EFFECTS OF A PARTICIPATORY WOMEN'S GROUP ON SELF-EFFICACY AND NUTRITION-RELATED HEALTH BEHAVIORS IN HISPANIC HOUSEHOLDS

by

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TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

EFFECTS OF A PARTICIPATORY WOMEN'S GROUP ON SELF-EFFICACY AND NUTRITION-RELATED HEALTH BEHAVIORS IN HISPANIC HOUSEHOLDS

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Introduction: Minority populations suffer disproportionately from health-related issues, particularly chronic diseases (Department of Health and Human Services, 2012). The majority of Hispanic adults (68%) report being overweight or obese (Ai, Appel, Huang, & Lee, 2012). Studies on obesity-prevention measures and nutrition interventions for the Hispanic population include community-based participatory research approaches that are family-centered and have culturally adapted nutrition messages (Torre et al., 2013; Wieland et al., 2012). I hypothesized that involvement in a participatory women's group would increase self-efficacy for making healthy nutrition-related health behavior changes. The aims of this study were to facilitate women to identify their health goals, share information about culturally relevant resources to assist behavior change, and monitor their progress.

Methods: Data collection included both quantitative and qualitative information from the participants' personalized notebooks, data from focus groups, a pre-post survey, plus *post-hoc* observations by the researcher. *Results*: Survey data revealed increased physical

activity, decreased television watching, increased water consumption, decreased sugary drink consumption, as well as a stronger belief that the women had the resources necessary to make healthy changes. The qualitative data revealed the women's perceptions of the importance of gardening, healthy eating, exercising, spirituality, family, and idea sharing.

Conclusion: The most prominent themes of this study revolve around the women's connections to nature, which seemed to emerge most when topics turned toward the garden as a means for improved health and wellbeing. Overall, the women expressed positivity toward achieving their goals and their ability to change their behaviors.

CHAPTER ONE: INTRODUCTION

Minority populations suffer disproportionately from health-related issues, such as food insecurity (inadequate access to nutritious foods), malnutrition, and chronic diseases (Department of Health and Human Services [DHHS], 2012). The majority of Hispanic adults (68%) report being overweight or obese and are more likely to delay needed care for chronic conditions (Ai, Appel, Huang, & Lee, 2012). In addition, many Hispanics report their mental health as fair to poor. Barriers to seeking health care are multifaceted, including unfavorable socioeconomic factors, inadequate access to healthcare and insurance, and limited English proficiency. Women, in particular, report experiencing more stress than their male counterparts. Cultural expectations of Hispanic women are focused on family members rather than themselves, meaning their health may be neglected (Ai et al., 2012).

Many approaches to improving individual and community health, specifically among the low-income Hispanic population in North Tyler, Texas, do not take a holistic approach to health in order to facilitate sustainable behavior change. For example, traditional approaches may inform people on what ought to be achieved, such as consuming five servings of fruits and vegetables per day, but do little to facilitate an environment where that change may occur, such as eliminating barriers to food access, availability, and affordability.

A discussion with one of the pediatricians at St. Paul Children's Foundation's (SPCF) revealed that about 40% of children who receive clinic services in the area of

interest are overweight or obese, and about two-thirds of those are Hispanic (V.B. Smith, MD, FAAP personal communication, September 13, 2013). Some of the comorbidities of obesity and the physical symptoms include *acanthosis nigricans* (indicating prediabetes), hypertension, abnormal blood lipids (hyperlipidemia), and exacerbated asthma. The pediatrician explained that she teaches many of her clients about *5210 Let's Go!*, a program to promote healthy lifestyle behaviors, specifically nutrition and physical activity (Let's Go, 2012). However, the pediatrician admitted that she does not have the time or resources necessary to discuss barriers to reaching those goals, or to guide her clients through the process of behavior change. Additionally, a dentist at the SPCF clinic emphasized how important nutrition is to oral health. He perceives poor nutrition, specifically sugary drink consumption, to be the number one health problem among the Hispanic population (B.P. Swinney, DDS, personal communication, September 13, 2013), thereby affirming the need to discover nutrition-related health beliefs, perceptions, values, behaviors, and readiness to change among the population of Hispanic individuals in North Tyler.

In order to bring out the strengths of this population, an empowerment education approach, inspired by Brazilian educator Paulo Freire, will be utilized (Wallerstein & Bernstein, 1988). Empowerment education emphasizes participation through group dialogue and action, where researchers are seen as facilitators, co-learners with the participants, and experts at listening. Rather than problem solving, Freire emphasized problem posing, a process that allows participants to realize the complexity of the present issue over a period of time. Sharing life experiences in small group discussion is part of

the problem-posing process, along with producing other media such as photos, collages, stories, songs, and role-plays (Wallerstein & Berstein, 1988).

I propose that Hispanic women who participate in a women's group that focuses on the process of behavior change will increase their self-efficacy. Self-efficacy is a perception or belief people have regarding their capability to achieve a given task, though certainly one cannot be self-efficacious in everything (Bandura, 1977). Women should be empowered to make healthy behavior changes as they relate to *5210 Let's Go!* goals (or as the women see fit, according to participatory research methods), by improving self-efficacy. In order to impact women in a way that fosters lasting, sustainable change, a community-based, participatory model will be used for this study. The participants will be encouraged to co-create strategies with me that were culturally relevant, practical, sustainable, and replicable for the community by critically thinking about benefits and barriers to reaching health goals and identifying strengths.

There is an increasing need for health interventions that address the whole person, engage communities, and facilitate environments that enable individuals to take ownership of their health in a deeper, more integrated way (McFarlane & Fehir, 1994). Individuals are influenced by society, policy, and environment; they should not be held fully responsible for unhealthy behaviors. I hope to facilitate an environment that enables women to take ownership of their well-being so they may become agents of healthy behavior change in their families and community. Specifically, I hope to understand the barriers that prevent women from achieving better health for themselves and their families, and facilitate the women's discovery of means to remove them. An available

community resource, the garden at St. Paul's, could help women reach the goals of *5210 Let's Go!* if they choose to invest in it.

The aims of this study are to facilitate participants to: 1) Self-identify attitudes, behaviors, barriers, and resources available in their own community towards reaching the *5210 Let's Go!* health goals, 2) Collect and share information about culturally relevant resources that support successful implementation of goals, and 3) Monitor and evaluate self-progress in meeting those health goals and the process of behavior change.

CHAPTER TWO: BACKGROUND

Demographic Information on Hispanics

Hispanics in the United States (U.S.) comprise about 16% of the total population, accounting for nearly 50 million people (U.S. Census, 2011). This population is expected to reach 30% by 2050 and Hispanic children will outnumber non-Hispanic white children (Center for Disease Control and Prevention [CDC] 2010; Buriel, 2012), emphasizing the importance of addressing minority health as it directly impacts Texas and the nation. Texas has a considerably higher percentage of Hispanics at 37% of the population, though Smith County has a population of 17% Hispanics (U.S. Census, 2011). However, within the zip code area of Tyler under study (75702), nearly half of the population identify as Hispanics, with over 75% of these individuals speaking Spanish in their homes.

From years 2000 to 2012, both poverty levels and food insecurity have increased among Hispanics in the U.S. (USDA, 2012). In the U.S., 26% of Hispanics live below the Federal Poverty Line (FPL), which is $11,670 for a household of one and $23,850 for a household of four, compared to 15% of the total population (U.S. Census, 2010). Economic status must be considered when making health recommendations to Hispanic individuals since minority populations experience economic disparities (DHHS, 2012). The average median income for Hispanic full-time workers in Texas is $40,165 in contrast to non-Hispanic whites at $54,168 (DHHS, 2012), indicating an average difference of about $15,000. Of children in Smith County, 24% experience poverty, compared to the state's rate of 27% (County Health Rankings [CHR], 2013). Those who

are at or below 130% of the FPL qualify for Supplemental Nutrition Assistance Program (SNAP). Of the 45.8 million people in the U.S. utilizing SNAP benefits, only 19% are Hispanic. Texas has nearly 4 million SNAP participants, each receiving an average of $122.35 per month (USDA, 2013). In Smith County, 11% of the population receives SNAP benefits; only 6% of those are white (including Hispanics), 24% are black, and 23% are children (Bloch, DeParle, Ericson, & Gebeloff, 2009). Though many Hispanics nationwide qualify for SNAP, over 40% of them are not receiving any benefits (Snap to Health, 2013). Future research is needed to investigate the barriers to receiving these available benefits; however, this type of assistance may only provide a temporary solution for unresolved issues.

