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The purpose of this study was to develop and pre-test culturally appropriate, theoretically-based nutrition education materials targeting low-income Latina immigrant caretakers in Guilford County, North Carolina. Six focus groups and three household interviews were held with low-income Latina caretakers (N=20 women total) to identify key areas of interest, preferences, and concerns regarding their family's diet. Sessions were conducted by a bicultural, bilingual community interviewer using a semi-structured question guide. Interviews were conducted in Spanish, tape recorded, transcribed and translated. Content analysis identified common themes. A response was considered a "theme" if mentioned greater than five times by different participants. Many women reported they cannot identify healthy foods when shopping and wanted tips about how to do so. The most common challenge reported was persuading children to eat vegetables. Most requested healthy recipes that are child-friendly and include serving size information. Spanish translated, colorful recipe cards or brochures were the most requested materials. Many wanted healthier recipes for traditional Hispanic dishes.

These findings indicate that this low income group is very interested in providing healthy foods to their families and want the skills to do so. Thus, results were used to develop nutrition education messages and materials based on the Social Cognitive Theory. Materials were pretested with the target audience (N= 6) and revised accordingly. This project was funded by the NC Agricultural Research Service.

DEVELOPMENT AND PRETESTING OF CULTURALLY APPROPRIATE NUTRITION EDUCATION MATERIALS AND MESSAGES FOR LOW INCOME LATINA IMMIGRANTS OF GUILFORD COUNTY

by

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_____
Committee Chair

To my late Uncle John and my beautiful aunt, Eileen Dolan. Without their support from the very beginning, I would not have been able to attend college. In addition to giving me my car, which enabled me to work and relocate to Greensboro for school, they always made it clear how much they believed in my potential to succeed in the face of adversity. I thank them both with all that I am.

APPROVAL PAGE

This thesis has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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CHAPTER I

INTRODUCTION

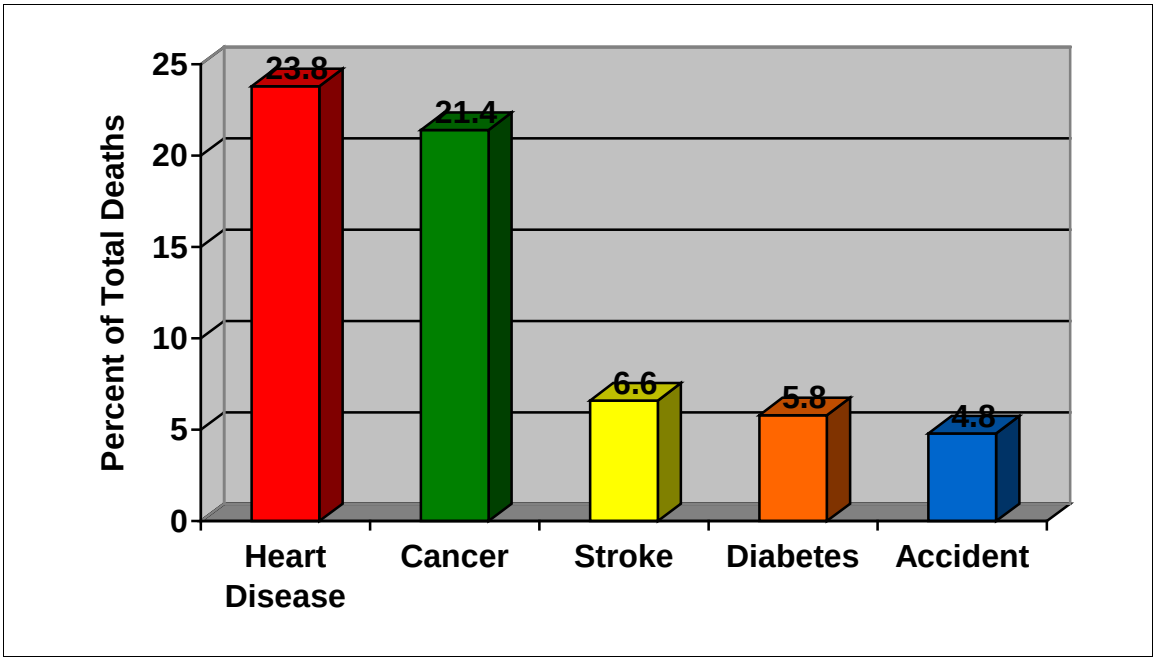
According to the US Census Bureau, it is estimated that as of July 2007, the Hispanic population of the United States has grown to 45.5 million (15% of total), making Latinos the largest minority group in the country. It is also the fastest-growing minority group with a 3.3% increase in Latino population between July 2006 and 2007. Sixty-four percent of the Hispanics in the US are of Mexican origin, followed by Puerto-Rican and Cuban. By the year 2050, it is projected that the Hispanic population will rise to 132.8 million, accounting for 30% of the US population (Census, 2008). Currently North Carolina is home to an estimated 597,382 Latinos, making it one of sixteen states with at least half a million Hispanic residents. A 2006 estimate revealed that 6.7% of North Carolinians were of Hispanic origin while the population of Guilford County is comprised of 5.7% Hispanic residents (Census, 2006).

Previous studies suggest that Hispanic immigrants are at higher risk of food insecurity, chronic diseases, obesity, depression, and other health problems related to poverty (Roney, 2006; Arcia et al., 2001; Carlos-Poston et al., 2003; Colby and Haldeman, 2003; Moreno et al., 1997; Newhouser et al., 2004). While the general US population is experiencing high rates of obesity and overweight, Latinos are especially prone to these and other nutrition-related conditions. Using the Behavioral Risk Factor Surveillance System (BRFSS) to analyze the prevalence of eleven modifiable behavioral

risk factors (such as obesity, diabetes, etc.) of women in America, one study found that health profiles vary significantly among race/ethnic groups (Hahn et al,1998). Researchers found that Hispanic, black, and American Indian women had higher rates of morbidity as a result of chronic diseases compared to other groups. In 2007, the National Health and Nutrition Examination Survey (NHANES) revealed that while 39% of white women aged 40-59 years were considered obese, 51% of Hispanic women of the same age were obese (Ogden et al.,2007). Diabetes has been reported to be twice as common among Mexican-Americans compared to Caucasians (Sabogal et al.,2005). In the US, Hispanic women are at an even higher risk of developing heart disease because two thirds are overweight or obese and 60% live sedentary lives (U.S. DHHS, 2003). Sedentary lifestyles and high-fat diets are controllable risk factors that contribute directly to heart disease risk (Parra-Medina et al.,2004). Furthermore, more than half a million women in the US die as a result of heart disease annually (AHA, 2005). Studies have found that women are also counseled less often than men on subjects such as weight management, diet, and exercise (Parra-Medina et al.,2004). In addition, compared to other ethnic groups, Latinas receive the least amount of heart disease prevention education (Zarate-Abbott, 2008). In fact, heart disease, cancer, stroke, and diabetes were the four leading causes of death (Figure 1) in 2004 for Hispanic females residing within the United States (Heron, 2007). The situation has gained the attention of government health agencies. For example, *Healthy People 2010* is a set of health objectives with 28 focus areas for the US to achieve by 2010 (U.S. Department of Health and Human Services, 2000). One of the

initiative's main goals is to reduce health disparities among different racial/ethnic groups by increasing their access to health care services.

Figure 1**. Leading Causes of Death among Hispanic Females Residing Within the US in 2004***



*Based on data from Heron, 2007

Additional barriers to health education also exist. Hispanic immigrant groups are more likely to be less-educated, low-income, and have low-literacy levels (Sabogal et al., 2005). Legal issues such as immigration status may prevent individuals from qualifying for food-assistance programs or Medicaid, leaving them food insecure and without health care. Limited English proficiency can also thwart immigrants from being able to read

food labels or understand nutrition and other health information printed in the US (Haldeman et al., 2000).

To date, few educational materials have been created specifically for nonwhite populations (Parra-Medina et al., 2004). Women are typically the caretakers of the family within the Hispanic population, therefore they are the persons responsible for purchasing and preparing the foods consumed (Macario et al., 1998). Thus, the target audience for this formative research project is female, low income Latina/Hispanic immigrant caretakers in Guilford County.

Purpose of Study

To develop and pre-test culturally appropriate, theoretically based nutrition education materials targeting low-income Latina immigrant caretakers.

CHAPTER II

REVIEW OF THE LITERATURE

Developing Low-Literacy Materials

Aside from the challenge of reaching an audience whose primary language is not English, educators who wish to reach low-income Latina immigrants must also contend with the limited literacy skills that are common among this group. To determine the nutrition education needs and concerns of a low-literacy population, researchers with the Expanded Food and Nutrition Education Program (EFNEP) in Minnesota conducted five focus group sessions with thirty-nine women and two men (no ages given) of diverse racial/ethnic backgrounds (Hartman et al., 1994). Participants were low-income EFNEP clients who had tested at or below an eighth grade reading level. The main goal of these focus groups was to explore the population's needs concerning low-fat eating information. Researchers sought to discern what types of nutrition information participants cared about, how it should be presented, and what barriers these participants anticipate facing if they choose to modify dietary habits. Focus groups were held at local community centers/schools and were moderated by University staff members. All of the sessions were tape recorded and transcribed and were later independently analyzed by two other staff members to uncover any trends persistent throughout the five focus groups. Results showed most participants requested to learn about what foods to eat and how to prepare them, and they desired easy recipes for low-fat meals. Most cited lack of

time to cook/prepare foods and wanted to know about healthy choices among fast foods and convenience products. Clients were also concerned about their children's diets and desired tips about encouraging kids to try healthier foods or new recipes. While discussing different topics such as weight management, cholesterol levels, children's diets, or healthy eating on a budget, the response was the same: they wanted quick, easy, low-cost food ideas that would also taste good. When asked how they wanted to receive this nutrition information, participants suggested methods such as posters, videos, hotlines, or consultations. Hands-on group activities like cooking classes were very popular, as were pamphlets and group sessions. Most felt that written materials should avoid using medical terminology, so the materials for this project were developed using common, recognizable terms (Hartman et al., 1994).

Likewise, to investigate the nutrition education needs of patients with low-literacy skills in a health-care setting, and to determine the best methods for delivering a nutrition intervention, researchers conducted interviews with various health-care providers and literacy experts (N=35) as well as six focus groups with participants (N=50 total) who had low-literacy skills (Macario et al.,1998). Results of the qualitative research suggested that when targeting low-literacy audiences, nutrition education programs should rely on illustrated, interactive formats (such as photonovelas), be culturally-appropriate to the target audience, and build upon their social networks (Macario et al.,1998).

