Cultural Adaptation of a Nutrition Education Curriculum for Latino Families to Promote Acceptance

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INTRODUCTION

Across the nation, minority populations face significantly greater risk than Caucasians with regard to obesity and its related conditions. In California, this is the case among Latinos (also referred to as "Hispanics" in this article), as higher rates of diabetes, overweight, and sedentary lifestyles are reported among this ethnic group.[1,2] Over the past decade, numerous interventions have been designed, implemented, and replicated with varying degrees of success. In order to make interventions available to minority communities, researchers and program developers have adapted and tailored existing programs for use with minority populations. Although the merits of cultural adaptation of existing interventions are often debated and have demonstrated mixed success, the ethical and practical implications of applying promising practices to reach more diverse groups is a defensible rationale. Ideally, cultural adaptations should involve more than "surface" modifications like language and ethnically matched providers, and also consider "deep-structure" cultural characteristics, including subgroups, acculturation levels, values, traditions, and practices.[3-5]

Researchers who work with Latino populations contend that genetics, culture, immigration, and social and environmental conditions influence eating and activity behaviors in Latino families.[6] Thus, these factors should inform the processes and resources used to adapt a health education program from one United States population segment to another. The purpose of this paper is to describe how an existing nutrition education program was adapted for Latino families and to report indicators of its acceptability. To achieve a good fit, several components were considered in all aspects of the program, including both surface modifications, such as bilingual-bicultural educators, material translation, and incentive selections, as well as deep-structure characteristics of culture such as common values and culturally appropriate mealtime practices.

PROJECT DESCRIPTION AND IMPLEMENTATION

Applying principles of cultural adaptation, as well as lessons learned from the authors' own development and implementation of community-based participatory research and programs, the Nutrition Education Aimed at Toddlers and Animal Trackers for children ages 2-4 (NEAT AT2) program was developed and delivered with funding from the First 5 Commission of San Diego County. The NEAT AT2 program combines the evidence-based Nutrition Education Aimed at Toddlers (NEAT) curriculum to enhance parent-toddler feeding practices;[7] and components of the Animal Trackers motor skills development and physical activity curriculum.[8]

The NEAT AT2 program was adapted for predominantly urban, lower-income, Latino, Spanish-speaking parents of toddlers 2-4 years of age in the south region of San Diego County, near the United States-Mexico border. Latino families in this region are predominantly Mexican-American and many have low literacy levels. The full program consisted of 10 weekly classes followed by 4 home visits at 1, 2, 3, and 6 months. This article focuses only on the adaptation of the program's nutrition component, which used the original 4 NEAT group lessons and selected take-home reinforcement activities.

Cultural adaptation of the original NEAT for San Diego Latino families included use of the original design, lessons, and reinforcement activities. The curriculum was first presented to community partners, including school personnel, preschools, family resource centers, and a community service center, who serve the predominantly Latino community. These providers reviewed all aspects of the program (including all written materials, recipes, and classroom and take-home activities), made revisions and recommendations, and approved the "fit" of the program for their families' common values, preferences, and lifestyles. The authors' modifications, many of which can be categorized as surface and deep-structure

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program components, were built upon research recommendations for Latino populations, namely: (1) increase access to traditional food like legumes and fruit ("surface structure"); (2) promote the use of simple additions or affordable modifications that can greatly improve nutritional value; and (3) reinforce the Latino cultural practice of preparing meals at home and eating together as a family ("deep structure").[9,10] In addition, resources available through the *Network for a Healthy California*, including the expertise of in-house nutrition professionals from the San Diego and Imperial Regional Network, were used to inform selection of culturally desirable food.

