

## Nutrition Education

### The Impact of Nutrition Education on the Winnebago Indian Reservation

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The Winnebago Indian Reservation is located in Thurston County, NE, and comprises approximately 113,000 acres. There are 2,341 people who live on the reservation, with 1,156 declaring membership in a Native American tribe. A recent study found that obesity has become more prevalent on the reservation. The rate of obesity increased from 28 percent of the reservation residents in 1991 to 43 percent of residents in 1996. Because obesity is a risk factor for diabetes, the results of the study prompted the organization of a community task force, which developed four principles for community programs in diabetes prevention. One of the four principles is that nutrition would be addressed at the community, school, and clinical level.

The authors' first objective was to understand the nutrition guidelines and nutrition components of the food assistance programs available on the Winnebago reservation. They interviewed the directors of Head Start, the Food Stamp Program, the Summer Feeding Program, the Food Distribution Program on Indian Reservations (FDPIR)—known on the reservation as the Commodities Program—the school meals

programs, Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and Senior Citizens Program. They found great variation in the degree to which nutrition education was provided through each of the programs. The Head Start Program and Summer Feeding Program included nutrition education as part of their daily curriculum. The school meals programs and the Senior Citizen Program provided nutrition workshops for their clients. The Food Stamp Program, FDPIR, and WIC provided pamphlets on nutrition to their clients.

The second objective of the research was to conduct a pilot evaluation of nutrition education classes offered to mothers who received WIC benefits or whose children were enrolled in the Head Start Program. The classes taught healthful food preparation techniques. Nine classes were held during October and November of 2000. All the mothers participated in the Food Stamp Program or FDPIR and at least two other food assistance programs. Class participants completed surveys before and after receiving the nutrition education classes. The participants reported some changes in their food choices and food preparation techniques. After completing the course, more reported that they chose fresh fruits and vegetables and reduced-fat dairy products. They also reported changes in food preparation, such as a reduction in frying food or adding gravy to foods. All participants reported positive physical and emotional changes after attending the classes.

The authors recommend that the study be replicated with more participants over a longer time period to evaluate physical or emotional changes in the participants and their families. They also recommend that nutrition education classes on food preparation be provided to clients of all food assistance programs on the reservation, with a particular focus on the selection and preparation of healthy foods. A final recommendation is to increase the coordination between reservation food programs and their nutrition education components.

## Lessons Learned From the Spend Less, Eat Well, Feel Better Program Efficacy Trial

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This study evaluated the effect of the Spend Less, Eat Well, Feel Better (SLEWFB) educational intervention on (1) household food security status, (2) ability to pay rent, (3) average daily fruit and vegetable intake, and (4) success in accomplishing self-set financial and food goals. SLEWFB is an educational program initiated and delivered by the Family Service Office (FSO) of the Salvation Army in Honolulu, HI. FSO is the primary distributor of emergency housing and utility assistance in Honolulu. SLEWFB is a 3-hour session on financial resource management and food, diet, and health. It is intended to provide resources, skills, and motivation that will “teach participants how to fish, rather than just giving them fish.”

Participants eligible for the evaluation included 438 FSO clients who entered FSO offices between January and August 2001. Upon their initial entry to the FSO office, participants were randomly placed in the intervention group, which received the SLEWFB session, or in the control group, which received a 1-hour course in food safety.

Members of both groups were surveyed both before and after the intervention. The pre-intervention survey was completed in person, and a followup survey was administered 4-6 weeks after the intervention through the mail, by phone, or in person. A third interview, scheduled for 6 months after the intervention, was canceled due to poor response rates to the followup survey. Both surveys included seven questions used to

measure household food security, a question about ability to pay rent on time, and two questions pertaining to the frequency of fruit and vegetable consumption. Pearson’s chi-square analysis and repeated measures of application of analysis of variance (ANOVA) were used to assess statistical significance of variables over time and by intervention. The researchers also conducted two focus groups to clarify the perceived value of the SLEWFB.

Two hundred participants, or 46 percent of those eligible, completed the SLEWFB session or the food safety course. Of the 200 participants, 115 completed the SLEWFB session and 85 completed the food safety course. About half (47 percent) of all participants completed the followup survey, 48 percent of the SLEWFB group, and 47 percent of the food safety course group. The authors found that food security status improved in both the control and intervention groups. SLEWFB participants were 26 percent more likely than the control group to report that they could pay rent on time before and after the intervention. Members of the intervention group were also significantly more likely than those in the control group to report that they no longer had to choose between food and rent in the followup survey. Small but statistically significant improvements in fruit and vegetable intake were demonstrated only by the SLEWFB participants. Goal progress did not vary by intervention type; 88 percent of the subjects reported at least some progress toward their financial goal. Focus group participants confirmed that the SLEWFB intervention improved their ability to manage their resources and their self-perception. Participants confirmed the value of dialogue with their peers in similar circumstances, although most felt a financial incentive was required to entice their participation in either educational class. In addition, four of six focus group participants reported that they had decreased the number of packages of cigarettes smoked a day because of the SLEWFB intervention, although this was not a specific objective of the program.