Similarly in 2007, researchers aimed to outline a theoretically-based process for developing health-education materials for low-literacy patients that activate readers to change behaviors (Segilman et al.). Researchers used six steps to design *Living with*

Diabetes: An Everyday Guide for You and Your Family, tailored to a low-literacy population. First, a multidisciplinary team was assembled to obtain suggestions from various stakeholders including physicians, behavioral scientists, diabetes educators, a nurse, pharmacist, health educators, advertising agent, and two native Spanish-speakers who were experts in educating the Latino community about diabetes care. Secondly, researchers decided which concepts to address in the material; no more than three concepts are recommended for this audience and focus group feedback is crucial to eliminating unnecessary information. The researchers used a convenience sample of patients (n=52) and health care providers (n=101) from multiple states to conduct semi-structured focus groups. Providers emphasized increasing knowledge or "need to know" information, while patients insisted it was more important to include "need to do" basic instructions for lifestyle changes. Patients also recommended using photographs of real people with diabetes, and avoiding complicated diagrams and jargon. Next, the social cognitive theory (SCT) was selected to guide the entire development process. This theory is based on the concept that an individual, their environment, and their behavior are all constantly impacting one another; a change in one dimension creates a change in the other two (Baranowski et al.,1997). According to the principles of SCT, patient education materials should "(1) improve knowledge of the health effects of behavior change, (2) positively influence outcome expectations, (3) emphasize facilitators to behavior change, (4) address impediments to behavior change, and (5) enable the creation and achievement of short-term goals"(Segilman et al.,2007). The authors addressed all five by clearly linking each behavior discussed (e.g. exercising) to a health outcome (losing weight).

Also in keeping with SCT, developers highlighted all of the positive outcomes for each behavior change, offered concrete suggestions, and a list of action plans at the end of each chapter titled "You Can Do It!". The fourth step in development involved designing the written materials so that they were appropriate for the target audience. Developers took additional photographs of culturally-appropriate foods specifically for the Spanish language version of the guide. Next, they conducted hour-long interviews with English- (n=51) and Spanish- speaking (n=19) members of the target population. Feedback was used to drive the revision process; more photographs of vegetables and clear labels were added, more encouraging patient quotes were featured, and sentences were reworded. Lastly, developers measured dissemination potential by asking patients questions such as "How likely is it that you'll recommend this guide to a friend?" (Seligman et al., 2007).

Another consideration when developing educational materials for low-literate audiences is whether or not to include pictures. Using McGuire's information processing theory as a guide, Houts et al. aimed to review studies from health education (n=61), education, psychology, and marketing journals to form hypotheses regarding the use of pictures in health education programs (2006). They discovered that the majority of studies indicated that including pictures in close proximity to simple text can significantly increase a reader's attention level and ability to recall the information. In one major study cited, the types of pictures that had the greatest impact on learners included (1) cartoon drawings, (2) matchstick drawings, and (3) photographs, due to their uncomplicated appearance. Furthermore, studies showed that low-literacy patients tend to benefit the most from the addition of pictures. The cultural relevance of pictures also greatly impacts

the learner's comprehension of material; different groups interpret images differently so it is critical to involve the target culture in every step of the design process. Based on their extensive literature review, the authors suggested including pictures only to support key messages and keeping the images simple so as not to distract from the information. Keeping pictures closely linked with easy to understand text or captions is also important to improve reader comprehension (National Cancer Institute, 2008). Houts et al. also suggested that health educators create the design of the pictures rather than artists who lack background in the topic area (2006).

In the randomized control trial, Improving Medication Adherence through Graphically Enhanced Interventions in Coronary Heart Disease (IMAGE-CHD) researchers developed an illustrated medication schedule for low-literacy patients (Kripalani et al.,2007). The goal was to use pictures to explain which pills to take when, each day, in order to decrease the number of patient mistakes due to limited reading ability. To develop this tool, researchers first conducted background research on what materials already existed. They then produced a draft of the pill card so that a diverse team of healthcare workers and patients (n=12) could review the material, offering suggestions for improvement. The final design included minimal text and colored photos of each medication, pictures to indicate its purpose (i.e. for blood pressure), and the time of day indicated by pictures of the sun/moon. In this trial, patients (n=435) were assigned to receive the intervention (pill card), usual care, refill reminder postcards or both. Three months post-enrollment, patients were interviewed about their perceptions of each tool; results were analyzed by literacy level (using The Rapid Estimate of Adult Literacy in

Medicine). Patients who received the pill card intervention (n=242) where mainly low-literate, African-American women. After implementation, researchers conducted a preliminary evaluation of the tool's effectiveness. Of the 209 interview respondents, 83% reported using the pill card initially and by follow-up, 60% were still regularly using it ($p<0.05$). Patients who were most likely to continue using the card were those with lower literacy skills, low education level, or cognitive impairment. Feedback from participants revealed that the majority (76.3%, $p=0.032$) found the tool easy to understand and helpful to them when managing their medication schedule (Kripalani et al., 2007).

In 1998, Nitzke discussed ways in which nutrition educators can improve the effectiveness of written materials for low-literacy audiences. Material development involves first planning a strategy and estimating the average reading level of the target audience using methods such as the Wide Range Achievement Test (WRAT-R). Developers should focus on no more than three concepts and syntax and vocabulary used should be kept simple; this can be assessed using methods such as the Fry Readability Graph. As other studies have noted, low-literacy materials should avoid technical jargon, use active sentences, and maintain a positive tone. To entice the learner to finish reading the material, the column length should be kept short, the font style and size should be easy to read, and there should be white space between paragraphs. Pictures should only be included if they emphasize key concepts. Using concrete examples regarding behavior change can help readers remember the information better as well. In the last phase of dispensing materials, it is critical to evaluate their effectiveness within the target population in order to plan revisions. (Nitzke,1998).

Nutrition Education Needs of Latinas

When trying to create nutrition education materials for a specific population, it is crucial to assess its needs and attitudes towards health and nutrition. In 2003, Contento et al. conducted a study to determine body image perceptions among low-income Latinas of themselves and their children, and to analyze the relationship between those perceptions, their food intakes, and how they make dietary choices for their children. The study used a cross-sectional survey design of 187 mothers and their 5 to 7 year old child. Researchers measured body image score (using seven drawings), food frequency, body mass index (BMI) for mothers and children, and mother's food choice criteria. Results revealed women's body size dissatisfaction was negatively correlated with their intake of calories, fat, and sugar ($p<0.01$). As their "ideal" body size, all mothers selected a thin figure (2.5 on a scale of 1-7) as being most attractive but perceived children who fell within the 50^{th} and 75^{th} mean BMI-for-age percentiles as being too thin; those above the 97^{th} were considered "barely too large". So, although they preferred the thinner body images for themselves, mothers preferred a more robust physique for their children. Correlations also revealed that low-income Latina mothers with the highest BMI indices made the least healthy dietary choices for their kids (Contento et al. 2003).

In Colorado, researchers conducted a needs assessment as part of a larger intervention to provide nutrition education to low-income Hispanic women with children as well as the nutrition professionals and paraprofessionals who teach them. The objectives were to assess nutrition education needs and preferences, to assess the low-income Latina group's barriers and motivators to changing dietary behaviors, to explore

the viability of using *abuelas* (Hispanic grandmothers) as educators, and to compare/contrast these perspectives. Researchers conducted nine tape-recorded focus groups with professionals (n=1 group, n=10 participants), paraprofessionals (n=3 groups, n=26 participants), and low-income Hispanic women (n=5 groups, n=29 participants). Four bilingual, bicultural moderators asked open-ended questions regarding nutrition education needs of the Latina group and training needs of the professional groups. Two researchers independently analyzed the transcripts and documented results of wide (>50% agreement across groups) or moderate (<50%) support among participants. Results showed that all three groups requested childhood nutrition information, instructions for preparing healthy meals, and guidance about how to prevent the unhealthy influences of acculturation. Main barriers to change among Latinas were lack of time and money, family traditions, food preferences, and conflicting nutrition messages. Professionals emphasized the need for more interagency cooperation and paraprofessionals wanted more teacher training. Professionals and paraprofessionals agreed on the need for educator cultural sensitivity training, and discussed the positive and negative aspects of having *abuelas* facilitate nutrition education. All three populations preferred hands-on, interactive learning methods to information (Palmeri et al., 1998).

Developing Materials for Target Audience

In a bulletin published by the Center for Substance Abuse Prevention, researchers described how to develop effective education materials for Latino/Hispanic audiences (Ramirez et al.,1997). The authors recommended following the six stages of The Health

Communication Process: (1) plan and choose a strategy, (2) choose key messages, type of material, and channels (3) create and pretest, (4) implement, (5) assess effectiveness, (6) use feedback from target audience to guide revisions. In addition to thoroughly researching the target population at local levels, it is also essential to consult with the community "gatekeepers" who interact with them often in order to address areas of concern within specific Hispanic subgroups. Materials can be made more ethnically-relevant by promoting Latino/Hispanic traditions, respect for elders, the importance of extended family, social networking, and by highlighting cultural role models. When choosing images, designers should be careful to avoid ethnic stereotypes and select culturally meaningful symbols and pictures. In addition, the decision of what language to choose when creating educational materials is critical but varies with target audience. These authors suggest originally writing the text in both English and Spanish instead of relying on translation from English to Spanish. Also, since literacy level of many newly-arrived immigrants has not been well researched yet, it is difficult to know how well they can read even their primary language. The best approach is to keep written content simple by using a readability formula (e.g. the SMOG formula) and to incorporate visual images that help the reader to comprehend key messages. Furthermore, the authors point out the usage of "Hispanic" or "Latino" should depend on the segment of the population to be reached. Nationally it may be best to use "Hispanic/Latino", however, locally it is critical that developers research their target audience to see which term individuals prefer. Developers should also ensure the audience would not find informal language (such as

colloquialisms) disrespectful. Colloquialisms can be successful at the local level, however for larger audiences formal Spanish should be used (Ramirez et al. 1997).

Several studies have addressed how to approach health education material development for a target audience. Achterberg et al. outlined basic principles that should be used to plan, develop, and evaluate nutrition education materials and interventions (1994). Four qualitative studies were conducted to assess how different population samples interpreted the 1985 U.S. Dietary Guidelines brochures (Study I: 72 women, 30-40 years of age; Study II: 40 men, 30-50 years; Study III: 60 women, 30-45, 50+ years; Study IV: 45 men, 30-45, 50+ years). In-depth pretest interviews were conducted for all four studies (n=227 men and women) and revealed major misconceptions regarding the Dietary Guidelines brochures which could then be addressed through revisions. The next steps involved tailoring messages to the specific target group and testing them in "natural" settings intended for the intervention. One of the brochures was deemed inappropriate for low-literate readers so researchers created two versions (control with cosmetic changes versus a reformatted, rewritten, re-illustrated version). Both were tested in an experimental design (n=295) and results revealed no significant ($p<0.05$) differences in knowledge gain, indicating that it is ineffective to simply revise preexisting materials originally designed for a different audience; developers must recreate the messages from scratch with the audience's needs in mind (Achterberg et al., 1994).

