The Rationale for a Family- and Community-Based Program to Prevent and Reduce Childhood Obesity among Latinos in Buncombe County

Ellen R. Bailey

University of North Carolina at Chapel Hill

Abstract

This paper describes the rationale and design for a family- and community-based pilot program focused on primary prevention of childhood obesity among Latinos. A review of childhood obesity prevention research indicates that multi-component interventions targeting physical activity, nutrition and behavior change that also involve parents and family are promising; however, there is still much to learn about the dynamics between the various levels of health determinants for minority populations. Designing culturally competent interventions can increase the effectiveness, appropriateness and receptivity of obesity prevention efforts for Latinos. Culturally competent interventions that are family-centered, offer social support, are linguistically accessible, consider cultural beliefs and perceptions and take place in a safe and welcoming environment are potentially beneficial. Based on the evidence found in current literature as well as on the health needs and desires of local Latino families, we will evaluate the efficacy of modifying an existing obesity prevention program designed for Latino families, *Salsa, Sabor y Salud,* for use in Buncombe County, North Carolina.

Background and Significance

Childhood overweight and obesity have reached epidemic proportions in the United States. The Obesity Society now estimates that 20%, one in five children, in the United States are overweight with minority groups suffering much higher rates (2010). According to *Salud America!* (2009a), a project of the Robert Wood Johnson Foundation, Latino[1] children are part of the "youngest, largest, and fastest growing minority group in the nation" (¶ 1) and have one of the highest rates of obesity. Thirty-eight percent of Mexican-American children, the largest Latino subgroup, are overweight or obese, compared with 34.9 percent of African-American children and 30.7 of non-Hispanic White. (Salud America!, 2009b)

The increase in incidence and prevalence in childhood overweight and obesity is cause for serious concern as many obesity-related diseases, such as hypertension and type 2 diabetes, carry negative psychological and physical health risks and outcomes. There are multiple causes of obesity among children such as levels of physical activity and sedentary behavior, nutrition and eating habits, social and physical environments, socio-economic status and genetics. The foundation of childhood overweight prevention efforts have focused on obesity-related behaviors that have the greatest potential for change, such as levels of physical activity and eating habits (The Obesity Society, 2010). Nevertheless, the choices that individuals have with respect to eating and activity behaviors are strongly influenced by the social and physical environments in

[1] For the purpose of this paper, the terms "Latino" and "Hispanic" will be used to describe people from Spanish-speaking family heritage and countries. The term "Hispanic" comes from España or Spain and is a term that the United States government adopted in the 1970s and was thereafter used in the 1980 and 1990 census. (NC Latino Task Force, 2003) Latino or Hispanic is often used for data collection to denote an ethnic category, not a race. Many prefer the use of Latino because it can be considered more inclusive of all of Latin America and less related to the Spanish colonization of the Americas. Stovitz (2008) states that even though the term "Latino" may also include those from Latin-language countries, not only Spanish-speaking, this is not how it is commonly understood in the United States. Latin Americans come from many different cultures, countries and races and prefer to be identified with their culture or country, ie. Mexican-American. The North Carolina Latino Task Force has seen the term "latino" more regularly used across North Carolina; therefore, will be the principle term used in this paper unless a reference or author specifically uses another term, whereby, the original terminology will be respected. (2003)

which they live and the complex interplay of these variables is not yet fully understood. When designing prevention efforts specifically for Latinos, it is essential to also examine the culture and values that are an integral part of social and physical environments. (Caprio, Daniels, Drewnowski, Kaufman, Palinkas, Rosenbloom, & Schwimmer, 2008; Hill, Wyatt, Reed, & Peters, 2003; Latino Coalition for a Healthy California - LCHC, 2006). This paper reviews the current literature on childhood obesity prevention with a particular focus on intervention components that have the greatest potential for effective prevention programming for Latinos. We will examine the findings with the intention of creating an evidence-based culturally competent prevention program for Latino families.

With respect to childhood obesity and specifically Latino children, a review of three national databases that track obesity among Latinos revealed that the Latino-American male youth has a higher prevalence rate of obesity than other major ethnic-gender groups (Stovitz, Schwimmer, Martinez, & Story, 2008). In addition to the data analysis, these researchers reviewed the limited number of intervention studies on Latino youth with a focus on the behaviors associated with obesity, such as nutrition, lack of physical activity and a sedentary lifestyle. As compared to non-Hispanic whites, Latino boys demonstrated a greater intake of sugary beverages, lower physical activity levels, and increased sedentary behaviors. Stovitz et al., (2008) noted the lack of intervention studies for Latinos only and recommended increased research and attention to the prevention and treatment of obesity among this group.

There are some promising intervention strategies for addressing childhood overweight and inactivity and childhood is the ideal time for prevention given the complex interaction of environmental, behavioral and often genetic factors (Ells, Campbell, Lidstone, Kelly, Lang, Summerbell, 2005). Childhood obesity prevention programs that promote a healthy diet, an

active lifestyle and behavioral support for children and are also inclusive of the family, school and community have potential.

Intervention components

Seo and Sa (2008) conducted a meta-analysis of obesity prevention programs among multi-ethnic and minority adults in the United States and concluded that three-component interventions with a focus on nutrition, physical activity, and counseling were the most effective. Sessions focusing on the individual that also involved the family and problem solving strategies could be beneficial for minority populations. These researchers found a lack of evidence in the meta-analysis that minority prevention programs are more effective with intervention leaders of the same race and/or ethnicity, although other studies have recommended promoting ethnic and/or linguistic identification between facilitators and participants (Clark, Bunik & Johnson, 2010; Fitzgibbon, Stolley, Dyer, VanHorn & KauferChristoffel, 2002; Kumanyika and Morssink, 1997).

Minority-only studies are few, and according to Kumanyika (2008), even when minority participants are included in a program or study, knowing that multi-component interventions are more effective is not enough; Cultural adaptations must be considered. Although the importance of integrating cultural factors into a Latino-focused intervention program is well-documented (Castro, Shaibi & Boehm-Smith, 2009), evidence-based guidance on how to tailor programs to minority communities is limited (Kumanyika, 2008). Much of the current literature on comprehensive lifestyle behavioral modification is based on white middle-class children; therefore, more research with minorities is needed and prevention efforts should consider the

culture, gender, individual, and family preferences when recommending dietary and physical activity practices (Caprio et al., 2008)

Family and Parental Involvement

The inclusion of family in any program for Latinos has been identified as an essential element (Evenson, Sarmiento, Macon, Tawney & Ammerman, 2002; Ramirez, Chalela, Gallion, & Velez, 2007; Snethen, Hewitt & Petering, 2007); Moreover, Kaufman and Karpati (2007) recommended that childhood obesity prevention programs for Latinos extend beyond the traditional focus on the child only or mother/child relationship to include other family members and friends. Not only is the inclusion of family recommended for Latinos, but overall family-based interventions also appear to produce better outcomes than programs targeting children only (Kitzmann & Beech, 2006; Young, Northern, Lister, Drummond, & O'Brien, 2007).