Health Status of Hispanics

Language and cultural barriers, lack of access to preventative care, and lack of health insurance are all factors that influence the health of Hispanics (DHHS, 2012). The CDC (2010) lists the top five leading causes of death among Hispanics as cancer, heart disease, unintentional injuries (accidents), stroke, and diabetes, four of which are diet/nutrition and lifestyle-related. Minority populations suffer disproportionately from health-related issues, such as food insecurity, malnutrition, and chronic diseases (DHHS, 2012). Families that experience food insecurity do not have access to adequate fruits and vegetables, which directly impacts the poor habits they form related to nutrition. The majority of the Hispanic population living in the U.S. originated from Mexico, a country that has now surpassed the U.S. as the most obese nation in the world (Food and Agriculture Organization [FAO], 2013). Chronic diseases, including obesity/malnutrition, are widely documented in both developed and developing countries of the world, in urban

and rural areas, impacting the poorest to the richest nations (Popkin, Adair, & Wen Ng, 2011).

Whether white or black, Hispanic or non-Hispanic, male or female, child or adult, the obesity epidemic spans all demographics. However, Hispanics suffer disproportionately from obesity and its multiple comorbidities, such as diabetes, heart disease, stroke, hypertension, asthma, blindness, and kidney disease (DHHS, 2012). Interestingly, Hispanic boys and men have higher rates of obesity than their female counterparts (The Hispanic Institute [THI], 2013). Obesity rates among Hispanics in the U.S. exceed those of other minorities or non-Hispanic whites. Between the years 2007 and 2010, 21% of Hispanic children ages 2-19 years were considered obese, compared to 14.6% of their non-Hispanic white counterparts. Of those 20 years or older, an estimated 21% of Hispanics are at a *healthy* weight compared to 31.4% of non-Hispanic whites (CDC, 2010). In other words, 79% of Hispanics over the age of 20 years old are *not* at a healthy weight. Within Texas in 2010, obesity rates among the black and Hispanic minority populations were at 40% compared to non-Hispanic whites at 29% (Behavioral Risk Factor Surveillance System [BRFSS], 2011).

It is important to note that malnutrition may exist even in those with a healthy weight or BMI (Iriart, Boursaw, Rodrigues, & Handal, 2013). The National Health and Nutrition Examination Survey (NHANES) from 2003-2010 identified prevalence of stunting, with Hispanic children experiencing a significantly greater prevalence than non-Hispanic white children, girls being even more at risk for nutritional deficiencies than boys. Several factors were assessed to account for nutritional deficiencies, such as stunting, anemia, or folate, vitamin D, iodine, and iron deficiencies. Therefore, BMI

should not be the primary indicator of nutritional health. Rather, micronutrient deficiencies also need to be considered in all children of all sizes to identify nutritional health and risk, especially among Hispanic children.

In addition, living in poverty and living in a food desert influences the food consumption choices of residents. The USDA (2012) defines a food desert as an area where residents are more than one mile (urban) or 10 miles (rural) from the nearest supermarket. Often, energy-dense yet nutrient poor foods are chosen as a result of living in such conditions (Drewnowski & Specter, 2004), contributing to the increasing burden of chronic diseases. Food insecurity is often exacerbated by poverty; subsequently, the consumption of nutrient poor but calorie dense foods occurs. The increasing obesity trends correspond to a decreasing percentage of disposable income spent on food.

Influence of Family on Health Behaviors

When studying health behaviors of Hispanics, it is necessary to consider their family dynamics, country of origin, acculturation status, economic status, and participation in, or perception of, religion (Buriel, 2012). For instance, first generation immigrants typically have lower income and less education – factors that may influence health. Overall, the majority (63%) of Hispanics in the U.S. originate from Mexico and present unique behavioral and cultural characteristics that are not thoroughly researched (Buriel, 2012). Some studies on obesity-prevention measures and nutrition interventions for the Hispanic population involve family-centered and culturally adapted nutrition messages and emphasize interventions that include the entire family in planning and implementation (Torre, Sadeghi, Green, Kaiser, Flores, Jackson, et al., 2013; Wieland, Weis, Palmer, Goodson, Loth, Omer, et al., 2012).

Multiple studies have shown that parental involvement is key to children's success, especially in terms of school-based obesity intervention programs (Holub Elder, Arredondo, Barquera, Eisenberg, Sanchez, Romero et al., 2013; Riviera & Burgos, 2012). If parental eating behaviors, including food choices, influence their children, then children would benefit from seeing their parents model healthy food consumption behaviors (Fisher, Mitchell, Smicklas-Wright, & Birch, 2002). Hispanics place significant value on family unity and tradition, where there is respect and affection for immediate and extended family members (Sue & Sue, 2013). If children are influenced by their parents' behaviors, might they also be influenced by their parents' beliefs about themselves? If a parent feels powerless or out of control of her situation in life, will that feeling be instilled in her children? If the above presumptions are true, then increasing self-efficacy to make healthy behavior changes and empowering women to believe in themselves should positively influence their children.

Hispanics (Mexican-Americans, specifically) seem to preserve their family interactions, structure, and relationships even when adapting to American culture, thus preserving their past culture (Christenson, Zabriski, Eggett, & Freeman, 2006). This observation signifies the importance of including the whole family in research plans. *Familismo*, interdependence, and respect are cultural values held by Mexican Americans, though self-reliance, biculturalism, and time efficiency are goals for immigrant socialization (Buriel, 2012).

Another factor influencing health involves the language spoken in the homes and the use of children as interpreters or translators. The majority of Mexican Americans speak Spanish in their homes while their children learn English in school, creating a

delicate and complicated role dilemma as children take on responsibilities of their parents. Women may experience feelings of inferiority or powerlessness in their homes if/when their husbands and children communicate in English and they do not understand the language. Because children lack the vocabulary and maturity to interpret for their parents, this additional stress can damage the parent-child relationship (Sue & Sue, 2013). The children may also be burdened with emotional, medical, or psychological information or be placed in compromising situations where they are responsible for the privacy of their family or relatives' confidential information (Sue & Sue). In sum, having children serve as interpeters can become a potential threat to family unity.

Nutrition and Physical Activity-Related Etiology of Chronic Diseases

Nutrition-related chronic diseases and malnutrition coexist and may influence one another. According to UNICEF (2012), malnutrition signifies improper nourishment, whether too little food, inadequate macronutrients (protein, fats, carbohydrates), or poor feeding practices. Other factors contributing to malnutrition include inadequate health services, improper sanitation, and presence of infection or disease. Malnutrition encompasses both under- and over-nutrition, contributing to a double-burden of disease (Gain, 2012). Though many people consume adequate calories, the lacking micronutrients from a poor diet may actually contribute to both development and severity of diet-related chronic diseases (Eckhardt, 2006). Additionally, nutrition insecurity, the predominant contributor to malnutrition, involves both inadequacies and excesses of nutrients (Nordin, Boyle, & Kemmer, 2013). There are four categories of food security, ranging from *high food security,* which is defined as adequate access to food, to *very low food security* (food insecurity)*,* when disrupted eating patterns are experienced on

multiple occasions (i.e. food insecurity with hunger). People can experience food insecurity without hunger, though quality, variety, and desirability of diet are compromised. Food insecurity in poverty-stricken areas of the U.S. is common among minority groups. For example, more than 20% of Hispanics experience some type of food insecurity (USDA, 2012). Food insecurity contributes to immediate concerns of hunger and malnutrition and increases risk factors for chronic diseases such as diabetes, cardiovascular disease, and cancer. Importantly, a distinction is made between food insecurity and hunger, indicating that food insecurity deals primarily with household-level outcomes while hunger is more of an individual-level physiological condition, which may be exacerbated by food insecurity. Food insecurity is not confined to malnutrition. The World Health Organization (WHO, 2013) defines food insecurity as a broader sustainable development problem, reflecting on the environment, development, and trade. Especially in the U.S., micronutrient-poor, energy-dense diets predominate with the poor since they are perceived to be more affordable than nutrient-rich diets.

Another factor associated with malnutrition, food insecurity, and related chronic diseases, is urbanization (Torun, Stein, Schroeder, Grajeda, Conlisk, Rodriguez et al., 2002). Rural-to-urban migration is linked to undesirable food choices and decreased physical activity among men and women, increasing the risk of chronic diseases from elevated blood lipids and glucose, high blood pressure, and unhealthy body composition. Level of acculturation (the adoption of one set of cultural values and practices by a different cultural group) presents another factor for the prevalence of obesity among Mexican-American women (Sundquist & Winkleby, 2000). Although many immigrant and refugee populations arrive in the U.S. with better health than the general population,

they develop more chronic disease risk factors the longer they live in the country (Wieland et al., 2012). Fruit and vegetable consumption may reduce risk of or prevent chronic diseases (CDC, 2013); however, like the majority of Americans, Hispanics face the challenges of consuming an adequate quantity of fruit and vegetables.