In another study conducted to develop Spanish-language family planning educational materials for Latina immigrants with low education levels, researchers created and field-tested five brochures detailing conception methods (Denny-Garamendi

et al., 2007). After a needs assessment of the target population, as part of the project Aproyando a la Mujer Latina (Providing Support to Latina Women), the research team conducted interviews and focus groups within the target audience to discern preferences regarding brochure appearance, wording, use of pictures and what was culturally acceptable. Qualitative data obtained from these sessions were then used to guide the preliminary version of the brochure to be field-tested in five health clinics around the community. In designing the eight-page health education brochures, researchers relied on guidelines posed by the Program for Appropriate Technology in Health (PATH). Brochures were created by a bilingual staff member and translated by a professional Spanish-speaking translator. The materials were then assessed by Spanish-speaking Latina women (N=304) from family planning clinics who did not graduate from high school. After the participants reviewed one of the brochures about contraception they were asked basic questions such as "Did you like this brochure?" The women were then asked more specific questions to determine if the illustrations or primary messages were being interpreted correctly by the audience; if not, the participant would be asked for suggestions. Results revealed that many of the women liked that the brochures included illustrations of Latina patients and most expressed that the instructional illustrations were useful in facilitating understanding of the text. However, some pictures were completely misinterpreted, therefore developers used participant feedback to revise such images. The only major complaint the women had about the brochures was that they would prefer them to be in color. Researchers attributed the brochures' largely positive response to

keeping the specific target audience involved at every stage to help choose culturally-appropriate vocabulary and images (Denny-Garamendi et al., 2007).

As part of the Minimal Content Education for Cholesterol Change (MC) project aimed towards Hispanics, Gans et al.(1999) conducted a study to adapt written nutrition education materials into culturally-appropriate Spanish-language versions suitable for Puerto Rican, Dominican, Columbian, and Guatemalan immigrants residing in the New England area. Methods included formative, qualitative research such as focus groups (N=22), peer-led interviews (N=62), and shopping expeditions in Hispanic markets to learn more about the traditional foods available to locals. Though all four subgroups were unique in culture and dialects, common themes emerged such as the importance of family, "machismo" or the idea that the father makes most of the decisions, eating more and exercising less since immigrating, frying as a common cooking method, and lack of knowledge about fat and cholesterol. Researchers found that involving a near equal number of participants from each subculture during the development process aided in creating a product that was culturally appropriate for Latinos, but not so specific to one culture that other subgroups would be neglected (Gans et al., 1999).

Adding to the topic of women and cholesterol addressed in the above study, Wilcox et al. (2001) performed a qualitative literature review to assess the impact of health care setting-based diet and physical education interventions (n=32 articles) to reduce cardiovascular disease (CVD) risk factors among women. The authors found only three studies that focused on reducing CVD risk factors among women of color who were of low socioeconomic status. They each showed encouraging risk reductions in

participants and tailored their approaches to the culturally-specific needs of underserved target populations. The authors concluded that more research is needed to assess the effectiveness of health behavior change interventions targeted towards low-income, non-white women (Wilcox et al.,2001).

Following that sentiment, as part of the Heart Healthy and Ethnically Relevant Tools (HHER Tools) study, which aimed to serve the target audience of Well-Integrated Screening and Evaluation for Women Across the Nation (WISEWOMAN), researchers developed a replicable process for redesigning existing physical education and nutrition education materials to make them more ethnically relevant for low-income, middle-aged, African-American women residing in the southeastern US (Parra-Medina et al,2004). The first step was developing an inventory of materials by conducting a literature review of CVD-related physical activity and nutrition counseling interventions, especially those tested among nonwhite women. Researchers also gathered 214 existing health educational materials and used an inventory form to catalog print resources for easy reference. The second step was creating an assessment form used to assess visual appeal, format/layout, content, and appropriateness for target audience, appropriateness for practice settings, and overall panelist recommendations. The third step involved an expert panel review conducted over a period of two months. Professionals (n=18) with expertise working with the target population reviewed a total of 22 physical activity and 30 nutrition education materials, using the assessment form to assign scores. Each item was reviewed by at least three different panelists and the scores were averaged to obtain a mean score in each assessment category. The four educational tools that received the

highest scores were labeled “recommended with no (or minimal) changes”. The fourth step in the development process was holding consumer focus groups in which the four highest-rated materials in each category were the topic of two physical activity focus groups (n=19), and two diet focus groups (n=11). In general, participants favored materials with the most visual appeal; they liked bright colors, high-quality paper, and photographs of women who looked like them. Preferred materials were brief, avoided using jargon, and reflected the familial roles the women held. The fifth step was the initial redesign of materials which took about six weeks and was based on feedback from the focus groups; materials were developed using desktop publishing software. The sixth step was obtaining focus group feedback on the revised materials. Participants preferred photos of female doctors as well as the female patient model who looked good but not perfect, someone they could “relate to” as women. The final redesign resulted in the physical activity education material, “HHER Walking Program” and the diet education material, “HHER Low-Fat Living”. Both materials utilized bright colors and plenty of photographs featuring attractive members of the target audience. The diet material included ethnically-appropriate sample meal plans, low-fat eating tips, shopping strategies, behavior change strategies, and blank space to track dietary goals (Parra-Medina et al.,2004).

At the University of Washington, researchers pilot-tested verification methods to assess the suitability of pregnancy-related health education booklets adapted from English to Spanish (Smith et al., 2006). Their goal was to increase non-English-speaking Latinas’ access to healthy prenatal messages by conducting hour-long interviews in

Spanish. Participants (N=35) were underprivileged women in Oregon whose first language was Spanish, had at least a sixth-grade education, and had at least one prenatal clinic visit. The material chosen to be adapted, *Beginnings Pregnancy Guide,* was previously tested among diverse populations, and had previously been widely accepted by the health care industry. Content and graphics were assessed to identify aspects participants might misinterpret or find unacceptable. Modified Cloze testing, (a test for determining reading ability in which some words from a passage are deleted and the participant must fill in the blanks) was conducted to assess reading comprehension. Researchers found the *Guide* to be suitable for 83% of the target population; 80% of Latinas with at least 9 years of education and 50% of those with 6-8 years of education demonstrated they could understand the material independently and found it easy to read (Smith et al.,2006).

Changing Roles and Health Implications

As discussed in the introduction, upon arrival to the United States immigrants face number of barriers including a different language, different customs, lack of skills or money, discrimination, and the loss of a social support system. For Latinas, the challenges can be even greater because they are faced with major changes in their roles as women. Oppong & Abu identified the seven roles carried out by women which include the parental role, occupational role, conjugal role, domestic role, kin role, community member, and an individual (1985). Immigration can affect each of these roles and can create stress as women have to relearn what is expected of them as a caregiver, wife, and worker. As a parent, Latina immigrants face challenges when trying to access the US

healthcare system as a result of lack of knowledge about where to go, how to get there, lack of funds, and if undocumented they may have a fear of deportation (Wilson, 1995). They may face similar obstacles when dealing with the American school system. For many Latina immigrants their occupational role also changes after arrival. Many tend to work as domestics spending much of their time away from the family working for little pay and with low job security. These women suddenly forced to enter the workforce can feel extra pressure to fulfill the traditional roles of housewife and mother while also fulfilling the roles as wage earner. Those who cannot find work may become more dependent on a man for shelter, money, or transportation which could lead to unhealthy or even abusive relationships. Also, a very important aspect of Latino culture is that of kinship. A woman's role as a family member can be burdensome when helping other family members relocate to the US. It is typical for these women to host newly arrived siblings, parents, or cousins, leading to cramped living conditions and increased household duties and obligations. Women's roles as a community member may suffer after arriving in the US because they are not familiar with the local neighborhoods, churches, or schools so it becomes more difficult to get involved. Immigration has an impact on the individual too, as she struggles to adapt to a new culture and way of life (Wilson, 1995).

Also, it is important to recognize that immigrants from areas such as Mexico hold very different beliefs and attitudes involving health and medicine. When these individuals or families migrate to the US, sometimes they fear their family's culture, traditions, and values might diminish as they become more accustomed to their new home. Some

immigrant families resist acculturation in an attempt to preserve their old way of life as much as possible, and may erect social boundaries such as isolating themselves from the new community, not learning English, and rejecting America's scientific approach to healthcare. The goal for health educators is to move beyond the boundaries created by immigrants to their new environments in ways that are not threatening to their traditional belief system. In contrast to the US, the health beliefs in countries such as Mexico reflect a combination of Native American medicine and Catholicism (Wilson, 1995). Instead of attributing problematic physical symptoms to a disease or illness, spiritual upset or stress may be considered the etiology. According to Wilson, it is important that health care providers educate themselves about the immigrant's belief system and what kind of remedies they use to provide guidance on what methods may work and which practices may put them at risk for further health problems (1995). Latina immigrants need to be provided with basic nutrition and health recommendations that reflect their traditional values and roles while also being easy for them to understand and carry out.

Social Cognitive Theory

As mentioned earlier, the Social Cognitive Theory (SCT) incorporates the individual, their environment, and their behavior, and it explains how a change in one of these dimensions causes a change in the others (Baranowski et al.,1997). Individuals do not exist in vacuums and their thoughts and behaviors are constantly affected by their surroundings. The concept of *reciprocal determinism* (central to SCT) describes how the person, behavior, and environment continuously influence one another with every change. SCT encompasses ten other major concepts that each has unique implications for

guiding health interventions (Baranowski et al.,1997). By focusing on four specific constructs of *self-efficacy, behavioral capability, outcome expectations,* and *reciprocal determinism*, the study design of this project will be strengthened. The Latinas targeted for this proposed study are less-educated, low-literacy, and low-income; interventions based on the constructs of SCT have been shown in many studies to result in positive behavior changes among these populations (Palmeri, 1998; Alcalay, 1999; Wilcox, Kripalani, 2007; Seligman, 2007).