The Getting Into Fitness Together (GIFT) program has had success with a family-based intervention program (Himelein, Passman & Phillips, 2009). Most families reported that they had maintained concrete behavioral changes in their physical activity or eating patterns five months after the program's end (Himelein et al, 2009). GIFT also provided a program model involving advanced undergraduate college students as program facilitators and family mentors. Kids N Fitness, a family-centered intervention incorporating nutrition education, physical activity, and behavior modification sessions, of which seventy-three percent of the participants were Hispanic, found reduced average weight gain (0.14 ± 2.01 kg vs 0.81 ± 2.32 kg) and greater losses in BMI (-0.41 ± 0.85 kg/m^2 vs -0.08 ± 0.98 kg/m^2) among children in their 12-week program as compared to their 8 –week program; however, these changes were unsustainable after the end of the program. Weight loss was also positively associated with better emotional well-being and

behavior (Dreimane et al., 2007). A school-based multimodal weight management program designed specifically for Mexican-American children with nutrition education, physical activity and behavior modification components found that children in the instructor-led intervention achieved significantly greater weight loss (*z*BMI -0.13 ± 0.14 vs. 0.04 ± 12) than those in the self-help intervention and they also had improved physical quality of life outcomes (Fullerton et al., 2007.) Fullerton and colleagues stated that effective weight management programs may also encourage these quality of life improvements by providing social support. All of the above studies were multi-modal in that physical activity, healthy eating, and behaviors were addressed and each program included either behavioral modification sessions, family mentoring or social support. These findings appear to support Seo et Sa's (2008) findings and recommendation for multi-component interventions.

Another multi-component intervention designed to reduce increases in Body Mass Index (BMI) is Hip Hop to Health Jr. for Latino preschool children, a culturally proficient school-based obesity prevention program with diet and physical activity components (Fitzgibbon, Stolley, Schiffer, Van Horn, KauferChristoffel & Dyer, 2006). Even though this intervention had been piloted in order to refine its cultural appropriateness, and it was well received in the Latino school centers with a high retention rate, the program intervention did not prevent weight gain (Fitzgibbon et al., 2002; Fitzgibbon et al., 2006). Based on these findings, the researchers stated that increased parental involvement may be beneficial along with additional attention to tailoring the program to cultural factors, such as levels of acculturation, parental perceptions of weight, and cultural beliefs about eating and activity. A culturally tailored aerobic dance program for overweight, low-income, physically inactive women met with some success as it led to a high

retention rate and improved fitness levels as measured by VO2 max and reported levels of activity and walking (Hovell, Mulvihill, Buono, Liles, Schade, Washington et al., 2008).

Two studies focusing specifically on adult Mexican-Americans also found that family-based interventions could be more effective and culturally appropriate. Although focused on diabetes in older Mexican-Americans instead of childhood obesity, Wen, Shepherd & Parchman (2004) concluded that increased family support was related to increased levels of diet and exercise self-care behavior. In a weight loss intervention for obese Mexican-American women, there was no statistically significant difference between the individual and family-oriented intervention groups, but the family intervention groups lost more weight than the individual and comparison groups (Cousins, Rubovits, Dunn, Reeves, Ramirez, & Foreyt, 1992). These results suggest that culturally and linguistically competent programs can support weight loss. Even though these studies focused on adults and specific issues such as diabetes and weight loss, more research is needed to examine the relationship between weight loss and family support to increase our understanding of exactly how family involvement impacts both adult and child healthy promotion behaviors and beliefs.

Social Support

With respect to family-based activities, the crucial role of social support to Latina women is a potential area of further investigation (Evenson, Sarmiento, Macon, Tawney, & Ammerman, 2003; Ramirez et al., 2007; Thornton et al., 2006). Thornton et al. found that husbands and some female relatives were the main sources of emotional, instrumental or informational support for Latinas regarding weight, diet and physical activity-related beliefs and practices. Furthermore, the lack of this support was a main barrier to maintaining healthy practices during and after

pregnancy. The specific type of support that was lacking included the absence of female relatives and friends for advice about food, companionship for exercise or help with childcare. Noteworthy is that for these same families, Latino couples who were physically active together included their children in these outings (ie. playing soccer or playing in the park). Parental involvement and encouragement have emerged as important motivations for increasing physical activity and managing weight among Latinos (Huang, La Torre, Oh, Harven, Huber, Leon, & Mostafavi, 2008; Snethen et al., 2007; Thornton et al., 2006).

Social support and companionship are also important variables related to physical activity among Latinas in North Carolina (Evenson et al., 2003). These researchers found that Latinas who reported doing any activity or who met the recommended activity levels were more likely to know people who exercise, see people exercising in their neighborhood, or live in a community with access to places for activity. Evenson et al. (2002) also examined variables such as environment, culture and policy as related to physical activity among Latinos in rural North Carolina and found that cultural variables linked to physical activity included gender roles, support from the family and husband, childcare issues, language and isolation.

While there is clear evidence in the literature regarding the importance of emotional social support for Latinas, informational and instrumental support also play a role in promoting and maintaining healthy behaviors. In fact, the lack of instrumental and informational support for the preparation of traditional foods and/or the knowledge of basic and advanced cooking skills among low-income Latinas was impacted by the absence of mothers or other female relatives still living in Mexico (Clark et al., 2010; Thornton et al, 2006). Clark and colleagues interviewed a primary care provider-curandera who recommended including home cooking skills and healthy meal preparation in prevention programs, along with enhancing parenting skills

related to the diet and activity of children. Ramirez et al., (2007) also found that Hispanic women desired cooking skills classes and guidance on preparing healthy traditional foods. These findings suggest that a health promotion program that creates a supportive environment for sharing, learning about and practicing healthy cooking skills and traditions could be culturally compatible with Latina beliefs and behaviors and enhance social support.

Cooking skills and knowledge can support healthy eating, but food insecurity and related issues, such as purchasing practices, access to healthy options, and food-related attitudes are additional factors that influence weight and nutritional habits (Kaufman et al., 2007; Matheson, Robinson, Varady & Killen, 2006; Ramirez et al., 2007; Snethen et al., 2007). The influence and impact of family relationships on food-related attitudes and behaviors merits particular attention (Clark et al., 2010; Kaufman et al., 2007). For example, the "mijito" syndrome or culturally prevalent practice of not saying no to a hungry child and demonstrating affection through food rewards, such as giving sweets, contributes to the difficulty addressing food habits. According to Clark et al. (2010), one consequence of the "mijito" syndrome is that overweight children were not seen by mothers to be responsible for their food or activity choices. Although offering treats to children in the form of food and sweets is not a practice limited only to Latino cultures, it is prevalent enough in the literature to be included in parenting and nutrition discussions.