Average fruit and vegetable consumption in the U.S. undoubtedly falls below federal recommendations of five servings per day (Let's Go, 2012), with average fruit consumption being 1.1 times per day and average vegetable consumption being 1.6 times per day (CDC, 2013). In Texas, 76.2% of the population falls below the recommended consumption of fruits and vegetables (BRFSS, 2011). The Health Service Region (HSR) 4/5N, which includes the area of Tyler, has an even greater proportion of inadequate fruit and vegetable consumption at 82% of its population in 2009. In addition, 89.7% of Hispanics do not consume fruits and vegetables five times a day. Interestingly, education and income levels (less than high school education and income less than $25,000) are associated with increased risk of not consuming fruits and vegetables. Several reasons include the widening gap between people and the source of their food, changes in food preferences, and inadequate or inaccessible alternatives to locally grown produce (Litt, Soobader, Turbin, Hale, Buchenau, & Marshall, 2011).

Other behaviors that influence health include high sugary drink consumption and decreased amount of physical activity. Sugary drink consumption (from 2005-2008) among Mexican Americans aged 20 and over was higher at 8.2% of total calories than their non-Hispanic white counterparts at 5.3% of calories (Ogden, Kit, Carroll, & Park, 2011). Though dietary factors are important to identifying health status, physical activity cannot be excluded. Physical activity (30+ minutes per day for 5+ days per week) in

Texas has declined significantly over the years, with only 40% of high school students and 48% of adults being physically active (BRFSS, 2011). In 2009, Hispanics in HSR 4/5N represented the largest population not having leisure time physical activity at 33.7%, compared to 27.3% in Texas as a whole, and 24.6% at risk nationwide. Those at greatest risk for no leisure time physical activity include females and those with lower education and income levels. Furthermore, sedentary activities have been increasingly adopted among children in the U.S., such as increased television watching and video or electronic games (Leech, McNaughton, & Timperio, 2014).

Approaches to Addressing Nutrition-Related Health Disparities

Traditional Approaches. A systematic review of obesity interventions among Hispanic children revealed inconsistent results in body mass index (BMI) and body fat, suggesting the need for further research within this minority population (Perez-Morales, Bacardi-Gascon, & Jimenez-Cruz, 2012). Many interventions with goals to reduce BMI among Hispanic women and children focused on weight loss, physical activity, and nutrition education (Rivera & Burgos, 2012). These researchers discovered that interventions needed to be culturally sensitive, family-centered, and community-based, with follow-up assessments scheduled at six weeks and three months. Additionally, offering materials in Spanish and identifying barriers related to the environment (poverty, safety, and transportation) were necessary in order to impact change. The interventions reviewed included family and community environment change, modified dietary offerings, and diet/physical activity curricula.

Traditional approaches to food insecurity or malnutrition may involve supplemental aid, such as macro- and/or micronutrients handouts. For example, a meta-analysis of

randomized controlled trials evaluated the effectiveness of multivitamin-multimineral supplementation on mortality and found that supplementation has no significant effect on mortality risk (Macpherson, Pipingas, & Pase, 2013). On the other hand, an intervention of multiple micronutrient and early food supplementation among pregnant women in Bangladesh was found to improve child mortality rates (Persson, Arifeen, Ekstrom, Rasmussen, Frongillo, & Yunus, 2012). Although supplementation is not a solution to food insecurity or poverty, it can be beneficial in certain conditions or situations, such as recovering from the rare occurrence of natural disasters, emergencies, crises, or war, where food access and security are scarce. It is important to note that this type of intervention is not sustainable without consistent funding. Those planning the interventions would benefit from distinguishing between the necessity for relief, rehabilitation, or development. Relief provides immediate, temporary respite to individuals after a disaster or crisis; rehabilitation helps restore collective groups of people and their communities; development represents an ongoing process to improve both individuals and communities (Corbett & Fikkert, 2009).

Still, most traditional supplemental aid approaches seem to provide a quick fix by treating the symptoms rather than addressing underlying issues. How can people expect to break out of their poverty cycle when they are conditioned to be dependent on outside assistance? The role of traditional supplemental aid approaches should be seen as *temporary*, while less traditional community-based development approaches may offer long-term, sustainable change by addressing root issues. If outside experts or researchers first learn about the culture and work with the community members as equal partners, those individuals may become enabled to take ownership of their health. Interventions

such as commodity food assistance (SNAP, Child and Adult Care Food Program [CACFP], school lunch and breakfast programs, and summer food service program) focus on providing relief. Although they meet immediate needs, these types of interventions lack the ongoing process of developing individuals and communities. Without development, relief interventions are likely to continue the cycle of poverty, powerlessness, and dependence, while costing governments and volunteer organizations significantly.

Nontraditional Approaches. Community-based participatory research (CBPR), a strategy in which participants are equal partners with the researcher to develop solutions to health behaviors and problems, encompasses multiple methods of interventions (Shalowitz, Isacco, Barquin, Clark-Kauffman, Delger, & Nelson, et al., 2009). Emphasis on empowerment education, development, community gardens, and faith-based behavior change programs may all include aspects of CBPR as underlying issues of health behaviors and problems are sought.

Perhaps health should not so much be viewed through the lens of poverty or wealth, but rather through the way people perceive themselves, as either powerless or empowered. Brazilian educator Paulo Freire did this, linking powerlessness to disease and empowerment to health (Wallerstein & Bernstein, 1988). This ideology suggests that those who feel they have control over their lives are more apt to practice healthy behaviors. It is important to consider Freire's theory of empowerment education when working with minority populations because health behaviors and status may also be influenced by one's level of empowerment. One way to empower individuals may be through community gardening.

Numerous studies have illuminated the multifaceted benefits to involvement in either a homestead or community garden. The obvious benefits of a garden include increased access and consumption of fresh fruits and vegetables (Litt et al., 2011). Participation in community gardens and local produce markets also has the potential of improving food security and achieving diet diversification (Baker, 2006). Although various studies suggest that children involved in gardening are more likely to try and eat more fruits and vegetables (Castro et al., 2013; Litt et al., 2011), there are still gaps in people's knowledge and behavior. For instance, people must value consuming a variety of fruits and vegetables and be willing to invest resources into sustaining a garden.

Garden therapy, a type of nature-assisted therapy which specifically involves planting and tending a garden, is becoming recognized as an effective way to improve the overall health and wellbeing of people recovering from traumatic or stressful experiences (Grabbe, Ball, & Goldstein, 2013). This type of therapy involves a holistic approach to health as it serves as a resource for food, increases positive social interactions, and represents a link for social involvement in the larger community. Grabbe and colleagues focused on gardening as therapy for homeless women, in which negative and positive themes emerged. The dark themes describe the women's negative experiences related to homelessness, the light themes related to the women's feelings of hope and purpose, their ability to change, and their interaction and involvement in community (Grabbe et al., 2013).

Even more than decreasing food insecurity and increasing dietary intake of fruits and vegetables, community gardens have the potential to strengthen family relationships (Carney et al. 2012). This CBPR study aimed to build community self-sufficiency while

respecting the traditional Hispanic culture, one that perceives the world in light of their family. These researchers utilized mixed methods to understand perceptions of both children and adults in terms of vegetable intake, food security, and family relationships. Nearly all (94%) of the participants reported that the garden improved the health of their family (Carney et al.). Another project with low-income Hispanic families emphasized community activities that involved the entire family in order to sustain interest and facilitate benefits beyond fruit and vegetable consumption. Several activities included community potlucks with food from the garden, craft making, and a community garden newsletter, in which families began taking ownership of the various community events (Castro, Samuels, & Harman, 2013). According to yet another study, homestead gardening improved food security and empowered women, indicating that gardening should be considered when selecting nutritional and development approaches for low-income families (Bushamuka, de Pee, Talukder, Kiess, Panagides, Taher et al., 2005).

Not only does participation in community gardens strengthen family ties, but it also improves perceptions of health and well-being (Kingsley et al., 2009). Qualitative methodology was adopted in this study by Kingsley et al. to gain an understanding of members' perceptions of health and well-being from community garden involvement. Several themes that emerged illuminated the garden as a *sanctuary*, a supportive environment, a place of spirituality, and a setting for learning, social connectedness, and place attachment. Participants felt a sense of achievement and felt part of a community, as well as experiencing physical benefits, better food, and a happier life. One participant noted that the garden brings people closer to God than any other place on earth. Along with CBPR approaches, some interventions utilize faith-based approaches to motivate

participants spiritually, promoting positive behavior change (Kim, Linnan, Campbell, Brooks, Koenig, & Weisen, 2008). Spirituality and health outcomes are positively correlated (Sue & Sue, 2013), affirming the notion to incorporate spirituality into health interventions.