After migrating to the United States, Latinas are faced with having to learn new skills to function in their new environment. According to the Social Cognitive Theory, *self-efficacy* describes an individual's level of confidence in performing a behavior (e.g. cooking low-fat). It is suggested that interventions or educational materials work in small steps to ensure the individual can succeed. *Behavioral capability* refers to having the knowledge and skills to perform a new behavior. By training individuals on these new skills and through repetitious practice, a sense of mastery can be fostered as the person becomes more confident. *Outcome expectations* are the anticipatory rewards or consequences a result of performing a certain behavior. For example, weight loss could be an expectation of choosing to eat more fruits and vegetables instead of high-calorie treats. As mentioned above, *reciprocal determinism* involves dynamic interaction of the individual, the behavior, and the environment (Baranowski et al.,1997). Ideally, once a participant learns how to prepare healthier versions of traditional Hispanic foods and are motivated to make positive dietary behavior changes themselves, the family members around them will also start to model healthier behaviors, thus changing the home

environment around food. Instructing participants on how to create their own "action plan" for change has been shown multiple times to be an effective way to assist individuals with setting goals and adhering to a program (Seligman et al.,2007).

Natural Helper Model

In addition to SCT, an emerging theory known as the Natural Helper Model was used to organize the focus groups and pre-testing of the materials. The term "natural helper" describes a person who others naturally rely on for guidance, support, and help with various situations (Eng & Parker, 2002). Often such helpers provide spontaneous, informal advice or assistance to others in their community and their value is often overlooked. More recently, public health agencies have recognized the substantial impact social networks have on an individual's health and more interventions involving lay health advisors (such as using *promotores* or *abuelas*) have been conducted by the Centers for Disease Control and other health authorities. For the purpose of this study, a focus on informal helping networks helped guide the focus group process and will be instrumental in diffusing the information provided after development of the materials. According to Eng & Parker, informal helping networks describe the indirect connections to resources through family and friends, neighbors, natural helpers, role-related helpers (such as a pastor), people with the same problems (support groups), or volunteers. One way this study relied on the Natural Helper Model is by enlisting the help of a bilingual community interviewer to conduct the interviews and focus group sessions. This woman has an extensive social network of other low-income Latina immigrants and is often turned to for advice and referrals due to her ability to speak English and her connections

and familiarity with local agencies and resources. Having a natural helper from the target audience who is trusted and respected among the target population assist the researcher was crucial in gaining access to the women's homes.

Conclusions

After reviewing the published studies and interventions that have involved developing nutrition education materials suitable for a specific target audience, gaps remain that must be addressed. Studies regarding the development of nutrition education materials specifically for this ethnic minority group were difficult to find. Though there were ample studies detailing the process of developing such materials for low-literate audiences, the current literature is lacking studies focused on nutrition education for Hispanic immigrants, especially Hispanic women. Furthermore, many studies neglected to mention a theory-based model from which material development was being guided. Those that did mention a behavior change theory reported using the Social Cognitive Theory (SCT), which recognizes that an individual, their environment, and their behavior are continuously intertwined and affect one another (Baranowski et al.,1997); however, authors often did not indicate which particular constructs of SCT were being applied in the process (Palmeri et al., 1998; Alcalay et al., 1999; Seligman et al., 2007; Kripalani et al., 2007). For the purposes of this study, SCT will serve as the conceptual framework for the study design.

CHAPTER III

RESEARCH ARTICLE

Introduction

Currently, it is estimated that there are more than 45.5 million Latinos residing in the United States (US Census Bureau, 2007). In addition to being the largest minority group in the nation, it is also the fastest-growing with a 3.3% increase in Latino population between 2006 and 2007. Sixty-four percent of the Hispanics in the US are of Mexican origin, followed by Puerto-Rican and Cuban. It is projected that by 2050, the Hispanic population will grow to account for 30% of the US population (Census, 2008). Currently, an estimated 597,382 Latinos live in North Carolina, making it one of sixteen states with at least half a million Hispanic residents. A 2006 estimate revealed that 6.7% of North Carolinians were of Hispanic origin, with over 70% of Hispanic immigrants arriving from Mexico (Census, 2006; Center for New North Carolinians, 2003). In Guilford County, North Carolina, 5.7% of residents are Latino (Census, 2006).

Latino immigrants are at higher risk of being food insecure, having diet-related chronic diseases, obesity, depression, and other conditions linked to low socioeconomic status (Roney, 2006; Arcia et al., 2001; Carlos-Poston et al., 2003; Colby and Haldeman, 2003; Moreno et al., 1997; Newhouser et al., 2004, Ramirez et al., 2007). While the US population overall is experiencing high rates of obesity and overweight, Latinos are even more likely to have these and other nutrition-related conditions. In a study using the Behavioral Risk Factor Surveillance System (BRFSS) to analyze the prevalence of

behavioral health risk factors of American women, significant differences are evident between ethnic groups (Hahn et al,1998). Researchers found that Hispanic, black, and American Indian women had higher rates of morbidity as a result of chronic diseases compared to other groups. In 2007, the National Health and Nutrition Examination Survey (NHANES) revealed that while 39% of white women aged 40-59 years were considered obese, 51% of Hispanic women of the same age were obese (Ogden et al.,2007). Diabetes has been reported to be twice as common among Mexican-Americans compared to Caucasians (Sabogal et al.,2005). In the US, Hispanic women are at an even higher risk of developing heart disease because two thirds are overweight or obese and 60% live sedentary lives (U.S. DHHS, 2003). Sedentary lifestyles and high-fat diets are controllable risk factors that contribute directly to heart disease risk (Parra-Medina et al.,2004). Furthermore, more than half a million women in the US die as a result of heart disease annually (AHA, 2005). Studies have found that women are also counseled less often than men on subjects such as weight management, diet, and exercise (Parra-Medina, 2004). In addition, compared to other ethnic groups, Latinas receive the least amount of heart disease prevention education (Zarate-Abbott, 2008). In fact, heart disease, cancer, stroke, and diabetes were the four leading causes of death (Figure 1) in 2004 for Hispanic females residing within the United States (Heron, 2007). The situation has gained the attention of government health agencies. For example, *Healthy People 2010* is a set of national health objectives that include the reduction of health disparities among racial and ethnic groups (U.S. Department of Health and Human Services).

The challenges Latino immigrants face are further compounded by additional barriers. Hispanic immigrant groups are more likely to be less-educated, low-income, and have low-literacy levels (Sabogal et al., 2005). Legal issues such as immigration status may prevent individuals from qualifying for governmental food-assistance programs or Medicaid, leaving them food insecure and without health care. Limited English proficiency can also thwart immigrants from being able to read food labels or understand nutrition and other health information printed in the US (Haldeman et al., 2000).

Despite being at a disproportionate higher risk of developing diet-related chronic diseases, few educational materials have been designed specifically for minorities, including the US Latino population (Parra-Medina et al.,2004). Within the Latino population, women are typically the caretakers of the family and as a result they are charged with food purchasing and preparation duties (Macario et al., 1998, Ramirez et al., 2007). This article will present the findings of a study conducted to develop and pre-test culturally appropriate, theoretically based nutrition education materials targeting low-income Latina immigrant caretakers in Guilford County, North Carolina.

Study Design

The purpose of this two-phase formative research project was to develop and pre-test culturally-appropriate nutrition education materials that are useful for low-income Latina immigrants in Guilford County, North Carolina. First, focus groups (N=6) and individual interviews (N=3), were held with Latina/Hispanic immigrant women (N=20 women total) to identify their key areas of interest, feasible approaches to providing nutrition information, and major concerns regarding their family's diet. Next, using the

feedback obtained from the focus groups and interviews, culturally-appropriate materials and messages were developed and pre-tested with the target group. Lastly, following the development of these materials, prototypes were content validated by nutrition professionals (N=6) and face validated by low-income Latina caretakers (N=6) during a final focus group in order to assess their cultural acceptability. Feedback and ideas offered by the focus group participants were used to guide revisions and help improve the materials' appeal to the target audience.

Phase I: Focus Groups/Semi-structured Interviews

Methods

The first step of this project was to complete and submit an application to the University's Institutional Review Board (IRB). The present study received IRB approval on May 8, 2008.

As mentioned earlier, the Natural Helper Model can involve using informal social networks as a way to gather or spread important health messages or referrals to resources (Eng & Parker, 2002). Through her extensive social network, the community interviewer assumed the role of Natural Helper and recruited newly-arrived, low-income Latina immigrant women who cared for at least one child under the age of twelve. These women in turn invited their friends who were eligible to participate in the study until twenty participants were recruited, a process known as "snowball sampling".

All participants were given Informed Consent documents which had been translated into Spanish and read through with the help of the community interviewer. Participants were each given a $20 Wal-Mart gift card and served refreshments. Initially,

the aim was to conduct four focus groups (N=5-7 in each), however the community interviewer had difficulty scheduling large groups. During the summer, as children are all home from school, it was challenging to find times that would work for more than one or two mothers at a time. Instead, smaller groups and semi-structured interviews were conducted when necessary to reach an appropriate sample size. In addition to asking the participants interview questions, the participants also had an opportunity to ask the researcher questions about healthy eating and were shown food models and other props to help facilitate the conversations. A total of twenty low-income Latina caretakers were interviewed in their homes or in a group setting using a semi-structured question guide that was developed (Appendix B) to help better understand the educational needs and concerns of this population. These 60 to 90 minute sessions were conducted in Spanish and tape recorded for later translation. After completion of the community focus groups, in conjunction with the community interviewer, all of the tape-recorded sessions were transcribed and translated into English. This information was used to determine how to most effectively reach the target population and highlighted what types of educational materials they would prefer, in what manner, and what specific nutrition information they need the most.

Data Analysis

The transcripts from the community focus groups and interviews provided a wealth of qualitative data that were content analyzed. Each transcript was read thoroughly by the student researcher, Meghan McQuerry (MM) several times in order to identify recurring themes about what information is lacking in and what materials would

be best received by this community. An idea or answer was considered a "theme" if it was mentioned greater than five times by different participants. This criteria was used previously by MM to content analyze transcripts of another study with the same target audience and was sufficient to achieve theme saturation. Overarching themes were highlighted in different colors to facilitate the process of counting how many times each idea was mentioned. Women volunteered to give information regarding their own personal characteristics; participants were on average, thirty years of age, unemployed, and had lived in the US for less than five years.