Cultural and Linguistic Factors

Family participation, social support, and beliefs related to food and physical activity are important components for prevention programs, but behavior change interventions must take cultural and linguistic factors into consideration. For example, how parental and cultural perceptions of a child's weight potentially impacts health promotion behavior is discussed by

Stovitz et al. (2008) in their review of data and intervention studies with Latino youth. Their review indicated that Hispanic mothers tend to see overweight children as normal weight as compared to non-Hispanic white mothers or do not believe that their overweight or obese children have a weight problem; nevertheless, the majority of parents do believe that their child should seek professional help if their child had a weight issue. (Stovitz et al., 2008) Several other studies also cited the cultural difference in perception of weight as an important element to consider when designing interventions; if Hispanic mothers do not view their children as overweight and/or perceive this as problematic, they may not take action to address this health issue (Kaufman and Karpati, 2007; Snethen et al., 2007; Hackie and Bowles, 2007.) Hackie and Bowles (2007) recommended that providers take such social and cultural beliefs and background into account to plan more effective education programs.

There is a strong, yet complex, relationship between culture and health (North Carolina Institute of Medicine -NCIOM, 2009). Acculturation is the process by which a minority culture adapts to the behavior of the surrounding, or dominant, society. First-generation or more recently arrived Latino immigrants to the United States maintain cultural beliefs and behaviors that protectively and positively impact their health, such as strong family support networks and traditional diets high in vegetables and grains. As Latinos begin to adopt a more typical American lifestyle and become more acculturated, these protective factors diminish. (NCIOM, 2009; LCHC, 2006) US born versus foreign-born immigrants may also more rapidly acculturate or acquire dominant cultural norms with respect of overweight-related behaviors, such as diet and inactivity (Gordon-Larsen, Harris, Ward, Popkin, 2003)

Language use is an important cultural component and linguistic acculturation may impact physical activity levels (Castro, 2009; Evenson, Sarmiento, & Ayala, 2004). Evenson and

colleagues (2004) found that Latinas with higher English language acculturation and who were younger than 25 were more likely to be physically active. Dreimane and colleagues (2007) discovered that Hispanic participants listed language limitations as one of the barriers to finishing a hospital-based family intervention program despite access to interpreters and bilingual material. Even though interpretation was available, this program did not appear to be culturally modified nor was there a facilitator with whom the participants could identify.

Levels of cultural and linguistic acculturation must be considered in conjunction with other social issues that can impact health behaviors. For example, curanderos in the Southwestern US were interviewed regarding their views of obesity among Latinos and they cited the need to acknowledge the social marginalization of Latinos as an important element in the approach to dealing with obesity among Latinos (Clark et al., 2010). Even though this study took place in the Southwestern US, this marginalization and isolation also exists among Latinos in Western North Carolina (Arias, Bailey, Gonzalez, Lanou & Rodriguez, 2008). Curanderos viewed the obesity epidemic among Latinos as a result of social risks and stated that if a Latina mother was already overweight, poor, depressed, unemployed and in a bad relationship, that "trying to get them excited about eating better so their kids can eat better is hopeless" (Clark et al., 2010, p. 9). Kaufman and Karpati (2007) also observed that when social stress is high and emotional or financial resources are limited, food, whether healthy or not, may still be a source of gratification. These examples illustrate the complex interaction between various levels of health determinants in the socio-ecological model.

Creating a safe and friendly environment is important for Latino programming (Clark et al. 2010, Fitzgibbon et al, 2002, Kumanyika and Morssink, 1997; NCIOM, 2009; Ramirez et al., 2007), and can potentially help to offset the stress and fear related to social marginalization and

isolation. Environmental and community safety concerns as well as racism or fear associated with immigration laws have been cited as barriers to physical activity (Arias et al., 2008; Snethen et al.,); therefore, safe and easy access should be considered when choosing a program site. Valid locations recognized in the literature by Latinos include churches, youth programs, community and recreation centers, accessible parks, schools and after-school programs (LCHC, 2006; NCIOM, 2009; Ramirez et al., 2007) Churches, in particular, were noted to be culturally familiar and safe (NCIOM, 2009; Ramirez et al., 2007). Kumanyika and Morssink (1997) recommended creating a program in a community setting for a specific cultural and ethnic group that includes their food and activity preferences, traditions and beliefs.

Additional cultural program components identified in the research literature include promoting identification between facilitators and participants through language use or same ethnicity (Clark et al. 2010, Fitzgibbon et al, 2002, Kumanyika and Morssink, 1997) and using a directive approach that includes professional guidance, but that is simultaneously engaging and participatory (Clark et al., 2010, Ramirez et al., 2007). Clark et al. (2010) also recommended "inter-generational training" which could potentially be fostered by Ramirez et al. (2007) findings that Hispanic women, in particular, prefer a family or group focus as compared to individual behavior change strategy and like the interpersonal contact among group members. Addressing environmental and psychological barriers to physical activity and a healthy diet and showing concrete examples of lifestyle changes were also helpful (Fitzgibbon et al., 2002).

One way of enhancing the important cultural and linguistic association between facilitators and participants as part of a culturally effective program could be the inclusion of promotoras, or lay health advisors (NCIOM, 2009). Promotoras were an essential component of a successful culturally and linguistically appropriate program called Women in Motion/Mujeres

en Movimiento in California (LCHC, 2006). The participants' sense of ownership in the program and community contributed to the program's success. For example, participants created their own cookbook and have succeeded in the areas of physical activity, peer education, and health advocacy.

To begin to meet the need for tailored intervention programs that take into account cultural, dietary, and lifestyle issues of the Latino community, the National Latino Children's Institute (NLCI, 2009) and Kraft Foods have developed a healthy lifestyles education program for Latino families called *Salsa, Sabor y Salud*. The program is focused on improving awareness of habits leading to better nutrition and increased physical activity for Latino families with children under 12. The program appears to be beneficial in a community-based family setting (Center for Prevention Research and Development, 2005), and an afterschool setting (Huang et al., 2008).

Based on this literature review and on evidence for childhood obesity prevention programs and culturally appropriate interventions, we will evaluate the *Salsa, Salud y Sabor* curriculum, as it appears to encompass many of the elements in the literature. It is a multi-component intervention that addresses physical activity, nutrition and behavior change in a family- and community-based environment. The curriculum is bilingual which makes it accessible for varying levels of linguistic acculturation and the lessons build on the strengths and values of Latinos, such as family and rich cultural traditions and foods. The program organization and lessons provide the opportunity to develop different elements of social support that have been found to be effective with Latinas, especially in the areas of physical activity and cooking skills.