In particular, a faith-based approach for reaching weight-loss goals of an African-American population was adopted in the Lower Mississippi Delta (Kim et al., 2008). The researchers acknowledge the complexities of the obesity epidemic, especially in minority populations, and suggest that CBPR approaches foster dialogue and build upon the community's strengths. Community assets and needs were first identified, revealing that body weight was a top priority among participants. Next, focus groups were held to discover participant attitudes, perceptions, and beliefs about weight problems and discuss potential barriers and facilitators of weight loss. Faith was incorporated in the development of possible interventions. *WORD* (Wholeness, Oneness, Righteousness, and Deliverance) leaders were trained to facilitate interventions, which included socializing, a Bible study about health, physical activity, and prayer. As a result, the treatment group experienced a significantly greater loss in weight than the control group over an 8-week period. This study suggests that engaging the whole person by incorporating spiritual aspects of health enhances positive behavior change.

Furthermore, approaches to community nutrition programs that emphasize capacity building or collective efficacy (collaboration) are proving to be effective (Downey, Castellanos, Yadrick, Threadgill, Kennedy, Strickland et al., 2010). Focus groups from one project, conducted among academia partners, led to key themes of challenges within the CBPR process. One lesson observed is that the research partner

ought to be only the facilitator of growth and change, leaving the community responsible for resolving the issue (Downey et al, 2010). A systematic review on obesity control among U.S. Latinos revealed the importance of including family in nutrition and physical activity interventions (Holub Elder, Arredondo, Barquera, Eisenberg, Sanchez, Romero et al., 2013). Another CBPR study found that using open-ended problem solving questions in small group discussions was an effective way to combat childhood obesity (Torre, Sadeghi, Green, Kaiser, Flores, Jackson, et al., 2013). Involving participants in food demonstrations, offering childcare free of charge, and recruiting via house visits were ways of overcoming barriers in this population. Additionally, modifying culturally relevant foods and recipes and engaging participants in measurement and assessment (waist circumference, BMI) may be appropriate within a CBPR framework (Wieland et al., 2012).

Another way to facilitate empowerment among minority individuals may be through reflective activities, such as journaling, photovoice, or collage-making. Few research studies on the effect of journaling and scrapbooking or collage-making exist. One study, however, identified the positive effect of journaling in students' self-efficacy and locus of control (Friston, 2008). Another study emphasized scrapbooking as a means of psychotherapeutic healing and found success in using scrapbooking with people suffering from Post-Traumatic Stress Disorder (PTSD) (Davidson & Robison, 2008). This study was more heavily focused on treating trauma victims, which may also be relevant to immigrant, minority women who have likely experienced some level of trauma (Sue & Sue, 2013). Though journaling has not been well documented, similar methods of visual elicitation, such as photovoice, have surfaced. Photovoice has been

found to increase community participation in problem solving (Cooper & Yarbrough, 2010).

It is rare to find a nutrition program that encompasses the whole person – physically, spiritually, and emotionally – and focuses on solving the *root* of the problem rather than alleviating the symptoms. Many programs seeking to alleviate food security do not adopt strategies that allow the community to identify their own problem and be equal partners in developing an intervention – a method that promotes sustainability and fosters individual and community empowerment. Approaches that focus on eliciting holistic behavior change (spiritual, physical, household/family, and community) appear to develop deeper, longer-lasting connections through personal reflection that facilitate participant ownership of the problem (McKenzie, Meiger, & Thackeray, 2013).

In the current research project, I hope to implement the most effective and sustainable method of addressing the problem of malnutrition among a low-income, predominantly Hispanic community in North Tyler, Texas. Questions considered were to what extent of readiness is the community in terms of adopting the *5210 Let's Go!* goals? Would the women in the community be engaged in a participatory gardening, nutrition, and cooking class that influences their own behaviors and those of their families? Would the attitudes required to make deep, sustained change be incited through engaging the spiritual elements already present in these women's world? Does empowerment need to be primed and realized? I believe a combination of these aforementioned approaches into a community and faith-based gardening framework has the potential to bring about holistic and effective transformation.

CHAPTER THREE: METHODOLOGY

Purpose

The aims of this study were to facilitate participants to: 1) Self-identify attitudes, behaviors, barriers, and resources available in their own community towards reaching the *5210 Let's Go!* health goals, 2) Collect and share information about culturally relevant resources that support successful implementation of goals, and 3) Monitor and evaluate self-progress in meeting those health goals and the process of behavior change.

I hypothesized that participating in a community-based women's group would increase self-efficacy, leading to positive nutrition-related health habits. In order to test this hypothesis, participating women took pre- and post-surveys that assessed self-efficacy and health habits related to *5210* goals, and engaged in focus group sessions.

Theoretical Models

Adopting a community-based, participatory approach with this population calls for a combination of constructs that are borrowed from several theories at individual, intrapersonal, and community levels. The Community Organization Theory (COT), a theory that emphasizes empowerment and community capacity, or community building, will serve as the grounding theory since it promotes community resources and honors cultural wisdom (Glanz, Rimer, & Viswanath, 2008). This theory evolved from efforts made by social workers to serve those in poverty and those newly immigrated to the U.S. Several historical markers that influenced the development of community organizations include the post-Reconstruction period by African Americans, the Populist movement

that resulted in coalitions and served as a major political force, and the Labor movement of the 1930s and 1940s (Glanz et al., 2008). Leaders of community organizations are advised to advance by breaking a large, complex goal into feasible steps, thereby increasing the efficacy of the whole group – a concept known as collective efficacy (Pecukonis & Wenocur, 1994).

COT contains five constructs (empowerment, community capacity, issue selection and relevance, critical consciousness, and participation). Two main constructs of COT include 1) Empowerment, and 2) Community capacity, which will be addressed using self-efficacy and collective efficacy. Though knowledge and skills influence behavior, it is important to note that self-perceptions and thoughts about self impact one's confidence in bringing about change

(Pecukonis & Wenocur, 1994). Even when skills and resources are available, low self-efficacy may prohibit individual action. Similarly, community capacity refers to a community's ability to identify and address social and public health problems (McKenzie et al., 2013). This represents a strength-based approach in which the community comes to a consensus and develops strategies as opposed to being a problem-based or needs-based approach that is centered around the organizer.

Also, construct 3) Issue selection and Relevance, will be addressed using perceived benefits and barriers from the Health Belief Model (HBM). Issue selection allows individuals to identify targets for change that increase community strength; relevance simply means the issues selected are congruent with community concerns. Construct 4) Critical consciousness, raises awareness of multifaceted and underlying forces that contribute to social problems. COT's construct 5) Participation, engages

community members as equal partners in the planning, development, and implementation of interventions (National Cancer Institute [NCI], 2005).

The *5210 Let's Go!* goals will serve as an evidence-based framework for healthy behaviors (Serpas, Brandstein, McKennett, Hillidge, Zive, & Nader, 2013): *Five* servings of fruits and vegetables consumed per day, *Two* hours or less of recreational screen time, *One* hour or more of physical activity, and *Zero* sugary drinks. This program has been implemented in schools, doctors' offices, and community centers to ensure a consistent message is presented to kids and families (Let's Go, 2012). The population for this study should be somewhat familiar with these goals since local doctors' offices and schools are implementing the program. Another reason for using this program is that existing materials and tracking tools will be easily reproducible and cost-effective. To date, no evidence shows this project has been implemented using a multifaceted, community-based approach that includes aspects of spiritual or mental health. Though these goals lend themselves to a checklist to log frequency of behaviors, going beyond a checklist by engaging participants in activities that require open-ended feedback and family involvement may produce more lasting results.

Setting and Participants

Eligible participants for this study include low-income women within the age range of 30-60 years, who were actively participating in the dynamic women's group at SPCF. This faith-based, 501c3 nonprofit organization offers services including, but not limited to, medical and dental services for children, a clothes closet, a food pantry, application assistance, skills classes for family members, an associated after-school program for children, and a teaching garden. SPCF's mission is "working together in the

spirit of Christ to build a healthy and joyful community for children and their families" (LoveWorks, 2013, p.1). As part of the community service outreach offered, group classes that comprise a variety of topics such as parenting, crafts, and nutrition are available to women in the community. The director of the women's group, a bilingual expert in nutrition, began her job at SPCF three years ago as *promotora* reaching out to the community and building a summer wellness program for the children and their families. The staff at SPCF realized the need to teach people in the community skills to raise them out of poverty rather than continually providing aid that reinforces the cycle of dependence. As many of the women in the community did not speak English, but had a hunger to learn, an English as a Second Language (ESL) class was started which provided a venue where relationships would be developed with the women. Through these interactions, the women expressed interest in learning a variety of other skills leading to the creation of a women's group addressing a variety of topics. The goals for this group are simply to provide women with practical skills leading to an increased capacity to live full, healthy lives and make a positive difference in the lives of their families and community.

