

Using the RE-AIM Framework in Formative Evaluation and Program Planning for a Nutrition Intervention in the Lower Mississippi Delta

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ABSTRACT

Objective: Identification of prominent themes to be considered when planning a nutrition intervention using the Reach, Effectiveness, Adoption, Implementation, and Maintenance framework.

Design: Qualitative formative research.

Setting: Women's social and civic organizations in the Lower Mississippi Delta.

Participants: Thirty-seven (5 white and 32 black) women with a college degree or higher.

Phenomenon of Interest: Impact of dietary and contextual factors related to the Lower Mississippi Delta culture on intervention planning.

Analysis: Case analysis strategy using question-by-question coding.

Results: Major themes that emerged were "healthy eating focus" and "promoting a healthy lifestyle" when recruiting organizations (Reach); "positive health changes" as a result of the intervention (Effectiveness); "logistics: time commitment, location, and schedule" to initiate a program (Adoption); "expense of healthy foods" and "cooking and meal planning" as barriers to participation (Implementation); and "resources and training" and "motivation" as necessary for program continuation (Maintenance). The "health of the Delta" theme was found across all dimensions, which reflected participants' compassion for their community.

Conclusions and Implications: Results were used to develop an implementation plan promoting optimal reach, effectiveness, adoption, implementation, and maintenance of a nutrition intervention. This research emphasizes the benefits of formative research using a systematic process at organizational and individual levels.

Key Words: RE-AIM framework, nutrition intervention, program planning, Lower Mississippi Delta (*J Nutr Educ Behav.* 2014;46:34-42.)

INTRODUCTION

The Lower Mississippi Delta (LMD) is a broad region that includes several counties in Arkansas, Louisiana, and Mississippi that lie along or near the Mississippi river. This rural, agricultural region is home to a complex and diverse society with a rich cultural heritage of family life, religion, and food.¹ Although agriculture continues to have a vital role, technology and mechanization of farming has

affected the area, displacing high numbers of workers and increasing economic hardship.

Communities in these rural counties are divided by miles of farmland with long distances between small towns and unincorporated communities with few if any retail establishments, to larger towns with supermarkets and large food stores, making it difficult to access healthy food at the lowest cost.²⁻⁴ Literature suggests that lack of access to

healthy food is associated with a poor diet and obesity.⁵⁻⁸ However, LMD residents do not perceive lack of access to healthy food to be a major barrier to healthy eating.⁹ Nonetheless, it is possible that the influence of the food environment on eating behavior is not consciously considered by many LMD individuals, especially if they have not experienced living in food environments outside the LMD.

The majority of the LMD counties rank among the least healthy based on morbidity and mortality rates as well as health behaviors, clinical care, and social and environmental factors.¹⁰ Likewise, research on dietary intake among residents of the LMD indicates that a high percentage of LMD residents have poor-quality diets,^{11,12} which underscores the importance of nutrition intervention. Along with economic hardship, low educational

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attainment, and limited access to healthy foods, this health-disparate area has high rates of obesity and chronic disease compared with the rest of the nation.¹³

The Delta Obesity Prevention Research Unit, which shares a long history of community-based collaborative research projects in the LMD, aimed to evaluate existing food patterns of LMD adults and used computer simulation to adapt these patterns to meet *Dietary Guidelines for Americans* recommendations while considering cultural food preferences.^{12,14,15} Subsequently, efforts were initiated to plan, implement, and evaluate interventions promoting adoption of the adapted dietary patterns to improve diet quality and weight status. However, the unique cultural, geographic, and socioeconomic characteristics of the LMD warrant careful consideration in planning and implementing nutrition interventions to be tested for effectiveness.¹⁶⁻¹⁸ Such consideration includes selecting an appropriate theoretical foundation as the basis for intervention design to maximize behavior change and using a structured approach to program planning and evaluation.

A review of dietary interventions by Sahay et al¹⁹ emphasized the use of participatory models for planning and implementation, proper training and ongoing support of intervention personnel, and the use of a behavioral theoretical framework. Others have also recommended the use of a theoretical framework²⁰ and highlighted the usefulness of doing so in planning, implementing, and evaluating interventions.²¹ The Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) developers asserted that the overall goal of this framework is to encourage interventionists to focus on program components that will “improve the sustainable adoption and implementation of effective, evidence-based health promotion programs.”²² Moreover, formative research can assist researchers to tailor theory-based interventions to suit unique population characteristics and improve their implementation.²³ Therefore, the overall goal of this research was to develop a theoretically informed and culturally appropriate nutrition program

that would optimize reach, effectiveness, adoption, implementation, and maintenance within the rural Mississippi LMD. The specific purpose of this article was to describe the formative research process focusing on the use of a structured evaluation framework to plan a nutrition intervention suited for the unique cultural and geographic characteristics of counties in the LMD.

METHODS

Qualitative methods, which included focus groups and key informant interviews, were used to design the intervention research and plan its implementation. The University of Southern Mississippi Institutional Review Board approved all procedures.

Targeted Region

Demographics of the targeted Mississippi counties in the LMD consisted of a predominantly black population with low educational attainment, as 27% never completed high school. Poverty rates are much higher than the national average, with 31% living in poverty compared with 21% in the state and 14% nationally. Income for 28% of households is < \$14,999.²⁴

Theoretical Foundations and Evaluation Framework

When considering which theory could most appropriately help guide development, implementation, and evaluation of a nutrition intervention in the LMD, numerous factors were considered. Among these was the important and influential role of social and civic organizations in the LMD. Members from these organizations are active in community service and are seen as community opinion leaders. Furthermore, previous data from focus groups conducted in the LMD suggested that women had key roles as influential gatekeepers related to nutrition within their families.²⁵ In recognizing the important role of women as family gatekeepers and members of social and civic organizations, and their potential for adoption and diffusion of nutrition messages throughout their communities, the Diffusion of Innovations theory²⁶

was chosen as a framework for the development of the nutrition intervention components. Diffusion of Innovations theory attempts to describe the way in which new ideas or practices are communicated and adopted among members of a social system, such as a community.²⁶ New ideas or practices spread throughout a population from source to adopter, beginning with a small percentage of innovators (2.5%) and early adopters (13.5%), and then spreading to more influential early majority adopters (34%), who in turn are observed using the innovation by late majority adopters (34%) and laggards (16%). Early adopters generally have higher educational attainment, higher social status, and upward social mobility and are information seekers. Firm attitudes toward innovations are developed through communication with peers and opinion leaders, with these channels often the most trusted. Therefore, those seeking to effect a diffusion of dietary changes within a rural region of small communities of the LMD should target adoption among opinion leaders because they are critical to initiating adoption of an innovation within the population. Thus, the intended target audience for this intervention was women's social and civic organizations.

The RE-AIM framework developed by Glasgow et al²⁷ was the evaluation framework used for this study. It was used to provide understanding of the organizational and individual contextual and cultural factors that might affect intervention implementation and evaluation within the geographic and social context of the Mississippi LMD. To determine real-world outcomes that represent public health practice, interventions must be feasible in the community settings for which they are intended, and perhaps to a larger extent, across diverse populations and settings. Intervention planning is a key factor to understanding cultural and contextual factors that may affect intervention outcomes. The [Table](#) shows the RE-AIM dimension definitions and how the framework was conceptualized during the intervention planning phases. The framework complements Rogers'²⁶ diffusion theory, because it uses a systematic approach to identify organizations and individuals within

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