordinate a comprehensive array of home and community-based services to persons 60 years and older that enable them to remain in their own homes.

Together, the congregate and home delivered meals programs constitute the largest proportion of funding for any service under Title III of the Older Americans Act. AAAs administer the nutrition program, and contract with providers to prepare and deliver the meals. Sites for the congregate meals program include senior centers, schools, and senior housing facilities.

The purpose of this study was to validate a Diet Screening tool developed by representatives of state and area agencies on aging that participated in the Performance Outcomes Measures Project (POMP) under the auspices of AoA. The starting point was the nutrition screening initiative (NSI), which the network uses for administrative reporting to AoA. The POMP grantees modified the NSI to more accurately reflect areas over which the network had some influence. The questions on the Diet Screener expanded the NSI by asking clients to report the number of servings of foods they usually eat in a day in each major food group, and omitting questions on alcohol consumption, over-the-counter and prescription drugs, and dental problems that interfered with eating.

The study served to evaluate a diet adequacy scoring system developed in POMP to measure the impact of the nutrition program. The adequacy score assigns the client to one of three categories: "Adequate" (≥ 17), "Marginal" (16-11), and "Poor" (< 11) diet. The score measures the participants' food intake against the U.S. Department of Agriculture Food Guide Pyramid, published with the Dietary Guidelines for Americans, 2000.

Methods

To evaluate the validity of the POMP Diet Screener, which asks about food behavior and usual intake for seven foods and food groups, we compared it to the Diet History Questionnaire (DHQ), a food frequency questionnaire (FFQ) developed and validated by the National Cancer Institute (NCI). The DHQ asks about usual intake over the past year for more than 130 foods.

We recruited congregate meals clients in South Bend, Indiana and Montgomery County, Maryland who had completed the Diet Screener, to participate in the validation study. Approximately one month later an interviewer administered the food frequency questionnaire by telephone. A staff member entered the data from the Diet Screener into an Access database, and scanned the FFQ using a specific diet calculation program. The Diet*CALC software developed by NCI yielded nutrient and food group intake estimates from the DHQ. Analyses included range checks of all data elements to check for possible outliers, and the calculation of adequate servings of food groups and Diet Adequacy scores for each participant. We then compared the adequate serving sizes of the Diet Screener to that of the DHQ, the criterion measure. Finally, we compared the diet adequacy scores obtained from the two methods.

Results

The majority of the participants were white females, age 75 and older, living alone, with household incomes below \$20,000. This is similar to the demographic profile of participants nationwide.

The Diet Screener performed well compared to the DHQ in estimating intakes from the Vegetable and Dairy groups. However, it underreported the number of servings from the Fruit category by 31 and 35 percent and Grain category by 29 to 45 percent (males and females, respectively). It also over reported the number of servings of Meats/Beans for males and females by 30 and 40 percent.

Almost 90 percent of males and females met the "Adequate" standard for number of meals per day using the Diet Screener (this information was not captured on the DHQ). For all food groups except Meat/Beans, however, fewer participants reported an adequate number of servings using the Diet Screener compared

to the DHQ. In addition, while 37 percent of men and more than 23 percent of women reported adequate Grain servings on the DHQ, none reported an adequate number of servings on the Diet Screener.

Results suggested that the Diet Screener incorrectly categorized participants downward compared to the DHQ. The screener classified more than 38 percent of males, and almost 40 percent of females as having "Poor" diets, whereas the DHQ classified only about 20 percent of males and 23 percent of females into the same category.

Discussion

To better understand and monitor the diet adequacy of older Americans in the AoA Nutrition Program, and to provide directed nutritional counseling, it is imperative to have a simple measure that is quick to administer, can be used repeatedly, and is cost effective. Brief screening instruments have been designed and used by many researchers to minimize respondent burden and quickly identify individuals most at risk and in need of behavior change. However, designing an accurate, yet short diet screener is not a simple task. A number of studies have shown that quick screeners are prone to underreporting and misclassification. While the POMP project area agencies refined the food questions in the NSI to capture dietary intake in more detail (suggesting more accuracy), the results of this study are in general agreement with earlier findings – the POMP Diet Screener misreports number of servings for most food groups and misclassifies congregate meals clients as having "Poor" diets. There are a number of possible explanations for these findings. First, they could be related to people's perceptions of what they eat. A USDA study found that older respondents overestimated their meat/bean, dairy, fruit, and vegetable intakes and underestimated their grains when using a screener to report intake. Second, they could be associated with problems with measuring diets among the elderly -- memory, comprehension, literacy, special diets, and dentition can all contribute to inaccurate reporting. And third, the questionnaire design may have caused respondents to over or under report their foods. The POMP Diet Screener has the potential to be a useful tool for the AoA Nutrition Program to inform the diet adequacy of its clients and measure the impact of the program on their dietary status. The results of this study provide valuable information for refining this simple tool to measure diet adequacy in an elderly population. Future work needs to be considered that focuses on cognitive and focus group testing to better understand the abilities of the elderly population to complete a self-administered instrument about their diet.