A focus group following the summer program in 2013 provided feedback on the types of classes the women would like. It became evident that the women were interested in learning about nutrition, healthy cooking, parenting classes, skills to make items for use in their homes and salable products, to name a few – basic skills to help them enhance and develop themselves as individuals. This year (2013-2014), the group has consisted of six to ten women who have come to learn and co-teach different topics, such as home organization, jewelry making, child-discipline techniques, car and home safety,

food preservation, and gardening. Many women expressed eagerness to learn more about nutrition, cooking, and gardening due to concerns about the health of their families. About a year ago, several SPCF employees began planning a teaching garden to be used by the community and to potentially stock the food pantry. The hope for the garden was to provide a community resource to teach and empower children and families to become more self-sufficient. The notion behind the garden propelled it forward rapidly with much external volunteer support, but little internal community investment. The director of the women's group at SPCF is now taking a step back to first engage the community (the women) in garden plans, activities, and maintenance, so they feel more ownership of the garden.

The women's group, which began at the start of the school year (2013) and follows the Tyler Independent School District (TISD) schedule, meets once weekly on Wednesdays, typically for an hour or two. Additionally, ESL classes are offered twice weekly for an hour and exercise classes are offered each day; many of the women attend more than one of the classes. The majority of the women represented in the women's group are first or second-generation Spanish-speaking female immigrants from Mexico. Many of the women are married with school-aged children and younger. Levels of education vary, as assessed through the ESL registration form questionnaire, though many have less than high school or college education and likely have low income. My investment with the community at St. Paul's has provided a foundation to build relationships and establish trust among the women.

This study was approved through the IRB at the University of Texas at Tyler. Additionally, SPCF granted me permission to collaborate with the organization. Seven

women were present at the women's group on December 11, 2013, in which all were explained the informed consent and expressed understanding. The women signed the consents and then proceeded to take the pre-survey that assessed habits related to *5210* and perceptions on self and collective efficacy.

Procedure

Convenience sampling procedures were used to recruit the women involved in the weekly women's group at St. Paul's. Participation in the women's group determined sample size, though six to ten women were anticipated. Exclusion criteria included women less than eighteen years of age and males. Males were excluded since the setting for this study is strictly a women's group. I adopted a role of facilitator and co-learner, which is an approach associated with empowerment education (Downey et al., 2010; Wallerstein & Bernstein, 1988). Goals are not necessarily addressed around a specific outcome; rather, the importance is the process of addressing problems and identifying strengths.

Along with the women's group director, I co-planned this project. At the beginning, the director demonstrated to the women, which was introduced in Spanish and English at the second meeting on December 18, 2013, how health and well-being encompass multiple realms, including spiritual. She explained how people's actions stem from their values and beliefs, and that these three components need to be unified in order to carry out healthy behaviors. In sum, it was explained to the women that behavior change does not just happen by will alone, but it involves a greater force, that starts with one's heart, or core (values and beliefs). A passage from the Bible was used as one of the spiritual

foci for this project. Psalm 1:1-3 (*New International Version*) depicts well-being at its fullest:

> Blessed is the one who does not walk in step with the wicked or stand in the way that sinners take or sit in the company of mockers, but whose delight is in the law of the LORD, and who meditates on his law day and night. That person is like a tree planted by streams of water, which yields its fruit in season and whose leaf does not wither—whatever they do prospers.

Along with the spiritual component, I explained how gardening could be a wonderful way to meet health goals and deepen spiritual roots. The garden coordinator then discussed with the women the benefits of gardening (these women have been interested in gardening for months now).

The study adopted a pre-post research design where participants utilized one to three classes per month to work through their behavior change notebooks and participate in informal focus groups. The actual schedule for the study is shown in Table 1. Within a community-based, participatory framework, I provided participants with options that helped them reach their health goals, such as linguistically tailored exercise, time, and food logs. I introduced the idea of the behavior change class so that once preliminary questions were completed (Appendix A), women could provide feedback on the structure of the project and begin crafting their personalized behavior change notebooks. I facilitated options and ideas for the women to create their own plan to assess themselves, set goals for achieving healthy behavior change, and enlist support and resources to sustain healthy behaviors.

The women were assessed via survey for self- and collective-efficacy in reaching nutrition and activity related health goals, once before the notebooks were created (in January 2014), and again about four months after the women went through the program

Table 1.

Women's Group Spring Schedule

Date	Activity	Participants	Observations
12/11/13*	Initial Survey	7	
12/18/13*	Discussion of holistic health	2	
1/15/14*	Notebook Collage	7	
1/22/14*	Focus Group #1	5	
1/29/14*	Gardening Activity	2	
2/5/14	Guest from Wellness Pointe	2	
2/12/14	Staff Planning Meeting	0	Freezing weather
2/19/14*	Focus Group #2	5	
2/26/14*	Monitoring and evaluating goals	5	
3/5/14	Guest from Christian Women's Job Corps	3	
3/12/14	None	0	Spring Break
3/19/14*	Gardening Activity	1	
3/26/14	Catholic Charities – Immigration	4	
4/2/14*	Focus Group #3	4	
4/9/14*	Discussion & gardening	4	
4/16/14	Discussion & gardening	2	Researcher not present
4/23-5/7	Post-survey & gardening	5	

Note. *Indicates a total of ten dates specifically focused on the behavior change process.

(in April 2014). Concerning the notebooks, the women were encouraged to add new themes, notebook components, or measuring tools depending on what they determined valuable and relevant (Table 2). Many items in Table 2 relate directly to *5210* assessments (Appendix A).

The women's collages from a previous notebook activity provided the focus for the discussion as the women described the images they chose for their collages, deduced their health goals, prioritized their most important health goals, and then rated their confidence in achieving those goals on a scale from 1 to 5. Motivational interviewing techniques

were used to help women prioritize their most important health goal and rate their confidence in carrying out their goals. The women were prompted to journal about their thoughts and feelings about their progress on their health goals, to write out a prayer for

Table 2.

Notebook Component Suggestions

Theme	Format	Possible Questions
Time Management	Time log	How much time do you spend per day watching TV? Outside? Reading? Cooking? Do you have family meals together at the dinner table?
Food Consumption	24-hour food recall Food diaries Food frequency questionnaire Grocery receipts	List all the food and beverages you consumed within the past 24 hours. How many fruits do you consume per day? How many vegetables? How many sugary or carbonated drinks? Whole grains? Dairy?
Physical Activity	Activity log	What kind of physical activity do you enjoy? Are you getting a variety of physical activity? How many minutes per day?
Measurements	Height & Weight Hip-to-waist circumference	Find your BMI on the table. What does your hip-to-waist circumference indicate about your health? Measure your family.
Family Activities	Narratives Photos	Describe your favorite family activities. Print photos of your family for your portfolio. Are there any activities you wish your family participated in?
Visualization	Collages Drawings	Draw what comes to mind when you think of a healthy heart, a healthy home, and a healthy community.
Spiritual	Prayers Bible verses	Write a prayer for your family. What verses encourage you?
Garden	Outdoor Activities	Learn about plants growing in garden. What plants would you like to grow?

themselves and/or their families, and to document their knowledge of traditional uses of the plants they have planted in the garden (i.e. traditional uses of garlic and onions for colds).

Treatment of Data

Data collection included both quantitative and qualitative information from the participant's personalized notebook, data from focus groups, a pre-post survey, and observations. The notebook represents each woman's health holistically – not just a strategy to assess 5210 goals. It was intended to include written responses to open-ended questions, observations of family behavior and narratives, and resources the women found helpful. The notebook activity of making a collage served as the discussion guide for the first focus group. As to the focus groups, three were conducted and recorded, which were then translated and transcribed by a bilingual undergraduate intern.

Concerning the survey, if someone responded with a range of numbers, such as 2 to 3, for a question, then I recorded the average of the numbers, or 2.5. If a response used words instead of a number, such as "almost always," I entered 6 (out of 7) days a week. If someone responded with a number per month instead of per week, such as 1-2 times per month or every 15 days, I documented 0.5 times per week. If the respondent said "never," I assigned zero. If someone answered "weekend for 5 hours" for how many hours of TV they watch per day, I recorded 1 hour per day; if "*muchas,*" I put 2 hours per day. For the questions that asked if a TV or computer was in the bedroom, I coded "yes" as 1 and 2 as "no." For physical activity, if respondent said 2 times per week for 15 minutes, I estimated 0.25 hours per day. If a respondent answered "*poco,*" I assigned 0.5 hours per day of physical activity. If someone responded with a check mark for servings of a certain beverage per day, I assigned 1. Some used words, such as "*mas o menos*" to answer the servings of milk per day, so I recorded 1 serving for that as well. If someone answered "*siempre*" to how many servings of water they drink per day, I estimated 5. On

the questions that required a check in either one box or the other, I assigned column A as 1 and column B as 2. On the questions addressing self- and collective-efficacy, the respondents were supposed to enter a number between 1 and 6. Some used words or check marks, so for "*si*" or for a check mark, I assigned 5, and for "*no,*" I assigned 2. These interpretations of the survey were kept consistent throughout data analysis.