Program Context

Latinos in North Carolina

The Trust for America's Health (2010) ranks North Carolina 11th in the country for childhood obesity with a prevalence rate of 18.6% and as of June 2010, North Carolina was ranked as the 10th most obese state in the nation. According to the US Census between 1990 and 2000, North Carolina had the fastest growing Latino population in the country increasing 394%, from 76,726 in 1990 to 378,963 in 2000. (US Census Bureau, 2000) This represented an increase from 1.04% in 1990 to 4.7% in 2000. The 2009 Census population estimate for North Carolina reported that 7.7% of residents are of Hispanic or Latino origin. (US Census Bureau, 2009a) In a comparison of Latinos nationally and statewide, the North Carolina Institute of Medicine (NCIOM, 2009) found that almost two-thirds of North Carolina Latinos are foreign-born as compared to less than half nationally, 64.2% to 45.1% respectively. Thirty-four percent of Latinos in North Carolina speak English poorly or not at all, and 49.9% or almost half of all Latinos report not speaking English very well, as compared to 21.9% (poorly) and 36.3% (not very well) nationally. The North Carolina Institute of Medicine (2009) also stated the assumption that because the majority are foreign-born and are therefore probably more recent immigrants, that North Carolina Latinos may experience a greater language barrier as compared to Latinos in other areas of the country.

In Western North Carolina, Buncombe County has seen an explosive growth of the Latino population. In 2000, Hispanics/Latinos represented 2.9% of the county's population. By 2009, Hispanics represented 4.6% of the county population (US Census Bureau, 2009b) with the actual number of Hispanic residents expected to grow by more than 50%. The 2005 Buncombe County Community Health Assessment Community Report indicated the need for additional

health promotion programming and services for Latinos in Buncombe County as 34 percent of Latinos surveyed reported fair or poor health, even though the mean age of the population was only 32.4 years. With regards to obesity prevention related activity, thirty-four percent of Latinos surveyed reported doing no exercise in the previous month and 55 percent reported consuming 0 to 1 serving of vegetables per day. (Health Partners, 2005)

In 2008, a local coalition of academic and community organizations formed the Latino Health Promotion Partnership in order to follow-up on the findings of the 2005 Community Health Assessment. This group conducted a needs assessment and gap analysis of health concerns among service providers and Latino youth and families in Buncombe County. One hundred fifty community members were surveyed and three focus groups were held with Latino men, women and youth. Results showed that both youth and adult Latinos desire additional opportunities for youth alone and for families together to engage in physical activities (Arias et al., 2008). In addition, adults stated that in order to maintain health and happiness, their children's most important needs after medical and dental care are opportunities for physical activity and resources for nutrition and weight management (Arias et al., 2008). A gap in service provision and in support for encouraging healthy eating and physical activity for Latinos exists in Buncombe County as none of the 49 organizations surveyed reported offering such programs or facilities specifically for Latinos. Given the high rate by which Latinos are affected by childhood obesity and the lack of specific programs to address this issue within this population, attention to programming in this area is warranted. Latinos in Buncombe County lack access to enjoyable, affordable, convenient physical activity and nutrition education programming (Arias et al., 2008). The context of our program is to offer an attractive childhood obesity prevention program

that focuses on healthy eating and active living that is both culturally and linguistically appropriate and effective.

Political Environment: The overall political environment is currently favorable to supporting prevention programs for childhood obesity and our proposed program is congruent with national interests and programs, as well as with those of the State of NC, Buncombe County and its residents. It could potentially be controversial if local residents and/or leaders who are opposed to services and programs for undocumented residents become aware of our program and/or decide to interfere. Program coordinators will neither know nor be concerned with the documentation status of program participants and will make every effort to recruit and publicize in such a way that creates a safe environment for our participants. In fact, it is essential that minority residents who are already isolated linguistically, culturally, and socially have access to health promotion programming. (NCIOM, 2009)

National Priority: The *Let's Move* initiative by First Lady Michelle Obama has prioritized child health and prevention efforts both politically and nationally. *Let's Move* (2010) has placed the importance of physical activity and healthy eating as related to childhood obesity prevention on the national stage. Additionally and perhaps more importantly, it emphasizes the collective role that parents, schools and communities can have in improving the health of families.

Healthy People 2010 identified physical activity and overweight/obesity as a two leading health indicators in its top ten priorities for action. These priorities also fall under its two overall goals of increasing the quality and years of healthy life and eliminating health disparities. (US Department of Health & Human Services – US DHHS, 2000) The proposed objectives for Healthy People 2020 include some modifications from 2010, such as the updated nutrition and

weight status goal NWS HP2020-5 of reducing the proportion of children and adolescents ages 2-19 who are overweight or obese and increasing fruit, vegetable and whole grain consumption for children 2 years and older. The 2020 Physical Activity and Fitness proposed goals include increased activity levels in many settings, such as schools and neighborhoods.

State and Local Priorities: The statewide program of Eat Smart Move More (ESMM, 2010) has recognized the "burden of obesity" in North Carolina. ESMM targets seven obesity related behaviors which share similar messages that are promoted in the *Salsa, Salud y Sabor* curriculum, such as being physically active everyday, eating more fruits and vegetables, and being aware of portion size. ESMM also promotes prevention at multiple levels in the community.

Our initiative will also support the North Carolina 2010 Health Objectives of health promotion in the areas of nutrition and physical activity among North Carolinians of all ages, races and ethnicities. Similar to the national goals, the nutrition goals include increasing fruit and vegetable consumption, while reducing fatty meat and sugary snacks choices. The health disparities in nutrition as influenced by poverty and access to healthy foods are also acknowledged. Physical activity goals include increasing the percentage of children, adolescents and adults engaged in moderate to vigorous physical activity. *Healthy Carolinians* also prioritizes the immediacy of developing capacity in health promotion to meet the needs of many New North Carolinians coming from other countries. (NC DHHS, 2010)

In 2004, the NC Legislature designated funds to create the North Carolina Center for Health and Wellness (NCCHW) at the University of North Carolina Asheville. Our initiative will support one of the Center's primary goals of promoting healthy living among children, specifically through the prevention of childhood obesity. It will also support the Center's goal of

achieving "racial, ethnic, and socioeconomic health parity" through its programs. (University of North Carolina Asheville, 2010).

In addition to the influence of the NCCHW statewide and locally, the demographics in Asheville and Buncombe County indicate a level of community support and need within the Latino community (US Census Bureau, 2000; Arias et al., 2008). State and local priorities are well suited to support a community and family-based approach. Western North Carolina Healthy Kids (2010) is coalition of organizations representing the sixteen county region of Western North Carolina and is dedicated to reducing the incidence of childhood obesity through the promotion of communication and evidence-based best practice models. This group has recognized that a multi-level approach that includes children and their families is one part of the solution.