Results of Phase I

Focus groups (N=6 groups) and individual interviews (N=3 individuals, N=20 total) were conducted with the help of a bilingual/bicultural community interviewer. Through conducting these semi-structured focus groups and interviews and analyzing the translated transcripts, several overarching themes emerged (See Table 1). Several women admitted they do not understand which foods are healthy choices when grocery shopping at local stores and they felt that tips on how to select healthier foods would help improve their family's diet. The interviews revealed many unhealthy nutrition myths circulating among this community. One such misunderstanding was that eating bread in the afternoon will cause weight gain, and several clients reported skipping dinner because they believed it would make them fat. Furthermore, many women indicated a strong desire for healthy recipes written in Spanish and with pictures, as well as more information about the MyPyramid. Many of the caregivers were concerned about how to prevent diabetes or heart disease. When trying to provide healthy foods for their family,

the biggest challenge is reportedly persuading their children to eat vegetables and try new healthier recipes. Several remarked how accustomed the children have become to American fast foods such as pizza and burgers served at school. Mothers indicated they would benefit from tips on how to encourage their children to eat healthy foods like fruits and especially vegetables. The majority of participants requested healthy recipes that are also child-friendly and would help make their family's diet more nutritious. According to the Latinas interviewed, easy recipes cards or brochures would be the educational materials most helpful to them when trying to prepare healthier dishes for their families. Most felt these materials should be written in Spanish and five participants preferred bilingual printed materials. Also, many of the women would prefer materials printed in color rather than black and white and they would like either a mixture of pictures and text, or mostly pictures. Nine times, participants also indicated a desire for recipes of healthier versions of traditional Hispanic dishes they currently enjoy eating. The target audience was also asked what their favorite meals are to prepare for their families in an attempt to understand what types of dishes are considered culturally-acceptable for them to eat (See Table 2). The four most popular foods mentioned by the caregivers were roasted chicken, beans, rice, and fruit. Beef, fish, soup, quesadillas, and mole sauce were all second most popular, mentioned by three different participants each. Many of the women cited preparing salads, hotdogs, eggs, hamburgers, and various pasta dishes for their family. Other items that were mentioned as favorites at least one time each included pizza, chuleta, pozole, mashed potatoes, pork, shrimp, gorditas, tacos, empanadas, enchiladas, and tamales. In addition, nine of the participants were interested in a list of

local food banks and similar organizations that could provide them with groceries. Five women felt that transportation to such food banks is a concern, and six felt that information about bus routes and fares should be included in the materials developed. When asked how they felt about eating foods often provided at shelters such as canned foods and boxed cereals, five participants remarked they do not like eating canned foods and would prefer fresher options. The same number of participants did not see a problem with consuming canned or packaged foods and expressed appreciation for what was offered to them at no cost. Also notable, many women in this group requested more information about serving sizes and correct portions for foods in the tool to be developed without even being asked questions about such material.

Table 1. **Themes Revealed by Low-Income Latina Caregivers* in Guilford County**

Theme	Times
Many women claimed they do not know which foods are healthy choices when grocery shopping at local stores.	10
They feel that tips on how to select healthier foods would help improve their family's diet.	9
The majority of participants voiced concern about preventing diabetes or heart problems.	8
The biggest challenge when trying to provide healthy food for the family is getting their children to eat vegetables and try new recipes.	7
They feel they would benefit from tips on how to encourage your children to eat healthy foods like fruits and vegetables.	9
Healthy recipes that are also child-friendly would help make their family's diet more nutritious.	11
The kinds of educational materials that would help them the most are **recipes/recipe cards** or **brochures**.	6, 7
These materials should be in **Spanish** or **bilingual**.	10, 5
The women would prefer printed materials to be in colors.	11
They would prefer a **mixture** of pictures & words, or mostly **pictures**.	10, 5
Participants would like recipes for healthier versions of traditional Hispanic dishes they currently enjoy eating.	9
The women would like a list of local food banks and similar organizations that could provide them with groceries.	9
Transportation to these sites is a concern for some women.	5
They want information about bus routes and fares included.	6
Many remarked they **do not like** eating canned foods, while others **felt fine** about it.	5, 5
Many women in this group requested more information about serving sizes and correct portions for foods in the materials that are developed.	8

**N=20* –responses obtained from twenty women

Table 2. **Favorite Foods Reported by Low-Income Latina Caregivers* in Guilford County**

Most Popular Foods/Dishes	Times
Chicken, roasted	8
Beans	7
Rice	5
Fruit	4
Beef, fish, soups, quesadillas, mole sauce	3
Salads, hotdogs, eggs, hamburgers, pasta	2
Pizza, chuleta, pozole, mashed potatoes, pork, shrimp, gorditas, tacos, empanadas, enchiladas, tamales	1

**N=20*

Phase II: Materials Development and Pre-testing

Methods

The next step was to develop theoretically-based nutrition education materials using the Social Cognitive Theory and its related constructs as a guide. As discussed previously, SCT focuses on the influential interrelationships between the individual, environment, and behavior (Baronowski et al.,1997). Based on the preferences conveyed by focus group participants, it was determined that a recipe card flip chart and an informational brochure would be acceptable materials to produce for this target audience.

Recipe Cards

In response to the high degree of interest participants expressed during Phase I, MM began to plan the development of recipe cards (see Appendix E for sample in English). The idea evolved into creating a "flip chart" of colorful recipe cards that could be kept conveniently in one place in the kitchen. These recipe cards would be laminated to increase durability against any splatter or moisture present while preparing the meals. It was also intended that each card would have a front side covered with a large color photo of the dish with the recipe and directions on the back side. It was decided that the recipe cards would be printed in Spanish and provide seven to ten simple, culturally appropriate recipes based on the food preferences and concerns expressed by the target audience (Tables 1 & 2). This would allow a different meal to try every night of the week with a few extra choices to offer flexibility and provide variety. After thoroughly reviewing electronic and print sources of traditional Hispanic recipes, two sources were selected for several reasons.

Recipe Sources

The first source chosen, *Delicious Heart Healthy Latino Recipes! (Platillos Latinos Sabrosos y Saludables!)*, was published by the National Heart, Lung, and Blood Institute (2008). This guide was selected because not only did it offer many recipes that centered on the target audience's favorite ingredients, but also recipes were tested within the Latino community and were all analyzed for nutritional content. The recipe book emphasizes cooking with low-fat dairy, small amounts of oil, as well as lean cuts of meat, skinless chicken, and fish. The recipes are also rich in fruits and vegetables and relied on traditional herbs and spices for flavor rather than fat.

The second source used was the SNAP-Ed Connection Recipe Finder (2009). This online database provided by the Food and Nutrition Service offers hundreds of recipes for nutrition educators working with clients eligible for the Supplemental Nutrition Assistance Program. Users can search by recipe cost, target audience, equipment available, meal type, ingredient, or nutrition education goals (i.e. low saturated fat cooking). Nutrition facts are provided for every portion and recipes are rated by other users.

Recipe Selection

To be chosen for the flip-chart, the ten recipes had to meet certain criteria. First, the healthy recipes had to use inexpensive ingredients that are easily found at local discount grocery stores such as Walmart or Food Lion. Recipes had to include at least one of the target audience's favorite foods as ingredients, namely chicken, beans, and rice (Table 2). They had to also be quick and easy to prepare and not require the use of

special kitchen tools or equipment that low-income households sometimes lack, such as microwaves. Furthermore, the traditional recipes selected needed to be low in total, saturated, and trans fats and low in sodium. Recipes also needed to be rich in fruits and vegetables to increase the meal's nutrient and fiber content, and to help address the target audience's interest in encouraging their children to eat more vegetables (Table 1). Based upon these guidelines, ten healthier recipes of traditional Hispanic fare were selected for the flip-chart (Table 3).

Table 3. **Selected Recipes for Flip-chart**

Recipe Name in English	Recipe Name in Spanish	Main Ingredient(s)	Number of Steps	Source
Polenta with Pepper & Cheese	*Polenta con Pimienta y queso*	Polenta, beans,cheese	6	SNAP-ed
Salvadoran Stuffed Masa Cakes	*Pupusas Revueltas*	Chicken, corn flour, vegetables	7	NHLB[1]
Mexican Pozole	*Pozole a la Mexicana*	Beef/chicken, vegetables, hominy	4	NHLB
Lentil Soup	*Sopa de Lentejas*	Lentils, vegetables	5	NHLB
Chicken Picadillo	*Picadillo de Pollo*	Chicken, beans, rice	5	NHLB
Quick Beef Casserole	*Cazuela Rapida de Carne de Vaca*	Beef, rice, vegetables	4	NHLB
Vegetarian Burrito	*Burrito Vegetariano*	Beans, tortilla, vegetables	5	NHLB
Chicken and Beans	*Pollo y Frijoles*	Chicken, beans, vegetables	5	SNAP-ed
Garden Chili	*Chile del Jardin*	Beef, beans, vegetables	6	SNAP-ed
Spinach Corn Casserole	*Cazuela de Maiz con Espinicas*	Spinach, corn, onion	3	NHLB

[1] NHLB= National Heart, Lung, and Blood Institute, US National Institutes of Health. *Platillos Latinos Sabroso y Saludables! Delicious Heart Healthy Latino Recipes.* Bethesda, MD: National Institutes of Health; 2008. NIH 08-4049.

Recipe Testing and Photographs

To ensure the recipes featured in the flip-chart resulted in tasty, appealing meals, friends and family of MM were recruited to assist with pre-testing the recipes. Each person chose at least one recipe they wanted to try at home and agreed cook it exactly as the recipe instructed. They were asked to report back how the finished product looked and tasted. Volunteers answered questions such as "Were the ingredients inexpensive and easy to find?", "How long did it take to prepare?", "Was it too dry/wet", "How did it taste?" "How might you improve it?". All of the responses were very positive. Everyone reported the meals tasted great, were easy and quick to make, and inexpensive. Some slight changes were suggested in terms of cooking times, liquid content, and additional spices, however, no changes were made that would alter the overall nutrition content of the meal. For example, the salt content was not increased in any of the recipes to ensure they remained low sodium dishes.

Recipe testers were also asked to email MM a digital photograph of the finished dish to be included on the front of each recipe card. Most photos turned out well however, not everyone had access to a digital camera. In some cases, the pictures that were taken were not the most attractive or appetizing. It then became necessary to rely on public photographs posted on the internet to provide visuals for the remaining few recipes. All photographs that were selected had to be non-copyrighted and permission requests to use the pictures were sent to all sources (Appendix D). The source of each photograph found on the web was cited both under the picture itself and in this thesis (References).

Readability

Although the chosen recipes were already simply written, it was important to ensure that all of the text was at an appropriate reading level for our target audience. This required revising all of the recipes by shortening words and replacing certain cooking terminology with easier to understand words. It was also necessary to match the way certain instructions were written in different recipes so that steps remained consistent throughout the flip-chart. Following this revision process, the text of all ten recipes measured at Flesch-Kincaid grade level five.

Translation Process

After the final versions of the recipe cards were completed in English, the next step was to have them translated into Spanish. The text of the recipes were saved to a zip drive and given to the community interviewer to translate. Once the recipe text was translated completely into Spanish the file was given back to MM and put into the recipe card formats that were designed.