Quantitative data from pre-and post-surveys were analyzed using descriptive statistics and the Wilcoxon nonparametric test from the SPSS software. Traditional statistical cutoff occurs at $\alpha = 0.05$; however, I consider marginal statistical significance at 0.10, also. Not all the surveys were filled out as anticipated or as the directions noted, so I constructed a key to consistently document variations in survey responses. Qualitative data from notebooks and focus groups utilized classical content analysis, where the research aide and I deduced themes from focus group transcriptions. Themes were organized into an Excel spreadsheet, analyzed, and validated by the research aid, the women's group director, and I. The next chapter describes the results of this research.

CHAPTER FOUR: RESULTS

Results from four different data methods are described here (surveys, focus groups, notebooks, and observations). Overall, the women were very positive in their abilities to make healthy behavior changes. The overarching themes that emerged included gardening, healthy eating and exercise, spirituality, family, and sharing ideas.

Surveys

A total of ten participants completed the pre-survey. Participants included Spanish-speaking women between the ages of 30-60, who had no more than high school education, though no actual demographic information was attained. Seven of those participants took the survey the first day of project initiation (December 11, 2013), while the other three submitted their surveys in late January, mid-February, and mid-March, 2014. In response to a couple of open-ended questions about health problems and behaviors, participants expressed that diet (for themselves and their families) and physical activity are the number one issues they want to address.

Baseline fruit and vegetable intake varied from 1 to 4 servings a day, with the average of 2.3 ± 1.0 servings for ten participants. The majority of participants reported eating less than 2.5 servings of fruits and vegetables per day. Participants reported eating dinner at the table with their family from 1.5 times to 7 times per week, with the average being 4.2 ± 1.9. Furthermore, the majority of the participants reported that they ate around the dinner table with their family 3.5 times or more per week. The majority of the participants ate breakfast at least 6 days per week (mean = 6.3 ± 1.1), though a couple of

women reported eating breakfast 4 or 5 times per week. It is important to note that none of the participants skipped breakfast every day. Fast food consumption among the participants ranged from a time or two per month to a time or two per week (mean = 0.9 ± 0.5).

On average, participants watched 2.2 ± 1.3 hours of television per day, with the minimum being several hours a week and the maximum being 5 hours per day. Hours of moderate physical activity per day among participants ranged from 0 to 3 hours, with the average being less than an hour each day (mean = 0.8 ± 0.9). Just over half of the participants reported that they had some type of moderate physical activity for about an hour per day or more, while the other half reported half an hour or less of moderate physical activity per day. However, only two of the ten women reported no physical activity or almost no physical activity. The definition of physical activity is likely not consistent among participants; some women may have included household activities, whereas others may have only considered intentional exercise such as going for a brisk walk.

Servings (defined as 8-ounce portions) of various beverages were assessed. On average, the women reported one serving (± 0.5) of 100% juice per day, compared to 0.4 ± 0.7 serving of fruit or sports drinks and 0.8 ± 0.4 serving of soda per day. Interestingly, whole milk consumption among the women was very rare (0.1 ± 0.3), whereas the average consumption of reduced fat or skim milk was 0.8 servings per day. Water intake reported was 2.9 ± 1.6 servings per day. Overall, the women choose juice, soda, low fat milk, and water for their daily beverages.

On a scale of 1 to 6, 1 being *very false* and 6 being *very true*, the women were asked to rate their confidence in themselves, their family, and their community in terms of health behaviors. The women reported an average of 4.9 ± 0.6 in their confidence in themselves to make healthy changes. Regarding their family's ability to reach their health goals, the women reported an average of 4.7 ± 1.1. In terms of their community's ability to improve itself if it works together, the women reported an average of 4.9 ± 0.7. Lastly, the women gave an average of 4.8 ± 0.5 when asked if they had the resources they needed to reach their health goals. In other words, the women were fairly confident in their family, and their community to reach their health goals, but less confident in themselves and less confident that they had necessary resources.

In the open-ended questions that asked about family health and practices that are good for one's health, the majority of the participants referred to diet, or nutrition – specifically, eating more fruits and vegetables and/or not eating fried foods, salty foods, or unhealthy foods. Furthermore, 100% of participants mentioned health topics, either diet or exercise related, that they are currently doing or would like to improve. The phrase *alimentación* and *comer mejor* were most common throughout the survey, meaning, "nourishment" and "to eat better."

In response to the question, *what do you think is the number one health problem in your family*?, the majority of the women answered in terms of nutritious eating, such as not eating enough fruits and vegetables or eating fried and/or unhealthy foods. One woman noted that her family does not eat in the home on the weekends. Another responded that there is no problem, while several others left the question blank. Many women responded to the second open-ended question, *what do you think you are doing*

now that is good for your health?, with things they would like to change or think they need to change, such as eating better and feeding their family better. Several wanted information on how to start (the behavior change project) and how to better feed their family, as well as learn exercises to do inside and outside the home. One woman noted that she is changing the way she cooks to include healthier oils, less salt and sugar, and smaller food portions, and she reported doing exercise.

Post surveys were given on April 23-24 and May 7, 2014, in which five of the original ten women participated. Overall, there was no statistically significant change in health behaviors such as fruit and vegetable intake, family dinners, fast food intake, or frequency of breakfast. However, hours of television per day decreased (P value = 0.07), while physical activity increased (P value = 0.06). Additionally, water consumption increased (P value = 0.07) and participant's belief that they have the resources necessary to make healthy changes increased (P value = 0.08). Means of reported health behaviors for the women who participated in pre- and post-surveys are shown in Table 3.

In response to the open-ended questions, the women answered similarly, compared to the pre-surveys. In regards to the question that asked the women what they think is the number one health problem in their family, one woman commented on her husband's attitude about unhealthy cravings and another mentioned her family members' lack of exercise. From the open-ended question that was intended to identify strengths, the women answered with diet and physical activity related themes. For example, one woman said she continues with her plan of good nutrition and exercise and that she makes changes little by little. Another woman commented how she continues to exercise and eat healthy (fruit and vegetable consumption, "fruit water" consumption, and less

sweet foods). A third woman reported to cooking more with vegetables and frying foods less, as well as walking when her husband gets home from work or when her son returns from school. Lastly, one woman expressed that everything her family does is good.

The overall changes experienced by the women (according to pre- and post-survey data) were increased physical activity and decreased television watching, increased water consumption, and a stronger belief that they had the resources necessary to make healthy changes.

Table 3.

Survey Results

Item	Before Average	After Average	Wilcoxon Significance
Fruit and Vegetable Consumption (servings per day)	2.00	1.90	0.32
Family Meals (times per week)	3.90	4.30	1.00
Breakfast Consumption (times per week)	6.80	5.90	0.32
Fast Food Intake (times per week)	0.70	0.98	0.29
Hours of Television (per day)	2.4	1.53	0.07*
Moderate Physical Activity (minutes per day)	0.45	1.30	0.06*
Servings of 100% Juice	1.00	2.40	0.41
Servings of Fruit/Sports Drinks	0.10	0.63	0.32
Servings of Soda or Punch	0.70	0.20	0.10*
Servings of Whole Milk	0.00	0.00	1.00
Servings of Reduced Fat or Skim Milk	0.60	1.20	0.26
Servings of Water	2.20	5.36	0.07*
Confidence in Self (to make healthy changes)	4.80	5.40	0.12
Confidence in Family (to make healthy changes)	5.20	5.00	0.32
Confidence in Community (to improve if it works together)	5.20	5.40	0.57
Resources Necessary (to make healthy changes)	4.70	5.75	0.08*

Note. *$p < 0.10$ **$p < 0.05$.

Focus Groups

Focus Group One. Three focus groups were accomplished for this research. Five women participated in the first focus group on January 22, 2014, although it was the first day for one of the women to start the project. The women's collages from a previous notebook activity provided the focus for the discussion as the women described the images they chose for their collages (Appendix B), deduced their health goals and prioritized their most important health goals. The women chose one to three goals that were most important to them.

Collectively, the most important health goals the women chose, in no particular order, were 1. Eating healthy, 2. Exercising, 3. Gardening, and 4. Growing spiritually. By contrast, only one or two women mentioned preventing illness, being disciplined, being outside more, and going to Mexico. All five of the women identified with healthy eating, such as eating more fruits and vegetables and/or less junk food or sugary drinks, or decreasing portion sizes and not eating late at night. Two women mentioned that everything else depends on healthy eating. Physical activity was a factor identified by the majority of the participants, though some wanted to be more active for different reasons (such as being more disciplined, losing weight, being outside more, or becoming healthier in general). Several of the women discussed spirituality by acknowledging that God helps them make changes for the benefit of the family, that internal health is as important as external health, and that growing spiritually is even more important than healthy eating.