Program Acceptability: North Carolina has implemented several programs through the NC Eat Smart Move More initiative; nevertheless, Buncombe County lacks a program to specifically address childhood obesity prevention for Latinos. Therefore, we anticipate that our program will provide the opportunity to address the needs and desires of this population. The YWCA, our planned program site, which has as its motto "eliminating racism, empowering women," is known locally for opening its doors to people of all racial and socio-economic backgrounds, not only women. It is a particularly welcoming environment for people who are new to participating in a physical activity program and it currently hosts the Latino Learning Center in partnership with the Emma Family Resource Center, which lends it some name recognition and familiarity within the Latino Community. Additionally, the YWCA has two Latina staff trained in health promotion and UNC Asheville will provide one Spanish-speaking project staff with a public health background. By working with the staff at the Emma Family Resource Center and the Latino Advocacy Council at St. Eugene's church, we will establish the

trust and relationships needed to help with recruitment and program sustainability. In addition to creating a safe and welcoming environment through the choice of location and staff, we believe that the program components will have a high level of acceptability because the program will be family-based in a community setting using a bilingual, culturally rich curriculum that was designed by Latinos for Latinos.

Program Funding: The YWCA has the space and supports provision of these types of programs. Funding will be provided from the North Carolina Center for Health and Wellness through a Wellness Initiative Starter Grant. We will provide our program at no cost to participants to eliminate any potential financial barrier to participation.

Program Stakeholders: An important component to our program's success is the level of community support that will be provided. Community stakeholders partnering with our initiative at various stages of program development and implementation include community organizations serving Latinos, such as Emma Family Resource Center, Nuestro Centro, St. Eugene's Catholic Church, University of North Carolina Asheville, local city and county schools, civic leaders, and local Latino advocacy groups. Program-specific stakeholders include our program directors and staff, UNCA faculty nutrition experts and NCCHW staff, YWCA health promotion staff and leadership, and of course, our program participants.

Challenges: We will meet the challenge of creating a culturally and linguistically appropriate, accessible and attractive program by using the *Salsa, Salud y Sabor* curriculum, and will minimize barriers by being culturally sensitive in our choice of instructors and in our overall program implementation. Given the nature of our program and stakeholder support, we expect that program acceptability will be high; however, we do anticipate some challenges with this initiative. Based on input from our community partners and stakeholders, we will conduct the

intervention at a convenient time and location to support families in adding a physical activity and nutrition program to an often already challenging family-work-life balance. We anticipate that participation in a summer program may be a more convenient time to begin the program as families seek opportunities for children during the summer months; however, careful consideration of follow-up maintenance activities, locations, and times during the school year will be essential towards maintaining the social support necessary for the program to become self-sustaining. Information gathered from on-going participant feedback and community partners will help to maximize participation and retention rates. The program will be offered in both English and Spanish as any childhood obesity prevention program tailored to Latino families in North Carolina should be prepared to provide services in both Spanish and English to help decrease any possible language barrier. Assistance with transportation in the form of bus vouchers or in learning about the bus system and/or carpooling will be offered to interested participants for whom transportation is a barrier. The *Salsa, Salud y Sabor* curriculum includes age-appropriate activities for two age groups, but having a wide range of ages among children is a potential challenge. We will offer childcare for children under age 3 to eliminate this barrier to family participation. The Spanish skills of undergraduate students working with the program may vary, so we will pair them with the appropriate group based on their proficiency level. Families participating in the program may have different levels of physical fitness and we will modify accordingly to offer safe, yet appropriately challenging, physical activities. We anticipate that evaluation may be a challenge with community-based research and programming. While we want to use appropriate measures to evaluate program effectiveness, we also want to create a safe and welcoming environment where this minority population does not feel targeted or studied. While there are two Latinas on staff at the YWCA who will partner with this project, they have

full-time jobs and will not be able to be fully dedicated to this project, so the consistency and availability of having facilitators with whom the participants can identify may be an additional challenge.

Program Theory

Elements from various program theories that reflect evidence-based findings in the literature will be incorporated to guide our planning process and develop an effective program using the *Salsa, Sabor y Salud* curriculum. Caprio et al. (2008) recommended the socio-ecological framework for planning childhood obesity prevention programs. This framework examines the interaction between the multi-level determinants of health and places the child within the context of family, community and culture. The socio-ecological model provides the basis for incorporating concepts from different theoretical models to address multi-level determinants of health.

Individual Level: The Health Belief Model (Rosenstock, I.M., 1990) components to be considered in our program include perceived threat, which is comprised of perceived susceptibility and perceived severity, perceived benefits and barriers, and self-efficacy. Gathering information on perceived threat will assist us in understanding how childhood overweight and obesity-related health issues impact program recipients and will help us evaluate how and why families decide to participate. Information on perceived threat will be assessed indirectly through observation of family discussions and participant feedback, so as to not stigmatize families or children in any way in order to assure a safe and welcoming environment. Perceived benefits may include reduced weight, increased energy levels, improved eating habits, increased knowledge and social support, and better quality of life. Our intervention is designed to

overcome perceived or real barriers such as lack of social support, lack of interest in traditional exercise activities, lack of nutritional knowledge, lack of financial resources, and lack of accessibility. Gaining a better understanding of these factors will also help us at the change stage to recommend actions related to barriers and self-efficacy. Offering our program in a non-threatening environment like the YWCA with culturally competent instructors will encourage engagement in interactive activities based on traditional cultures. This will be done with an ultimate goal of increasing participant self-efficacy to create opportunities for increased physical activity and improved nutrition for the entire family.

Information alone is not enough for behavior change, but the *Salsa, Salud y Sabor* curriculum includes health information, such as how to read labels, buy healthy snacks, plan for shopping trips and use herbs for flavoring instead of fats in order to make healthier food choices and to develop cooking skills and knowledge. Based on the Consumer Information Processing Model (Rudd & Glanz, 1990) special attention will be paid to the motivation for and presentation of new information in each lesson. In order to positively affect the participant's information gathering and processing, particular attention will be paid to the amount of information, and its format, readability, and literacy level. All information will be available in both Spanish and English.

Interpersonal Level: As we are proposing a family and group program model, the Social Learning Theory will guide program planning at the interpersonal level (Perry, Baranowski, & Parcel, 1990). There are numerous constructs of the Social Learning Theory which describe the psychosocial interactions related to health behaviors and the methods for promoting behavior change. For example, we will promote the mastery of skills and knowledge through fun and interactive nutrition and physical activities. Self-efficacy can be developed

interpersonally as well as individually and developing this behavioral capability can also potentially impact the program's effectiveness and sustainability. The *Salsa, Salud y Sabor* curriculum specifically emphasizes approaching behavior change in "small steps to success," with specific ideas which can increase self-efficacy.

Reciprocal determinism, which is the continuous interaction between an individual, a behavior and the environment, will be an important element of our family-based program since participants will be interacting with the curriculum and each other. This will create the social and physical environments and incentive for behavior change.

Observational learning will play an important role in our program. Families will learn by seeing others benefit from program participation that they too can benefit from participation. Positive reinforcement will be provided in the form of external rewards for participating (i.e. receiving water bottles and a short-term YWCA membership, celebrating physical activity done at home) as well as the longer lasting internal reinforcement when families realize the value of participation (i.e. feeling better after exercising, children motivated to come because they are having fun playing with others.) The interaction between participants and instructors will reinforce reciprocal determinism and observational learning. Intentional creation of the intervention environment, facilitation of interactions among group members and activity leaders, and acquisition of new behaviors/activities all influence objectives.