Brochure

The informational brochure was also designed to be in Spanish and in color (see Appendix F for English version). Based on the focus group responses from Phase I, it was decided the brochure would focus on the key areas of interest for the target audience. The brochure should include a section about correct portion sizes, a sample meal plan, and offer healthy food shopping tips. A panel of "Action Plans" was also included to offer examples of how and what kinds of healthy lifestyle goals participants could set and

also featured an area where the reader could write down their own goals for themselves as a way of making the material more interactive. Originally, the brochure was a tri-panel document, however to accommodate an appropriate font size and to have an acceptable graphics to text ratio, it became necessary to expand to a four-panel brochure. As with the recipe cards, the text needed to be in a font style and size suitable for readers with low-literacy skills. This meant avoiding anything smaller than a 12 point font size and choosing a font style with serifs. Due to these design principles, the font chosen was Times New Roman, at least 14 point font size.

Photo Selection

It was crucial to include plenty of attractive, colorful pictures to enhance attention and reader comprehension of the audience (Houts et al., 2006). Free clip art and photographs were was selected from the web sites, Microsoft Office Online and SNAP Photo Gallery (References).

Readability

This informational brochure was written from scratch with the low-literate target audience in mind. Polysyllabic words and passive sentences were avoided and sentences and messages were kept concise. All unnecessary words were deleted and pictures were used to emphasize key points. Following this revision process the text of the entire brochure measured at Flesch-Kincaid grade level two.

Translation Process

The translation process for the brochure text occurred at the same time and in the same way as the recipe cards previously discussed.

Pre-testing

Following the development of the materials, English and Spanish versions of both were presented to low-income Latina caretakers during a focus group (N=6) in order to assess their acceptability. Revisions were then made based on the participants' responses and feedback to develop the most appealing materials possible for this target audience. Social Cognitive Theory (SCT) guided the design process and pre-testing of materials throughout phase two. Recall that this theory incorporates the individual, environment, and behavior, explaining how a change in one of these areas leads to changes in the other areas (Baranowski et al, 1997). This project focused particularly on the constructs of *self-efficacy, behavioral capability, outcome expectations,* and *reciprocal determinism.* The table below outlines how key aspects of the recipe cards and brochure exemplify one of the four SCT constructs selected (Table 3). After the initial design was complete, the content validity and face validity of the materials had to be addressed.

Table 4. **Linking Materials to SCT Constructs**

Construct	**Featured in Materials**
Self Efficacy	Small steps, feasible options, short-term goals to build confidence
Behavioral Capability	Instructions about low-fat cooking methods, how to estimate proper portions
Outcome Expectations	Each suggestion will be linked to a positive health outcome
Reciprocal Determinism	Tips for involving kids in food preparation; also when Mom's cognition changes (learning F/V can be affordable)→ her food shopping behavior changes (buying more F/V)→ kitchen environment changes (more F/V available)→ family's behavior changes (eats more F/V)

Content Validity and Face Validity

Content validity was assessed by several nutrition professionals (N= 6), with one being a Latina registered dietitian. This was done to ensure that the nutrition information included is essential and accurate according to experts in the field. Face validity on the other hand means that the material "looks like" it will be helpful or appropriate according to audience members. Prototypes were evaluated by low-income Latina caretakers during a focus group (N= 6) in order to assess the appearance, format, and content of the materials. This sample size was appropriate because the purpose of the last focus group was to simply introduce the print materials to members of the target audience to glean their personal opinions regarding appearance and content. Any feedback and suggestions offered by the focus group participants were then used during the final revision process to improve the quality and appeal of the print materials to the target audience.

Results of Phase II

Recipe cards and a brochure were designed to address all of the key nutrition interests and concerns discussed by the focus group participants in Phase I. It was important that both of the materials be linked to the Social Cognitive Theory; in particular the constructs of self-efficacy, behavioral capability, outcome expectations, and reciprocal determinism. The products were further shaped by the feedback provided by nutrition professionals in the content validation stage as well as the feedback provided by members of the target audience in the face validation stage.

Recipe Cards

The recipe cards were double-sided and printed in color. Cards were laminated to prevent wear and tear and were bound by coil wire so that the user could flip through the ten recipes with ease. Recipes were written at a fifth grade reading level and printed in large (14 to 18 point) Times New Roman font. The face of each card featured a large colorful recipe name at the top of each page. This was followed by the number of servings per recipe, serving size, and a bulleted list of ingredients that were chosen because they were traditional, familiar, favorites mentioned by the initial focus group participants. Also on the front side, in the bottom right hand corner of each card was a colorful photograph of the recipe to create interest and to serve as a guide for what the dish could look like after cooking. The back side of each card has a bright yellow background and lists the directions numbered step by step. None of the recipes chosen had more than seven steps and some recipes had only three or four steps. This allowed the font size to be increased even more.

The final focus group (N=6) was presented with English and Spanish versions of the informational brochure during the face validation stage. The participants' response regarding the appearance, format, and content of the brochure was very favorable. All of the women could read the text without difficulty and reportedly understood the nutrition concepts addressed. Participants liked the colorful backgrounds and clip art selections, as well as the two photographs featuring a Latino family. All of the women agreed that they especially enjoyed the panel devoted to portion sizes. None of the participants could think of any aspect they would change. Perhaps most revealing was the fact that all participants

asked if they could please keep both of the material prototypes, suggesting they genuinely approved of the final products.

The final focus group was also presented with English and Spanish versions of the recipe cards during the face validation stage. The feedback was very positive regarding the appearance, format, and content of the recipe card flip-chart. All of the women could read the recipes without problems, liked the ten Hispanic dishes that were chosen, and liked the colorful photographs of each dish. The only suggestion offered was to change the spelling of a dish from "papusas" to "pupusas".

Brochure

The four-panel, double-sided, informational brochure entitled "Eat Healthy, Feel Great!" was designed to provide information about topics of interest including portion sizes, a sample meal plan, healthy shopping tips, and goal setting ideas. It was important that the brochure also look very eye-catching and attractive, therefore it featured several bright colors as backgrounds in addition to the colorful clip art and photographs. The title panel featured a large photo of a relatable, Latino family cooking together in the kitchen. This visually represents the concept of reciprocal determinism because it could be explained that the mother's cognition changed (as a result of learning how to purchase cheaper produce for example), this change led to a change in her behavior (food shopping choices), which led to a change in the kitchen environment (increased access to fruits and vegetables at home), which then led to a change in the family members' behaviors (the family prepares and consumes more of this healthy food together). Underneath the photo, a brightly colored text box reads "Tips about how you can prevent heart disease,

diabetes, and obesity by making smart food choices!". This caption is meant to entice the user to pick up the brochure and read it, by answering the question, "Why should I care about this information?".

The next panel is entitled "What Does a Serving Look Like?" and increases behavioral capability by illustrating how to estimate appropriate portion sizes even in the absence of measuring tools. It was important to provide colorful visual aids that represent correct portion sizes to increase reader comprehension and memory.

The following panel, a sample menu, was provided to answer the questions posed by participants during the Phase I focus groups; "What foods should I choose?", "How much should I eat?", "How often should I eat?". By offering examples of an ideal day's menu, the reader's behavioral capability is increased because they now can apply this information to their own food choices. All of the types of foods and beverages on the panel are low-cost items the participants have reported already buying. The sample menu includes clip art to enhance appearance and uses culturally appropriate foods that appeal to the target audience. The menu also refers to meals featured in the healthy recipe card flip-chart as lunch and dinner options to further tie the educational materials together.

A "Healthy Eating Tips" panel was designed to increase self-efficacy by offering five small, feasible changes the reader can make to improve their diet. The advice is clear and concise and is emphasized by a fruits and vegetables graphic. Another colorful photograph of the same relatable Latino family featured on the cover shows the mother, husband, and children all sitting around the dinner table together eating as a family. This reflects the core cultural construct *familismo,* which is highly valued by the Latino

community. Under this photo is another eye-catching caption that reads “Canned or frozen fruits and vegetables are healthy and can cost less money!”. The goal was to provide readers with this information so that their knowledge about which food items are acceptable and safe options increases, thus increasing their self-efficacy by empowering them to make smarter food shopping decisions while on a limited budget.

The following panel is designed in two columns “Instead of…” and “Try this instead…”. These columns list simple food item swaps Latina caretakers can make in order to enhance the nutrition content and decrease the total and saturated fat content of their diets. During Phase I, many participants reported cooking with lard everyday to prepare their meals. In response, one of the swaps suggested was “Instead of lard try canola or olive oil instead”. Then to address the important SCT construct of outcome expectations, these healthy swap ideas were enhanced with bright bubble captions that read “Switching to low-fat foods could help you lose weight!” and “Olive oil is good for your heart!”. Each caption was further emphasized with colorful clip art.

The final portion of the brochure featured two corresponding panels meant to make the educational material more interactive. First, bulleted “Examples of Action Plans” were provided to show readers how to write an action plan (or goal) that is specific, manageable, realistic, and timely. For example, “Tonight I will fill half of my plate with vegetables”, offers concrete guidance on how formulate a simple health goal change. At the bottom, there is an idea caption that reads “Ask your kids for more ideas!”. This reflects the importance of reciprocal determinism and assumes that by getting the children involved in the mother’s plans to make healthy changes, the changes

will spill over into the family's behavior, and environment, as all of the dimensions are continuously impacting each other. Next, is the "My Action Plans" panel which offers blanks for the reader to write in her own goals after referring to the list of examples provided. This panel is intended to increase self-efficacy by bolstering confidence in the reader as she sees her goal-sitting skills improving. A colorful picture of a Latina woman jogging is included at the bottom of the panel to emphasize the inspirational messages to take action. This panel was also featured on the far edge of the document so that if she wishes, the reader could cut it out and post her goals in a prominent place (such as the fridge or mirror) to enhance motivation.

Content Validation Responses

Content validity of the brochure was obtained from six nutrition professionals, including one Latina registered dietitian who works closely with the target audience every day (Appendix C). Their responses were constructive and helped guide the revisions in order to improve the final product. As a result of their feedback, changes included remaining consistent with a key message regarding produce. Originally, *canned* fruit and vegetables were advocated on one panel while only *fresh* fruits and vegetable choices are suggested in the Sample Menu and Action Plans panels. The final version offers both fresh and canned options on throughout the entire brochure. Initially, under "Healthy Eating Tips" there was a recommendation to eat fish at least twice a week. As one professional pointed out, this food is cost prohibitive for many members of the target audience therefore it was taken out. The original Sample Menu breakfast included one cup of juice, however, several professionals suggested this be replaced with water or an

unsweetened beverage because the breakfast was a bit heavy in fruit servings and it is important to promote the consumption of whole fruits versus juice, which is higher in sugar and calories. Whole-wheat cereal was replaced with "low-sugar" cereal (such as Cheerios) because it is an easier concept to comprehend and a more practical option for the target audience. Also, the brochure suggested choosing nonfat milk and reduced fat cheeses. Because the majority of readers currently consume whole milk products, a more realistic change was suggesting the switch to dairy products made with 2% or 1% milk. On the panel devoted to portion sizes, originally a picture of a deck of cards was selected to represent a 3 oz. serving of protein. One dietitian felt that a picture of a palm of hand would be a more familiar visual to the target audience. In addition, the action plan example that used to read "I will drink 8 cups of water" was changed to "I will drink only unsweetened beverages" in response to the suggestion made by the Latina dietitian. The brochure layout was also modified; the Goals panel was moved next to the Examples of Action Plans panel so that the reader could easily refer to examples when writing their own goals.