Although eating healthy was important to all of the women, one woman expressed her confidence in making healthy food choices and noted that exercising more, growing

spiritually, and saving money (in order to have a wedding ceremony and eventually have a bigger house) were her top goals. Along the same theme, one woman felt that she already eats healthy but wanted to emphasize exercise and being outdoors more, while participating in the projects ongoing at St. Paul's (such as gardening). Another woman felt confident in her exercise, but wanted to eat less junk food and to take care of and treat herself better, specifically in terms of relaxing or getting a massage. She also mentioned finding a job (she was serious though she said it with laughter), and enjoying all she's been given by God (such as *la naturaleza*, or nature), as if today were the last day to live. It was revealed throughout the discussion from one woman in particular that she had knowledge on the manner and timing of sowing plants, as well as the various medicinal uses of a variety of plants. She was enthused to share her knowledge with the group and seemed eager to lead a future class about the medicinal uses of plants.

Family values were expressed clearly by the majority of the women. For instance, the women said they wanted to help their children to be healthy and teach them to grow spiritually and to be united as a family. One woman dreamed of being old and active with her husband. Another woman (who is single) dreamed of having a family. Still another woman spoke of how she wanted to be with her family and educate herself so she can support her kids, with the help of God. Family was also mentioned when one of the women expressed her desire to go to Mexico to see her family that she hadn't seen in over sixteen years. She went on to say that making that trip is her number one goal (though reaching that goal will be no easy task). The woman (whose number one goal was to go to Mexico) was not present for the previous classes, where the purpose of the study was explained and the collages were made; therefore, it was likely that she

misunderstood exactly what was being asked when goals were discussed. She shared her story about the first (and only) time she traveled from Mexico to the U.S., a journey that tremendously impacted her health. The other women seemed engaged and identified with the story she told, for some had similar experiences. Most women took their specific individual goals and framed them in the context of their families.

Additionally, only one woman mentioned anything about doctors or health systems when speaking of health. This woman expressed the importance of getting regular check-ups, being aware of symptoms, and preventing illnesses. The same woman said she wanted to be authoritative with her children and not give in to their pleadings for junk food or sugary drinks. She said they might think she's a bad mom now, but they will look back later and see her decisions were for the best. Four things that she said she thinks about daily are as follows: "health, confidence (which I do not have), honesty, and competence."

At the end of the discussion, the women were asked to rate themselves on a scale of 1 to 5 (1 being not confident and 5 being the most confident) about how confident they felt towards meeting their goals (an approach utilizing motivational interviewing). Healthy eating and exercising were goals that the women felt the most confident in achieving, with scores between 4 and beyond 5 (some women felt more confident than the indicator of 5 could express). However, goals of going to Mexico, saving money, or having a wedding were between 1 and 3. In summary, many women felt at least somewhat confident in achieving their health goals related to healthy eating and exercising, while feeling less confident in achieving the goals not directly related to health.

Focus Group Two. The second focus group, held on February 19, 2014, consisted of four women initially until another woman arrived after schedule. I asked the women how everything was going concerning progress on their goals and the garden project. Most women reported to eating healthier and exercising. Overall, the second focus group revolved around these themes: 1) Positive changes that the women were making, 2) Barriers to making those changes, 3) Sharing ideas and resources, and 4) Questions about sugar. Specifically, concerning the first theme, one woman explained that her family is now using whole wheat bread and a different type of sugar (raw sugar). Ideas were shared among women about sugary drink alternatives and ways to enhance water using hibiscus tea. Meat alternatives such as cabbage, nuts, and avocadoes were discussed, and "green" shakes using aloe, cucumber, and other fruits and vegetables were encouraged as well.

Other positive strengths acknowledged include: having children in sports, having previous nutrition education, and having knowledge of alternative or natural medicines. One woman's kids are in athletics, so they have become accustomed to eating healthy in order to be in good condition to train. Her kids do not drink sodas, they love to eat vegetables, and they eat whatever she cooks. Another woman commented on how she has learned from these classes (both during this program and in previous summer wellness classes) about healthy choices at the grocery store. She said that she recognizes when people buy things with a lot of fat, like *chicharrones*, and sighs. The same woman mentioned how she used to struggle with what to bring to church or family functions; however, she now brings fruit or something simple like peanuts, pretzels, or celery with peanut butter, because others usually make something like *enchiladas*. One woman in particular shared her knowledge on the medicinal uses of herbs and plants, such as

yerbabuena (spearmint), *ajo* (garlic), and *cebolla* (onion). Other ladies commented how they do not need to search for pills for a cure but can use herbs and plants and juices and water to treat common illnesses like colds or even intestinal worms.

Several barriers mentioned regarding healthy eating involved the women's husbands. Their husbands commented, *yo no estoy en dieta* (I am not on a diet), and said they want something *pesado* (heavy) and filling. Also, according to the women, the husbands are bored with water; the women note that their husbands are the most difficult to change. Another barrier to eating healthy is simply lacking ideas to change or knowledge to navigate which direction to go. For instance, several women inquired about which type of sugar is healthier, and one woman expressed interest in learning how to cook with less oil and less sugar. The psychological effects of sugar were mentioned multiple times, prompting me to label it as an emerging theme. For example, the women asked about the differences between artificial and natural sugars and were curious to know which was considered to be a better option. In addition, boredom was mentioned as a barrier to healthy eating. A recent immigrant reported eating larger food portions in the U.S. She said she only ate three tortillas a day in Mexico, but now eats 8-15 corn and/or flour tortillas because she has less activities to do, gets bored, and the availability of food and portion sizes are greater in the U.S. This woman said she had gained about six pounds of weight since she had been in the U.S. (approximately two months).

Participants were asked what some barriers were to meeting their health goals. One woman admitted that she forgets to look at her notebook. Barriers for exercising included poor weather conditions and preparedness. The women discussed how they were less likely to exercise when it is cold outside and if they had not planned for the

following day the night before, such as setting out exercise clothes. Some of the women reported feeling stressed and disorganized, which made it challenging for them to exercise if they did not have everything ready for the next day. Other barriers included pain, unsupportiveness of some family members, money, and motivation.

Concerning resources, the overarching response was the theme of internal motivation, will, and time. Looking to others as examples and following a process were implied as well. They reported that they needed to have initiative to act and that they needed to say positive things about themselves, like *si se puede.* Another woman commented that she does not have time to go to school and learn English like she wants. Another woman agreed, explaining that it is up to each woman to have the initiative to come to classes, to exercise, to eat healthier. She said they have to practice what they learn by taking home skills they learn in class. For example, women know how to plant, but they learn more by coming to class and planting at home. Or, when one woman goes to parties, she chooses to drink water because she learned in class not to drink too many sugary or alcoholic drinks. Yet another woman commented how she likes to do projects by hand, to have supplies and work for something rather than it already being made.

A conversation surfaced about doing things people know they should not do when speaking about what resources or needs the women have in terms of meeting their goals. One woman provided the example of caring for the planet – how we need to conserve energy and water and sow plants that fertilize the soil. However, she admitted that people want things quickly and they do things without regard to the planet, such as leaving the lights on and using machines to exercise and being wasteful with water. She tied this analogy to the theme of eating fruits and vegetables. Even though she knows she should

eat more fruits and vegetables and use smaller plates, she does not always do it. This woman admitted that her choices (and the choices of everyone) would impact her children in the future. Perhaps keeping that knowledge in mind would serve as motivation to make the healthier choices even when it is less convenient. The same woman mentioned how the spiritual aspect is important, too, but did not expound on the subject.

Lastly, the women were encouraged to journal in their notebooks, recording what was going well, what barriers they faced, and, because of the previous conversation, paying attention to what were traditional or medicinal uses of the plants growing in the garden. They were also encouraged to write out a prayer for themselves and/or their families in regards to health and meeting their goals. The third focus group description reveals the women's follow through on the journal writing.

Focus Group Three. The third focus group consisted of four women and took place on April 2, 2014, in which three main themes arose, including 1) Gardening and its benefits, 2) Sharing ideas, and 3) Importance of exercising. Of note, the format for this focus group was more informal since several of the women arrived late to class and the actual recording was not started until about forty-five minutes into the discussion. Prior to the recording, a recapitulation from the first two focus groups was made, comparing the women's stated goals to their actual actions. The three women who were initially present discussed the themes of gardening, eating healthier, and the role of spirituality for strength and health. In regards to eating healthier, one woman described how she had to learn how to use forks and spoons instead of tortillas. This same woman mentioned that gardening reminds her of her mother in Mexico and is something she enjoys doing, whereas some of her friends and family members do not care to garden. The women

recognized that they can help prevent illnesses like diabetes and high cholesterol by choosing different snack and beverage items and changing unhealthy habits. Another woman mentioned the impact that her prayers had on her cancer diagnosis. She expressed confidence in her faith to strengthen her, reminding herself that *si se puede* (yes you can).