The authors conclude that even a short, 3-hour contact can improve desired outcomes if delivered in a manner that encourages self-assessment, motivates clients, and provides adequate monitoring of project variables for every client. However, the authors note that participants reported a need for a financial incentive to participate in the SLEWFB and that the low survey response rates made it impossible to assess the long-term effects of the educational program.

## Implications of an Economic Evaluation of Projected Health Outcomes in a Community Nutrition Program for Limited-Resource Audiences

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The objective of this research was to apply and extend economic evaluation methods—cost effectiveness analysis (CEA) and cost benefit analysis (CBA)—to the Expanded Food and Nutrition Education Program (EFNEP) in New York State. EFNEP is a national nutrition education program, delivered through the Cooperative State Research, Education, and Extension Service in all 50 States and 6 territories with funding from the U.S. Department of Agriculture. It is designed to improve the diet and nutritional well-being of low-income families and to contribute to their personal development. The authors adopted a broad societal perspective, consistent with the goal that the economic evaluation provide more general guidance on the allocation of resources among EFNEP, other food and nutrition programs, and other uses. The evaluation also has important implications for allocations of resources and program management within a State.

Previous research reported CBAs for the Virginia, Iowa, and Tennessee EFNEPs. The Tennessee CBA measured actual savings in food expenditures realized by participants and reported an average savings over 5 years of \$2.48 in direct food costs for every dollar spent on EFNEP. The Virginia and Iowa studies assessed projected

health benefits of between \$10 and \$11 for every dollar spent. Neither study included estimates of CEAs or of society's willingness to pay for improved health.

In fiscal year 2000, when data were collected for the present study, 5,730 adult participants graduated from the New York EFNEP. For the cost-benefit analysis, the study included all costs of the adult program (Federal, State, and local dollars). The authors collected information from graduates of EFNEP nutrition education classes on nutrition and food safety practices before and after attending the classes. Health benefits, estimated from the outcome data, were monetized using secondary data sources. The method used in Virginia was replicated, and revisions were made for comparison. Incidence rates for the diseases assessed were updated from those used in the previous studies. Lifetime risk (cumulative incidence) was used for chronic conditions. Criteria for success in dietary change, as well as rates for diet-attributable risk—particularly for osteoporosis, stroke, and commonly occurring infant diseases—were changed to be more consistent with current understanding of the effect of diet on health outcomes. The effectiveness of EFNEP in reducing future health care costs and society's willingness to pay for the projected improvements in morbidity and mortality were estimated. The CEA used quality-adjusted life-years (QALYs) to measure people's utility levels and preferences over different health states, expressing these in a common metric.

The estimated benefit-to-cost ratio for New York's adult EFNEP was \$3.17 to \$1.00. Cost per graduate was higher in New York (\$849) than in Virginia (\$553) or Iowa (\$710). In addition, a smaller percentage of participants had changed to optimal nutrition behaviors in New York. Therefore, the benefit-to-cost ratio in New York was only about one third of those reported for Virginia and Iowa.

The authors expanded the analyses to include the CEA that resulted in a total of 245 QALYs. Comparing the direct costs of EFNEP with the alternative of having no program, the New York EFNEP was estimated to have an incremental cost-effectiveness ratio of \$19,842 per QALY saved. The program was estimated to lower medical and productivity costs. Previous research estimated that society is willing to pay in excess of \$200,000 per QALY. Hence, the willingness-to-pay analysis resulted in a benefit-to-cost ratio of \$10.08 to \$1.00.

The study also included cost-benefit analyses on two subgroupings of data in an attempt to understand variation across the State from a programmatic perspective. First, the effect of population size and density was investigated by comparing benefit-to-cost ratios across rural counties (<50,000 residents), urban counties (>50,000 residents), and New York City (NYC). Programs in rural areas had the highest benefit-to-cost ratios (\$1.05 to \$1.00 compared with \$0.94 to \$1.00 in NYC and \$0.56 to \$1.00 in other urban areas). The urban result is probably due to several urban programs in the State with overall poor outcomes. Second, the study investigated the effect of different program delivery methods by comparing benefit-to-cost ratios among local programs delivering more than 60 percent of their classes in groups, those delivering more than 60 percent individually, those balanced with 40 to 60 percent delivered in groups and 40 to 60 percent delivered individually, and those using a mixed method in which classes were delivered in groups along with individual contacts with participants. Individual education produced higher benefit-to-cost ratios than group education. The best results were seen among counties

that provided a combination of group and individual instruction. This method appeared to improve efficiency and retain the individualized education that had the greatest effect.

Based on state-of-the-art economic analyses, the New York EFNEP lowered cost in terms of projected future health care costs. The authors note that caution should be used when interpreting the study results. Many potential benefits of the program, such as nutrition and food safety benefits to other family members, could not be captured in the study, which leads to an underestimate of the program's benefits. On the other hand, the people who graduate from EFNEP are probably those who are most likely to benefit from it. Therefore, the program benefits may not be as great for the general population as those estimated for the people who completed the program. However, these results can be used by Federal policymakers to help guide funding decisions, and could also be useful at the State level to guide decisions about funding and program changes to improve health outcomes.