Discussion

The purpose of this two-phase study was to develop culturally appropriate, theoretically-based nutrition education materials targeting low-income Latina immigrant caretakers. Although the initial aim for Phase I was to conduct four focus groups (N=5-7 participants each), recruitment challenges led to interviewing smaller groups of participants at a time (N=6 groups, N=3 individual interviews, N=20 total). Due to the transient nature of the target audience, it was sometimes difficult for the community

interviewer to maintain contact with potential participants. Scheduling conflicts frequently arose among the women, and sometimes only half of the number expected to convene actually came.

The themes uncovered during Phase I were crucial to successfully creating meaningful, culturally appropriate materials for low-income Latina caretakers (Table 1). Consistent with findings from other studies, nutrition education needs of this group included information and guidance on how to select healthier foods and tips on how to encourage their children to eat more vegetables and other healthier foods (Hartman et al., 1994; Palmeri et al.,1998). The majority of participants requested information and recipes for preparing low-fat, healthy dishes for their families, and were especially concerned with their children's diets as they become more acculturated, which has also been found by other researchers (Hartman et al.,1994; Palmeri et al., 1998, Contento et al., 2003).

The results of this study indicated that the most requested means of receiving nutrition information involved printed materials they could keep, specifically healthy recipes and brochures. In contrast, other studies have found that this population prefers hands-on, interactive learning experiences (Hartman et al., 1994; Marcario et al., 1998; Palmeri et al., 1998). During the Phase I focus groups, favorite meals and ingredients were also assessed (Table 2). Similar to findings from Gans et al. in 1999, the most frequently mentioned dietary staples were chicken, beans, rice.

This project used the social cognitive theory (SCT) as a theoretically-informed framework for the development and pretesting of nutrition education materials for this target audience. Although a review of the literature revealed that many studies neglected

to tie their development project to a behavioral theory, Seligman et al. also chose SCT to guide the development of their diabetes self-care manual (2007). Similarly to the materials designed in this study, authors linked positive behavior changes to a desirable health outcome (outcome expectations construct), and they also incorporated the use of "Action Plans" at the end of every chapter (Seligman et al., 2007).

Also, many of the participants from the target group stated a preference for materials to be printed in color and want a mixture of pictures and text, or mostly pictures which is consistent with the findings of several other studies (Denny-Garamendi et al., 2007; Houts et al., 2006; National Cancer Institute, 2008; Kripalani et al., 2007). In 2006, Houts et al. conducted a review to assess the effects pictures had on the effectiveness of health education materials. They found that when pictures are closely linked to text, they can significantly increase attention and recall of health information as well as improve adherence to health instructions, compared to text alone. These authors suggested including people from the intended audience and use pictures only to support key points. These guidelines were followed when selecting the clip art and photographs of a relatable Latino family to be featured in this project's brochure and are consistent with suggestions from other studies (Seligman et al., 2007; Denny-Garamendi et al., 2007; Nitzke, 1998; Parra-Medina et al., 2004).

Limitations

Limitations to this study include small sample size, no randomization in recruiting participants, and limited generalizability. Though small, the number of participants (N=20) included in the focus groups and interviews during the formative research phase

was adequate to collect qualitative data on the needs and preferences of the target community. Recruitment of participants was a challenge because of the hard-to-reach, sometimes reclusive nature of the Hispanic immigrant population. Although randomized selection would have been optimal, many Latina immigrants do not have phones and relocate often so it was necessary for the bilingual, bicultural interviewer to utilize her personal connections within this community to recruit women, and for those women to tell their friends and neighbors about the study.

As a result of having only one interpreter involved in the focus group discussions, the researcher had to rely on a single interpretation of what was said, which could be considered a limitation. However, this interpreter has worked with the primary investigator for over five years on numerous studies and is regarded as highly capable and accurate. Furthermore, a significant strength of this study was employing an interpreter who is also viewed as a "Natural Helper" within the target community (Eng & Parker, 2002). Therefore, she had the unique ability to gain access for an outsider (MM) to enter into a difficult-to-reach population through social networking skills and personal connections. Also, in addition to aiding the data collection process by using a trusted community interviewer, the Natural Helper Model will be an important part of disseminating the nutrition information provided in the materials. For example, a Latina mother who receives the nutrition education materials may share tips on portion control next time she is at her friend's house. By learning skills such as how to limit the fat in cooking traditional Hispanic meals, her self-efficacy is increased and she can show her mother, sister, friend, neighbor, or daughter how to prepare healthier food.

Finally, due to the highly-specific target group (low-income Latina immigrant caregivers), some aspects of this study may have limited generalizability to other populations. However, other rural counties with a growing population of Latino immigrants from similar regions from which our target audience originated (over two-thirds of Guilford County's Latino immigrant population is from Mexico) could provide a demographically similar study population (Center for New North Carolinians). In addition, the theoretically-based steps and methods for development can be applied to other projects aimed at developing culturally-appropriate materials for other minority groups.

Conclusions

Based upon the results of the first phase of this study, it can be concluded that the local low-income Latina caretaker population is interested in educational tools that could help them improve the quality of their family's diet. According to the results of the second phase of this study, it can be concluded that the social cognitive theory (SCT) is an appropriate theoretical framework for guiding this project. This study also revealed that qualitative research can uncover underlying themes and cultural subtleties that collecting quantitative data alone may not reveal. Both forms of research are valuable and necessary to describe a cultural population. Furthermore, it is crucial to involve the target audience in every step of the material development process. Input from members of the target population can help shape the project's goals and direction before the design begins, it can inform decisions made along the way, and audience feedback can also guide revisions of the final products to ensure cultural-acceptability and appeal. Before

even beginning a project such as this, researchers need to become familiar with the target population's nutrition and health knowledge, beliefs, and values. This increased cultural competency will prepare the researchers for positive personal interactions with participants as well as increase the likelihood of developing materials that are relevant to the intended audience.

Future Implications

This study illustrates how a theoretically-based series of steps can be followed to develop and pre-test culturally-appropriate nutrition education materials for low-income Latina immigrants. However, more research is needed for this rapidly growing population. The Spanish language recipe card flip-chart and informational brochure should be further assessed by the target population by pilot-testing the materials with a larger sample size. These materials can be used as part of a targeted nutrition education intervention that involves hands-on group learning experiences, such as low-fat cooking classes or healthy food shopping demonstrations.

In addition, this project could only address a finite number of concerns and topics of interest posed by the target population. Moving forward, it is important not to overlook important issues that could not be addressed at this time. Specifically, future products for this audience should focus on improving access to nutritious food. As seen in the results from Phase I, there is a need for materials that provide information in Spanish about food bank locations, transportation information such as bus routes and fares, as well as contact information for community resources of which the target population might be unaware.

CHAPTER IV

EPILOGUE

When I first embarked on this journey, I was unaware that this study was not just a project to be completed as an academic requirement. On the contrary, it would become an exercise in self-actualization. Not only did I learn so much about qualitative research, the education material development process, and the Latino immigrant population, but I discovered the woman I have grown to become along the way. Always referred to as having a "type A" personality, I have always strived for perfection in everything I do. This trait has sometimes caused me to act like a "control freak"- especially when it comes to school or work assignments.

One of the biggest personal challenges I faced during this experience is learning how to relinquish control over certain aspects of a project. This study required close collaboration with our community interviewer, a woman for whom I have much respect and appreciation. However, because she tended to be much more laid back than me in terms of meeting deadlines and scheduling, I had to learn to adapt to her way of doing things. Having to rely on someone else to accomplish certain goals of my project (such as recruitment and translation) forced me outside of my comfort zone. This helped me realize that receiving help from a colleague does not make me weak; rather, it made my study stronger.

I came to this study without previous experience in conducting focus groups or interviews with the public. I had also never worked with the target audience before. I

soon learned that participant recruitment would be a significant challenge. The low-income Latino immigrant population can be very difficult to reach. One major obstacle was the language barrier. As members of a lower-acculturated Latino group, most of the participants spoke only Spanish. Many do not have telephones or the internet, and relocate frequently. They are also a very private, close-knit group of people who are hesitant to let outsiders (i.e. me) into their community. This can be the case because many immigrants are not documented or of legal status here in the US and are leery of non-Latinos that might report them to the authorities. That is why it was so crucial to have a bilingual interviewer who is part of this community herself; she was able to gain access into the homes of the target audience and make participants feel at ease with me as well.

Even when our community interviewer thought she had recruited enough women for the focus groups, we often faced scheduling challenges. Although we expressed our ability to meet them anywhere they wish, it was difficult to find more than a few available at the same time due to children's school schedules, family responsibilities, or simply lack of transportation. Sometimes we would have to meet a couple of women at one house and drive them over to their friend's house in order to increase sample size. I also learned that the Latino population has a very different time orientation compared to many Americans. They do not view being late to a meeting as rude and are much more flexible when it comes to making appointments. This was also the case with my community interviewer who was late often and did not meet deadlines sometimes. It was not uncommon for us to have scheduled eight women for a focus group, only for us to arrive and only half actually came. Or sometimes we would go to a house and the rest of

the participants would come in an hour late. I quickly grew accustomed to this cultural difference and adapted my own schedule to plan for it.

Working so closely with the low-income Latina population has also ignited a passion for channeling my nutrition education knowledge and communication skills to helping diverse, high-risk populations. Through speaking with participants during the focus groups and developing a close friendship with our community interviewer, I saw first-hand the health disparities that persist among minorities and immigrant populations. Registered dietitians are uniquely equipped with the expertise to address diet-related chronic illnesses that continue to disproportionately affect minorities and those of low socioeconomic status. I always knew that I wanted to use my career to make a difference in the lives of others, possibly in third-world countries. This experience brought to my attention the great vulnerabilities and poverty existing in my own backyard. Latino immigrants are a very strong, proud people. From my personal experience they are hesitant to ask for financial assistance or to admit they are struggling to put food on the table. Conducting all of the interviews and focus groups in the participants' homes was incredibly eye-opening. Seeing very large, extended families squeezed into two-bedroom houses or trailers made me realize just how fortunate I am to have the life I do. Witnessing these families laugh together and maintain such positive attitudes despite extreme adversity, has led me to gain a deep respect for our immigrant population. It was impossible for me not to empathize more with this minority community who is too often unseen and neglected in our society.