Evidence in the literature review reveals that social support may be the most important construct at the interpersonal level of the socio-ecological model for a Latino program. The expression "social support" includes the types of supportive behaviors of functional relationships, such as emotional support, instrumental support, informational support and appraisal support (Israel and Schurman, 1990). Our prevention program will encourage

emotional support between parents and children participating in the activities as well as between families in the form of trust and encouragement. Our prevention program provides instrumental support in the form of a direct service and families will also receive a YW membership while participating. Informational support in the form of advice, suggestions and information will be shared between facilitators and participants, and will be specifically encouraged among participating families when discussing strategies for overcoming barriers to healthy living. For example, in addition to the formal curriculum, we will encourage the sharing of information and knowledge about recipes and local parks as accessible places for physical activity. Opportunities for appraisal support, or self-evaluation, will be available via affirmations and feedback on weekly check sheets and discussions.

Community Level: In the Organizational Change Stage Theory, a community level framework, key stages include problem definition, initiation of action, implementation of change, and institutionalization of change (Dickens, 2008). In our community, the definition of the problem and issue selection began with the Community Health Assessment and the Latino Health Promotion Partnership, which identified the gap in service provision and the need to create a specific program for Latinos in Buncombe County. This step demonstrated community competency that led to initiation of action to seek funding to develop a program specifically for Latinos. We are currently at the implementation of change stage. Whether or not this change stage is sustainable and becomes institutionalized will depend upon the success of the program and partnerships and the support of stakeholders and participating families.

The multi-level individual, interpersonal, community and institutional interaction in our proposed program has the potential to increase cultural competency among the participating

individuals and community organizations. Community and institutional level determinants such as access to parks and school playgrounds will be discussed with participants.

If the intervention is successful, it could lead to institutional and policy level changes, such as more Latino programming at the YWCA, but that is not the current focus of the proposed prevention program at this time.

Implementation Plan

In this pilot project, we plan to adapt the *Salsa, Sabor y Salud* curriculum (See Appendix A) to improve the awareness of and motivation for healthy eating habits and enjoyable physical activity among Asheville-area Latino families through a partnership between UNC Asheville students and faculty and YWCA health promotion staff. Participants will be Asheville-area Latino families with children (ages 3-12) who are interested in being part of a program designed to support healthy eating and physical activity. We will measure the effectiveness of the adapted program and develop and implement a plan for sustaining and growing the program through this partnership.

The primary program objectives are to improve the knowledge and adoption of habits leading to better nutrition and increased physical activity for Latino families. An academic and community partnership dedicated to primary prevention of childhood obesity will provide the principle program support. To improve knowledge of healthy habits, the four primary messages of the *Salsa, Salud y Sabor* curriculum that will be reinforced are to: eat foods from each of the food groups every day, be sensible about portions, be physically active every day, and take small steps for success (See Appendix B). If these specific goals are met, we hypothesize that the

participants will demonstrate improved nutrition-related behaviors and increased inclusion of activity into daily lives.

Our secondary objective is to evaluate the effectiveness and sustainability of an academic and community partnership in primary prevention of childhood obesity. Our goals for this objective are to identify sustainable program components that are necessary for successful adaptation for Asheville-area Latinos.

This program will be designed in 5 phases. In phase 1, the research team will review community- and family-based program models and resources, begin development of evaluation tools, explore appropriate recruitment methods, and investigate community specific needs and resources for implementation of a culturally competent family- and community- based childhood obesity prevention program in Asheville. In phase 2, members of the research team will be trained in the *Salsa, Salud y Sabor* program and will begin the process of adapting the program to meet the needs of Latino families in our community.

The researchers will finalize the evaluation tools and seek IRB approval. Working with our community partners, we will choose the dates and times for program implementation and market and recruit for the program. In phase 3, the program and concurrent evaluation will occur. Families will participate actively in a series of eight *Salsa, Sabor y Salud (SSS)* sessions to be held at the YWCA. These age-appropriate sessions emphasize the concept of energy balance through making healthy food choices and increasing levels of physical activity (NLCI, 2009). The *SSS* family-based program is bilingual and culturally rooted in Latino traditions and it also allows for flexibility in community-based implementation. We will modify the program by including student mentors in addition to any other modifications identified in Phases 1 & 2. At

the end of the 8-session formal SSS program, we will invite participating families to continue for another 12 weeks at times and days to be determined by participants and program leaders.

In Phase 4, 12 weeks of follow-up activities will commence with the intention of developing community support for continuing the activities and including additional families. Participants along with program instructors will determine the curriculum of this 12-week booster period as to what type of follow-up activities will be most helpful and appropriate (e.g. helping families identify free community activities, monthly free family events, such as hikes or games, monthly healthy birthday potluck parties, weekly meeting times for walks or play dates, etc.) From among regular participants who have demonstrated enthusiasm for and dedication to the program or from among other Latino community members with a vested interest, program leaders will select one or two Latinos to be trained as peer leaders or promotoras to enhance program sustainability. In Phase 5, researchers will analyze and disseminate the findings and, if the pilot program is successful, look for additional funding for program continuation.

Conclusion

Research literature has revealed that multi-component family-based prevention programs have great potential, but that effective prevention efforts for Latinos must be culturally competent. Therefore, we will consider the cultural beliefs and perceptions related to weight, family involvement, social support, food practices, physical activity, and the intervention setting in our program implementation. We will also examine how these variables guide and impact the creation of a culturally competent, compatible and effective intervention. By evaluating the efficacy of implementing and modifying an existing obesity prevention program designed for Latino families, *Salsa, Sabor y Salud,* for use in Buncombe County, North Carolina, we hope to contribute to the demonstrated need for more research on the impact of community and family-

based obesity prevention programs for Latinos (Caprio et al., 2008; Kumanyika, 2008; Thornton et al. 2006).

REFERENCES

Arias, D., Bailey, E., Gonzalez, A, Lanou, A., & Rodriguez, A. (2008). *Summary report: Latino Health Promotion Partnership needs assessment and gap analysis.* Retrieved February 1, 2009, from the Health Partners (Asheville, NC) website: http://www.healthpartnerswnc.org/index.html

Caprio, S., Daniels, S.R., Drewnowski, A., Kaufman, F.R., Palinkas, L.A., Rosenbloom, A.L., & Schwimmer, J.B. (2008) Influence of Race, Ethnicity, and Culture on Childhood Obesity: Implications for Prevention and Treatment. *Obesity, 16, 2566–2577.*

Castro, F. G., Shaibi, G. Q., & Boehm-Smith, E. (2009). Ecodevelopmental contexts for preventing type 2 diabetes in Latino and other racial/ethnic minority populations. *Journal of Behavioral Medicine, 32,* 89-105.