For example, 2 of the 4 original NEAT recipes were substituted for more culturally relevant options from the *Network for a Healthy California's* cookbook, *Healthy Latino Recipes Made with Love*. Ethnographic research has shown that Latino women require a deep sense of community to increase their acceptance of health-promoting activities.[11] To facilitate acceptance, bilingual, bicultural female parent educators were recruited from the intervention communities to assist with program adaptation and program delivery. The use of community lay health advisors trained to conduct educational sessions within their existing social networks is an effective approach, as demonstrated in the "Por La Vida" health intervention model.[12,13] Other "surface structure" modifications were achieved by ensuring that all curriculum and related materials were translated from English to Spanish by a certified translator, and parent educators provided feedback on wording, language, and culturally appropriate vernacular with an emphasis on maintaining content fidelity while achieving a good fit.[3-5] To further ensure the program's accessibility and account for varying literacy and educational levels among the Latino audience, the curriculum and all program instruments were administered orally. In addition, all materials produced by the NEAT AT2 program were evaluated for reading level,[14] and activities were adapted or developed for children in the age range of 2-4 years. Finally, all materials were reviewed by program key informants, including parent educators, school- and community-based site directors, and in-house nutrition professionals from the San Diego and Imperial Regional Network, who were experienced in providing intervention programs to these communities. Once consensus was reached, the program was piloted with a small group of families. Based on feedback from these families and consultants, minor final revisions were made and the program was fully implemented after approximately 9 months of development and pilot-testing.

PILOT PROGRAM ASSESSMENT AND FEEDBACK

During the first 27 months of full program implementation, 974 families participated in 1 or more group classes. Classes were provided over a 10-week period, which made it challenging for many families to complete the program. However, 68% of families completed at least 7 of the 10 classes. The majority of families who dropped out attributed their inability to complete the program to: moving, starting a new job, giving birth, and family-related illnesses. Program completers were not significantly different from noncompleters on age, family (household) size, family income, or education. However, not surprisingly, program completers were more likely than noncompleters to self-identify as Latino(a), to speak Spanish in the home, and to have received their highest level of education in Mexico—characteristics shared by families for whom the program was adapted.

Parent satisfaction surveys (n = 582) revealed that families were pleased with the NEAT AT2 program (mean enjoyment = 4.96, mean helpfulness = 4.96; scale 1-5). In addition, the average rating of how likely they were to "recommend the program to a friend" was 4.98. Selected examples of caregiver comments regarding participation in the NEAT AT2 program are presented in Table.

Although NEAT AT2 is a service delivery program and not designed as research, outcome measures included changes in knowledge, behaviors, and self-efficacy for parents as well as selected behaviors for the toddler (as reported by the parent). Preliminary examination of pre- and post-program survey data was conducted on a sample of families (n = 441) who attended at least 7 classes during the first 27 months of the program. Results yielded statistically significant positive changes in self-reported knowledge, behavior, and self-efficacy. Caregivers showed improved knowledge on the 9-item Food Guide Pyramid Quiz by correctly answering 71% of the questions on the posttest, compared to 28% on the pretest ($P < .05$). Similar results were also found for the 6-item Portion Size Quiz (pre = 27%, post = 78%, $P < .05$), and the 12-item Health Facts Quiz (pre = 74%, post = 93%, $P < .05$). With regard to behavior changes, caregivers reported an increase in fruit and vegetable intake (pre = 4.1 portions/day, post = 4.5 portions/day, $P < .05$). As an indicator of self-efficacy, caregivers reported greater confidence in their ability to eat healthfully (on a scale of 1-5; pre = 4.0 and post = 4.5, $P < .05$).

CONCLUSION

Adaptation of the original NEAT curriculum to create and deliver NEAT AT2 was intended to produce a program that is both feasible and acceptable to a culturally and linguistically unique population—key ingredients to its ultimate efficacy. The modification of components considered surface and deep dimensions of culture.[3-5] As predicted by experts concerned with cultural adaptations of existing interventions and programs,[3-5,15] maintaining the fidelity of NEAT while ensuring the program's fit to the needs of a very different consumer group can be challenging. The process of adaptation requires several months of piloting and refining materials and program delivery, as well as expertise from a multidisciplinary team. However, it is believed that program "mismatch" was reduced by reliance on input from local community-based program collaborators, assistance from family educators, and professionals from Latino communities who guided program design, recruitment, and program delivery. Early indicators demonstrate that the cultural adaptation of NEAT holds the promise of the original.[7,16]