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APPENDIX A

INFORMED CONSENT FORM

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

CONSENT TO ACT AS A HUMAN PARTICIPANT: LONG FORM

Project Title: Development of Nutrition Education Materials for low income Latino/Hispanics in Guilford County, North Carolina

Project Director: Lauren Haldeman

Participant's Name: _____

The purpose of this project is to learn about what kind of nutrition information is needed and wanted by the Latino/Hispanic population in Guilford County, North Carolina. Participants will ① live in Guilford County, NC ② take care of a child ≤ 12 years of age, ③ live in a house without much food, ④ be the primary meal preparer, ⑤ Latino/Hispanic, and ⑥ have lived in US ≤ 5 years. Participants will be asked to join 5-6 other Latina/Hispanic women in a group and spend about 90 minutes with an interviewer talking about what type of nutrition information they would like to learn more about as well as how they would like to receive that information. All interviews will be conducted in Spanish; tape recorded, and take place in a place that is easy to get to.

This study has small risks because some of the discussion may lead to talk about money or body size. All groups will take place in a private location.

When not in use, the tape recorder will be kept in a locked drawer in a locked office. After each interview, the tapes will be put onto a computer in a locked office and erased before the next interview. All written materials will be kept in a locked file in a locked office and destroyed 3 years after closure of the project. Any tapes, files on disk or on the hard drive will be erased 3 years after closure of the project. All members of the research team will sign privacy agreements which will be kept by the Principal Investigator on file for at least 3 years.

Study participants will benefit from this study in that they will have a chance to talk about their nutrition needs and wants with other women The interviewer is a also member of the target group and is well aware of resources available to newly arrived immigrants. The interviewer will serve as a point of resource information for the participants. The interviewer, however, will not give any health related advice. Participants will also receive a grocery gift card for their time. This study will benefit society because it will help improve the health of the Latino community.

By signing this consent form, you agree that you understand the procedures and any risks and benefits involved in this research. You are free to refuse to participate or to withdraw your consent to participate in this research at any time without penalty or prejudice; your participation is entirely voluntary. Your privacy will be protected because you will not be identified by name as a participant in this project.

The University of North Carolina at Greensboro Institutional Review Board, which ensures that research involving people follows federal regulations, has approved the research and this consent

form. Questions regarding your rights as a participant in this project can be answered by calling Mr. Eric Allen at (336) 256-1482. Questions regarding the research itself will be answered by Lauren Haldeman by calling 256-0311. Any new information that develops during the project will be provided to you if the information might affect your willingness to continue participation in the project.

By signing this form, you are affirming that you are 18 years of age or older and are agreeing to participate in the project described to you by Soledad.

_____ _____

Participant's Signature Date

APPENDIX B

SEMI-STRUCTURED QUESTION GUIDE

SEMI-STRUCTURED QUESTION GUIDE

1. **What are some of your main concerns or questions about healthy eating?**
   - Do you know which foods are healthy choices when you are grocery shopping at local stores?
   - If not, would tips on how to select healthier foods help improve your family's diet?
   - For example: choosing foods lower in fat, lower in sugar, more fruits and vegetables

2. **What is your motivation for wanting to eat healthy?**
   - For example, are you concerned about preventing diabetes or heart problems?
   - Do you feel you need more guidance with how to select and prepare fresh produce?

3. **How do you feel about your family's current food situation?**

4. **What is the biggest challenge you face when trying to provide healthy foods for your family?**

5. **Would you benefit from tips on how to encourage your children to eat healthy foods like fruits and vegetables?**
   - Would healthy recipes that are also child-friendly help make your family's diet more nutritious?

6. **What types of information would help you select healthy food items?**
   - **Advice on how to buy healthier foods on a budget?**

7. **What kind of materials would help you the most?**
   - For example: brochures, pamphlets, posters, recipe cards, flyers, videos?
   - Would you prefer printed materials to be black and white or in colors?

8. **Should these materials be in Spanish, English or bilingual?**
   - Would you prefer mostly words, mostly pictures, or a mixture of both?

9. **Would you like recipes for healthier versions of traditional Hispanic dishes you currently enjoy eating?**
   - If so, what are some of your family's favorite dishes to eat?
   - What are some other examples of culturally acceptable foods your family would eat?

10. **Would you like a list of local food banks and similar organizations that could provide you with groceries?**
    - Is transportation to these sites a concern?
    - If so, should we include information on bus routes and fares?

11. **How do you feel about eating foods often provided at shelters such as canned vegetables or boxes of cereal?**
    - If these foods are not acceptable to you, could you explain why?

12. **Is there anything else you would like to share about how we might develop helpful nutrition education materials?**

APPENDIX C

CONTENT VALIDATION REQUEST

TO: Nutrition Professional, MS, RD, LDN

FROM: Meghan McQuerry

DATE: March 6, 2009

RE: Content Validation Request

This memo has been sent to request your assistance with an important aspect of my MS thesis project. The purpose of my study is to develop and pre-test culturally appropriate, theoretically based nutrition education materials targeting low-income Latina immigrant caretakers in Guilford County.

Before I pre-test my products with focus groups, I am seeking content-validation from several well-respected nutrition professionals. I will provide each expert with an electronic color version of my brochure as well as a black & white hardcopy. Experts are asked to review the accuracy of the information in the brochure *(Is the information presented accurate? Should the content be changed in any way to improve accuracy?)* and return their comments within a week of receiving the brochure.

I hope you will consider helping me with this step of the material development process. Please respond via email me as soon as possible at mcmcquer@uncg.edu about whether you are willing to participate.

Thank you so much for you time!

APPENDIX D

PHOTOGRAPH PERMISSION REQUEST

From: Meghan McQuerry [mailto:meghanmcquerry@yahoo.com]
Sent: Friday, March 20, 2009 9:08 AM
To: tours
Subject: Permission to use a photo

Dear ExperiencePlus! Staff,

I am writing because I would like your permission to use one of your recipe photos in a nutrition educational material I'm creating as part of my thesis project. The purpose of my study is to develop and pre-test culturally appropriate, theoretically-based nutrition education materials targeting low-income Latina immigrant caretakers in Guilford County , North Carolina . One of the materials I'm developing is a recipe card flip-chart which includes a healthy version of polenta. Your site posted a beautiful photo of polenta (found at http://www.experienceplus.com/reading_room/recipes/italy_polenta.html) that would be a perfect illustration of my recipe. Of course, with your permission, I would credit your site with the photo on the card and in my thesis. Please let me as soon as possible if I have your permission. Thank you so much for your time and consideration!

Sincerely,

Meghan McQuerry

APPENDIX E

SAMPLE OF RECIPE CARD IN ENGLISH

Chicken Picadillo

Yield: 6 servings Serving size: ¾ cup

Ingredients:

- 1 pound boneless, skinless chicken breast, cut into strips
- 2 teaspoons olive oil
- 1 large onion, chopped
- 1 medium green pepper, chopped
- 1 medium red pepper, chopped
- 3 cloves garlic, mashed
- ⅓ cup no-salt-added tomato sauce
- ⅓ cup low-sodium chicken broth
- ⅓ cup lemon juice
- ⅓ cup water
- ¼ teaspoon ground cumin
- 2 bay leaves
- ¼ cup golden raisins
- Cilantro

Directions:

1. Heat olive oil in a large skillet over medium heat. Add the onion, peppers, and garlic, and sauté until the vegetables are soft, about 5 minutes.
2. Add chicken and stir for another 5 to 10 minutes, until the chicken has cooked through.
3. Add the tomato sauce, chicken broth, lemon juice, cumin, bay leaves, water, and raisins to the vegetables and chicken.
4. Cover the pan and reduce the heat. Simmer for 10 minutes or until the chicken is tender.
5. Remove the bay leaves and serve with brown rice and black beans. Garnish with fresh cilantro.

APPENDIX F

BROCHURE IN ENGLISH

My Action Plans

Write your own goals here!

- Today I will...

_____

_____

- Tomorrow I will...

_____

_____

- This week I will...

_____

_____

- This month I will...

_____

_____

Examples of Action Plans

Here are some healthy goals that you can set for yourself!

- Today I will drink only unsweetened beverages
- This week, I will walk for 30 minutes most days
- Tonight I will cook dinner using canola or olive oil
- Next time I shop, I will buy 1% or 2% milk
- This week I will eat a healthy breakfast everyday
- This afternoon I will eat fresh or canned fruit for a snack
- I will buy bread that says "100% whole grain" on the bag
- Tonight I will fill half of my plate with vegetables
- Tonight I will bake or grill my meat

Ask your kids for more ideas!

Healthy Eating Tips

- Eat smaller portions
- Eat breakfast everyday
- Eat 5-9 servings of fruits and vegetables a day
- Choose whole grains
- Cook with less oil

Canned or frozen fruits and vegetables are healthy and can cost less money!

Eat Healthy, Feel Great!

Tips about how you can prevent heart disease, diabetes, and obesity by making smart food choices!

Sample Menu

Breakfast

- 1 cup low-sugar cereal
- 1 cup 1% or 2% milk
- 1 small banana
- Unsweetened tea or water

Lunch

- 1 cup Pozole or Lentil Soup
- 1 medium fresh fruit or ½ cup canned fruit in lite syrup, drained
- 1 cup cabbage and tomato salad
- 1 unsweetened beverage or water

Snack

- 1 sliced apple
- 1 tbsp peanut butter

Dinner

- ¾ cup Chicken Picadillo
- 1 cup brown rice and black beans
- 1 cup of fresh or ½ cup cooked frozen green vegetables (like spinach)
- 1 cup 1% milk or water

What Does a Serving Look Like?

1 fist = 1 cup cereal flakes
= 1 baked potato

½ baseball = ½ cup cooked rice
= ½ cup cooked vegetables
= ½ cup cooked beans

1 baseball = 1 cup salad greens
= 1 medium fruit

1 die = 1 tsp butter
= 1 tsp oil
4 dice = 1 ½ ounce cheese

Palm of hand = 3 oz. meat, chicken, or fish

1 golf ball = 2 Tbsp peanut butter

Instead of….	Try this instead….
Whole milk	1% or 2% milk
Cheese	2% cheese
Sour cream	Low-fat sour cream
Beef	Skinless chicken or fish
Potato chips	Pretzels or popcorn
Cheeseburgers	Grilled chicken sandwich
French Fries	Baked potato
Lard or butter	Canola oil or olive oil
Frying	Grilling or baking
White bread	Whole grain bread
White rice	Brown rice

Switching to low-fat foods could help you lose weight!

Olive oil is good for your heart!