Center for Prevention Research and Development. (2005). *Salsa*, *Sabor y Salud* program: Annual evaluation report. Chicago: University of Illinois. Accessed at http://www.nlci.org/salsa/2005%20Salsa%20Evaluation%20Summary.doc on November 20, 2009.

Clark, L., Bunik, M., & Johnson, S.L. (2010) Research Opportunities With Curanderos to Address Childhood Overweight in Latino Families. *Qualitative Health Research, 20 (1) 4-14.*

Cousins, J.H., Rubovits, D.S., Dunn, J.K., Reeves, R.S., Ramirez, A.G. & Foreyt, J.P. (1992) Family versus individually oriented intervention for weight loss in Mexican American women. *Public Health Reports, 107(5), 549-55.*

Dickens, P. (2008). *Using program theory frameworks.* [Breeze Presentation slides – pubh746 Lesson 6]. Retrieved from http://blackboard.unc.edu

Dreimane, D., Safani,., MacKenzie, M., Halvorson, M., Braun, S., Conrad, B., Kaufman, F. (2007) Feasibility of a hospital-based, family-centered intervention to reduce weight gain in overweight children and adolescents. *Diabetes Research and Clinical Practice, 75, 159-168.*

Eat Smart Move More North Carolina (2010). Accessed at http://www.eatsmartmovemorenc.com/ObesityInNC/ObesityInNC.html on September 17, 2010

Ells, L.J., Campbell, K., Lidstone, J., Kelly, S., Lang, R., Summerbell, C. (2005) Prevention of Childhood Obestiy. *Best Practice Research Clinical Endocrinology & Metabolism, 19 (3), 441-454.*

Evenson, K.R., Sarmiento, O.L., & Ayala, G. X. (2004) Acculturation and physical activity among North Carolina Latina immigrants. *Social Science & Medicine, 59 (12) 2509-2522.*

Evenson, K.R., Sarmiento, O.L., Macon, M.L., Tawney, K.W., & Ammerman, A.S. (2002) Environmental, policy, and cultural factors related to physical activity among Latina immigrants. *Journal of Women's Health, 36 (2) 43-57.*

Evenson, K.R., Sarmiento, O.L., Macon, M.L., Tawney, K.W., & Ammerman, A.S. (2003) Personal, social, and environmental correlates of physical activity in North Carolina Latina immigrants. *American Journal of Preventive Medicine, 25 (3 Suppl 1), 77-85.*

Fitzgibbon, M.L., Stolley, M.R., Dyer, A.R., VanHorn, L., KauferChristoffel, K. (2002) A Community-Based Obesity Prevention Program for Minority Children: Rationale and Study Design for Hip-Hop to Health Jr. *Preventive Medicine, 34, 289-297.*

Fitzgibbon, M.L., Stolley, M.R., Schiffer, L., VanHorn, L., KauferChristoffel, K. & Dyer, A. (2006) Hip-Hop to Health Jr. for Latino Preschool Children. *Obesity, 14 (9) 1616-1625.*

Fullerton, G., Tyler, C., Johnston, C.A., Vincent, J.P., Harris, G. E., & Foreyt, J.P. (2007) Quality of Life in Mexican-American Children Following a Weight Management Program. *Obesity, 15 (11) 2553-2556.*

Gordon-Larsen, P., Harris, K.M., Ward, D.S., Popkin, B.M. (2003) Acculturation and overweight-related behaviors among Hispanic immigrants to the US: The National Longitudinal Study of Adolescent Health. *Social Science & Medicine, 57 (11) 2023-2034.*

Hackie, M. & Bowles, C.L. (2007) Maternal perception of their overweight children. *Public Health Nursing, 24, (6) 538-546.*

Health Partners and Buncombe County Health Department. (2005) *County Community Health Assessment 2005 Community Report.* Accessed at http://www.healthpartnerswnc.org/local_health_reports.html on September 5, 2010.

Hill, J.O., Wyatt, H.R., Reed, G.W. & Peters, J.C. (2003) Obesity and the environment where do we go from here? *Science.* 299 (5608); 853-5.

Himelein, M. J., Passman, L., & Phillips, J. (2009). College teaching and community outreaching: Service learning in an obesity prevention program. *American Journal of Health Education.* Revised manuscript accepted for publication, August 18, 2009.

Hovell, M.F., Mulvihill, M.M., Buono, M.J., Liles, S., Schade, D.H., Washington, T.A., Manzano, R., Sallis, R.F. (2008) Culturally tailored aerobic exercise intervention for low-income Latinas. *American Journal of Health Promotion, 22, (3) 155-163.*

Huang, La Torre, Oh, Harven, Huber, Leon, & Mostafavi (2008) An Executive Summary of The Afterschool Experience in *Salsa, Sabor y Salud* Evaluation 2007-2008. Accessed at http://www.nlci.org/salsa/2008%20Salsa%20Evaluation%20Summary-UCLA.doc on November 22, 2009.

Kaufman, L., & Karpati, A., (2007) Understanding the sociocultural roots of childhood obesity: Food practices among Latino families of Bushwick, Brooklyn. *Social Science and Medicine, 64, 2177-2188.*

Kitzmann, K. M., & Beech, B. M. (2006). Family-based interventions for pediatric obesity: Methodological and conceptual challenges from family psychology. *Journal of Family Psychology, 20,* 175-189.

Kumanyika, S.K. & Morssink, C.B. (1997). Cultural Appropriateness of weight management programs. In: Dalton, S. (Ed.) Overweight and Weight Management (69-106). Gaithersburg, MD: Aspen Publisher.

Kumanyika, S. (2008). Ethnic minorities and weight control research priorities: Where are we now and where do we need to be? *Preventive Medicine, 47,* 583-586.

Latino Coalition for a Healthy California. (December 2006). *Obesity in Latino Communities: Prevention, Principles, and Action.* Sacramento, CA: Woodward-Lopez, G & Flores, G.R.

Let's Move! (2010). America's Move to Raise a Healthier Generation of Kids. Accessed at http://www.letsmove.gov/learnthefacts.php on October 9, 2010.

Matheson, D.M., Robinson, T.N., Varady, A., & Killen, J.D. (2006) Do Mexican-American Mothers' Food-Related Parenting Practices Influence Their Children's Weight and Dietary Intake? *Journal of the American Dietetic Association, 106, 1861-1865.*

National Latino Children's Institute. (2004). *Salsa, Sabor y Salud: Healthy Lifestyles for Latino Families.* Accessed at http://www.nlci.org/salsa/indexSSS.htm on November 20, 2009.

North Carolina Department of Health and Human Services. (2010). *Healthy Carolinians.* Accessed at http://www.healthycarolinians.org/objectives/health/promotion.aspx on October 9, 2010.

North Carolina Institute of Medicine. (2009). *NC Latino Health, 2003: Final Report of the Latino Health Task Force.* Accessed at http://www.nciom.org/projects/latino/reportchapters.html on September 5, 2010.

Perry, C.L., Baranowski, T., & Parcel, G. S. (1990). How Individuals, Environments, and Health Behavior Interact: Social Learning Theory. In Glanz, K., Lewis, F.M. & Rimer, B.K. (Eds) *Health Behavior and Health Education: Theory, Research and Practice* (161-186). San Francisco, CA: Jossey-Bass Publishers.

Ramirez, A. G., Chalela, P., Gallion, K., & Velez, L. F. (2007). Energy balance feasibility study for Latinas in Texas: A qualitative assessment. *Preventing Chronic Disease, 4.* Retrieved January 15, 2009, from http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=2099295&blobtype=pdf

Rosenstock, I.M. (1990). The Health Belief Model: Explaining Health Behavior Through Expectancies. In Glanz, K., Lewis, F.M. & Rimer, B.K. (Eds) *Health Behavior and Health Education: Theory, Research and Practice* (39-62). San Francisco, CA: Jossey-Bass Publishers.

Rudd, J. & Glanz, K. (1990). How Individuals Use Information For Health Action: Consumer Information Processing. In Glanz, K., Lewis, F.M. & Rimer, B.K. (Eds) *Health Behavior and Health Education: Theory, Research and Practice* (115-139). San Francisco, CA: Jossey-Bass Publishers.

Salud America! The Robert Wood Johnson Foundation Research Network to Prevent Obesity Among Latino Children. (2009a) *Obesity.* Accessed at http://www.salud-america.org/obesity.html on September 5, 2010.

Salud America! The Robert Wood Johnson Foundation Research Network to Prevent Obesity Among Latino Children. (2009b) *Salud America Fact Sheet* (.pdf file) Accessed at http://www.salud-america.org/about.html on September 5, 2010.

Seo, D.S., & Sa, J. (2008) A meta-analysis of psycho-behavioral obesity interventions among US multiethnic and minority adults. *Preventive Medicine, 47, 573-582.*

Snethen, J.A., Hewitt, J.B., & Petering, D.H. (2007) Addressing Childhood Overweight: Strategies Learned From One Latino Community. *Journal of Transcultural Nursing, 18, 366-372.*

Stovitz, S.D., Schwimmer, J.B., Martinez, H., Story, M.T. (2008) Pediatric Obesity: The Unique Issues in Latino-American Male Youth. *American Journal of Preventive Medicine, 34 (2) 153-160.*

The Obesity Society. (2010) Childhood Overweight. Accessed on October 24, 2010 at http://www.obesity.org/information/childhood_overweight.asp

Thornton, P. L., Kieffer, E. C., Salabarria-Pena, Y., Odoms-Young, A., Willis, S. K., Kim, H., et al. (2006). Weight, diet, and physical activity-related beliefs and practices among pregnant and postpartum Latino women: The role of social support. *Maternal and Child Health Journal, 10,* 95-104.

Trust for America's Health. (2010). *New Report: North Carolina Ranks Tenth Most Obese State in the Nation.* Accessed on September 17, 2010 at http://healthyamericans.org/reports/obesity2010/release.php?stateid=NC

United States Census Bureau. (2000) *Hispanic or Latino Origin: All Races. Mapping Census 2000:The Geography of US Diversity.* Retrieved from http://www.census.gov/population/www/cen2000/dt_atlas.html

United States Census Bureau. (2009a). *State and County Quick Facts – North Carolina.* Retrieved from *http://quickfacts.census.gov/qfd/states/37000.html*

United States Census Bureau. (2009b). *State and County Quick Facts – Buncombe County, North Carolina.* Retrieved from http://quickfacts.census.gov/qfd/states/37/37021.html

US Dept of Health and Human Services. (2010). Healthy People 2010. Accessed at http://www.healthypeople.gov/lhi/Priorities.htm on October 10, 2010.

University of North Carolina Asheville. Retrieved October 9, 2010 from the North Carolina Center for Health and Wellness : www.unca.edu/ncwell

Wen, L.K., Shepherd, M.D., & Parchman, M.L. (2004) Family Support, diet, and exercise among older Mexican Americans with type 2 diabetes. *Diabetes Education, 30(6) 980-93.*

Western North Carolina Healthy Kids. Accessed at http://www.wnchealthykids.net/ on September 17, 2010

Young, K. M., Northern, J. J., Lister, K. M., Drummond, J. A., & O'Brien, W. H. (2007). A meta-analysis of family-behavioral weight-loss treatments for children. *Clinical Psychology Review, 27*, 240-249.

Eight Thematic Sessions

The themes developed for *Salsa, Sabor y Salud* reflect many of the traditions and values that are important to the Latino culture.

Theme	Cultural Tradition
1. Reuniones familiares	Food choices and the concept of portion size are introduced through the deeply rooted Latino tradition of family gatherings.
2. La pareja ideal	The nutritionally perfect pairing of rice and beans is discussed by remembering the age-old Latino custom of courting and meeting the perfect partner while promenading in the plaza.
3. El recreo y la merienda	The benefits of healthy snacking and activity breaks during the day to achieve energy balance is connected to the *merienda* time that is popular in many Latino homes.
4. Semillas de las americas	Many fruits and vegetables such as tomatoes, corn, chocolate or vanilla and unique ways of preparing food as well as activities and games that can help achieve energy balance can be traced back to the ancient cultures of the Americas.
5. La cosecha	Seasons often determine availability of certain foods and the level of physical activity at different of the year. Latino culture and celebrations around harvest time and seasonal changes help convey key messages in this session.
6. Salsa y sabor	This session introduces the use of herbs, spices and marinades to increase flavor while cutting sodium, fat, and sugar in the preparation of food. The use of salsa is an ancient practice with historical and present connections for Latinos.
7. En el parque	Making healthy food choices, increasing the levels of activity and the importance of hydration are presented in the context of the popular outdoor picnics, barbeques and celebrations that are popular with many Latinos. This session also includes valuable information and safety tips for grilling meat, poultry or fish on the barbecue pit or grill.
8. La fiesta	Healthy lifestyles and celebrations can go together. Dancing, singing, playing games, eating and having fun at a fiesta can nourish body and spirit and make healthy lifestyles part of every family's tradition.

Appendix B

After 8-program sessions:

- 80% of participants will demonstrate knowledge of the different food groups.
- Participants will have increased overall physical activity level by 20% during the 8-program session.
- 50% of participants will be able to describe what constitutes “un plato saludable” or “a healthy plate” of the SSS curriculum.
- We will have a participation/retention rate of at least 80%

At end of the 12-week follow-up period:

- Participants will attend 50% of the follow-up booster sessions.
- Participants will demonstrate at least one behavior change (healthy eating or active living) that has been accomplished at home.
- At least two program participants will be identified as peer leaders or promotoras for future programming.
- Participants will identify at least one barrier to healthy living and one possible solution to address it.
- 50% of participants will initiate an activity with another participant (ie. social support, meet in park for kids to play, etc.)