After the fourth woman arrived, the recording was started as the women were discussing the various benefits of gardening and how gardening has helped them reach their goals. In sum, the women concurred that gardening is *buena para todo* (good for everything). All of the women agreed that gardening serves as a stress reliever; if inside the house they feel frustrated, going outside to garden relaxes them. They commented on how being outside, getting dirty, and breathing fresh air is good for their kids. One woman said she gives her children money to help her in the garden because she knows it is better for them than being inside. They noted that even if the woman is the only one working in the garden, it benefits the whole family when they get to enjoy the fruits of her labor. One woman expressed pleasure in being able to pick herbs from her garden to enhance her recipes, and all the women agreed that it is more convenient and economical to have those herbs and plants at home rather than having to buy them at the store.

Idea sharing occurred naturally throughout this conversation. Another woman shared ideas of which plants and herbs to keep on stock for the garden, such as *yerbabuena* (spearmint), *cilantro, perejil* (parsley), and *epazote* (wormwood). The women discussed their methods of growing, such as letting a plant flower so seeds could be saved for the following year, and planting seeds in several places in small containers to prevent losing a whole bunch if the seeds did not grow well in one area. The women spoke of past successes, such as losing weight by increasing physical activity or limiting

certain foods (such as flour tortillas and “drinks”). For example, rather than sitting around while her kids practice or play soccer, one woman walks and recruits other women, too.

The garden was heralded as a place for physical activity as well. Rather than working out in a gym, one woman explained how she prefers walking and working in her garden. The women shared examples of elderly people they know either at their church or workplace who continue to stay active even in their old age – and they stay thin! Another woman shared how she began walking with the skills instruction coordinator at SPCF over a year ago and has not stopped working out since; working out with someone helps time go by. This woman said she now recognizes when her body needs activity and she is sensitive to listen; because of this, she has lost weight and lowered her cholesterol. This discussion reinforced the idea of exercise at any age.

Regarding the weight loss theme, one woman expressed that even though she weighs less than in the past, she does not know how to lose weight. Compared to living in Mexico, people in the U.S. are less active and have more food available, this woman explained. A different woman commented that her husband eats many tortillas and does not stay active at his job, yet remains skinny. She joked with him that his alcohol consumption was keeping him from gaining weight (because he wants to gain weight), but in reality, the women agreed that some people have a faster metabolism than others.

In terms of meeting her goals, one woman said she has achieved them because she gardens and exercises. None of the other women expressed this type of contentment with their goals. Granted, none of the other women had been as involved in the women’s group or come to as many classes either. Overall, the discussion was one of sharing successes and failures, ideas about gardening, losing weight, exercising, and encouraging

one another that yes they can achieve their goals. After the focus group, the women went eagerly to work in the garden, which seemed like a very natural and necessary response to the discussion!

Overall, the focus groups provided a platform for the women to develop friendships, share information and ideas, realize their health goals, support one another in those goals, and work together in the garden. The women expressed gratitude for having an opportunity to work on their goals and experience the process of behavior change together. Future informal and formal discussions can continue even after the study. The most important themes that spanned each focus group were healthy eating, exercising, gardening, and sharing ideas.

Notebooks

The third meeting on January 15, 2014, involved the first notebook activity, in which the women cut out pictures from magazines to make a collage that represented their idea of health or that signified the health goals they hoped to achieve. The women were so enthusiastic about this activity, as indicated by their smiling faces, their laughter, their engagement in conversation, and their willingness to participate. None of the women refused to participate; in fact, many took their notebooks home to continue working on their collages. Eight women originally participated in the collage activity, though only six of those agreed to be part of the study. Of those six women, four major themes surfaced: 1) Food, 2) Faith, 3) Fitness, and 4) Family.

Specifically, an emphasis was placed on healthy eating as indicated by pictures of fruits, vegetables, whole foods, prepared dishes (such as beet salad on greens and roasted spring vegetables), hot tea, gardens and gardening, and freshly harvested produce. All of

the women had either fruits or vegetables or both pictured; five women had pictures indicating a gardening activity, raised beds, a greenhouse, or a harvest from the garden. One woman had healthy "to-go" options for snacks or meals pictured, while another had a quote that said, "Cultivate organic flavors in your kitchen." Faith, or spirituality, was indicated from four participants with pictures of crosses, an angel, and mention of God. Pictures of women meditating fit in this spirituality category as well. Fitness, or exercise, was indicated in four of the women's collages by pictures of women working in a garden, the words "walk, run, play," a woman doing yoga, a woman running, a group fitness class, and an elderly couple biking. Lastly, family seemed to be of importance to these women, as four women included pictures of families or a husband and wife or a child.

Several additional themes emerged from one or two of the women. Themes of relaxation and self-care were depicted in two of the women's collages, as indicated by people getting a massage, a woman meditating, and women taking care of their face and hair. Another theme that surfaced was *al rescate del planeta* (rescuing the planet), in which two Hispanic celebrities were pictured in a garden with a shovel, a watering pail, and a big sunflower with a map of the world as it's center. Additionally, one woman had a map of a country in Central America as her background and a little black boy with a pot of food, and writing that said, "Benefit helps feed hungry children while spreading the glory of God." Another woman included pictures of flowers on her collage. Many pictures that represented "healthy" people were of white females or males, although several collages pictured a Hispanic family, black or Hispanic women, or a black child. A last theme that emerged was that of having and taking care of a home. A couple of women had pictures of homes in their collages. In fact, one woman's collage was heavily

decorated with pictures of home décor, furniture, flowers, dogs, outdoor arrangements, a bird in a cage, and several pictures of homes themselves.

Notebook components, such as habit and food logs, recipes, and journals were of interest to me, but the women did not seem to utilize them as expected. Logs were created in English and Spanish and tailored for the women to keep track of their daily activities (including exercise and food consumption). Several of the ladies began logging these topics in their journal before handouts that provided a template to log their habits were given to them. Some of the women have used the logs, though it seemed they were filled out during class in an effort to please me. Overall, the logs were underutilized; subsequently, no written data from the women were collected. However, one woman began writing down recipes in her notebook that she had seen on television and was proud to show off her notebook contents to me.

Many women were enthused to share recipes they had tried or wanted to try that are well balanced and healthy. For example, one woman shared a recipe for a cleansing juice smoothie that included orange, lemon, celery, pineapple, apple, aloe vera, cactus, and cucumber. I shared a recipe for cranberry bread that the women inquired about, which was a recipe the women had tasted on the project initiation date. The women shared about four to six other recipes during class, though those recipes were not written down and recorded for the women to store in their notebooks. The women shared more verbally with others than individually in writing, which may indicate their value of interdependence and community versus independence and individuality.

Other Observations

Other facets of the women were noticed, but a data collection scheme for these observations did not fit into the proposed strategies. Therefore, this section mentions *post hoc* observations. Themes of these observations are 1) Gardening, 2) Conversations about disease prevention, 3) Conversations about family members, and 4) Development of a walking schedule. This behavior change project with the women, unexpectedly, has been aligning with the garden coordinator's activities. A garden coordinator was hired at SPCF around the same time this project was taking off (early December, 2013), so she has been directly working with the women's group to have them plan, plant, and organize garden activities. One woman in particular has shared some of her knowledge about plants and herbs that have medicinal properties; she brought transplants of several types of plants (such as banana trees and wormwood) from her home garden to share with the women and plant at the garden at St. Paul's.

The second women's group meeting since project initiation was held December 18, 2013, in which two women were present and participated in the conversation. Their surveys were returned to them and supplies to create notebooks were provided for them to keep track of their habits, goals, and resources. The spiritual component, which included Bible verses and discussion of holistic health, led to a brainstorm about the benefits of gardening. Several benefits included relaxation, harvesting fruit to use, give, or sell, and health. These two women expressed their enthusiasm for this project and how it would impact both them and their families.

A couple of sessions into the project (mid-January, 2014), the women expressed interest in creating a Facebook group, in which they named themselves *Las Flores*,

meaning “The Flowers.” Not all the women have or utilize Facebook (some women do not want their identity shown in public; others do not have internet access), but there have been a couple of women who have actively participated in *Las Flores*. For example, one woman has posted multiple pictures of flowers and garden ideas; her enthusiasm about the project was apparent in her posts to the group page, depicting (in Spanish) how she was “excited about the project, ready to start, and hopes she can meet her goals.” The same woman also posted pictures of the seeds that have started sprouting in her container garden at home. She encouraged the *Las Flores* group to start planting gardens in their homes! She has also sent me links to informational sites on the nutrition benefits of certain vegetables and fruits. The *Las Flores* Facebook page is an evolving group in which those women continue to share ideas, enthusiasm, updates, and support.

Gardening issues were discussed on April 9, 2014, during a casual conversation, which consisted of topics such as pests and insects, weeds, and the use of chemicals. The women shared ideas on how to eliminate certain pests such as ants and grubs, and using natural methods (without the use of harmful chemicals or pesticides via lemon, corn meal, and/or beer). They also voiced their concern for using chemicals in their gardens at home and at SPCF, which aligns with the garden coordinator’s approach to gardening. The garden coordinator suggested 20% vinegar as another method for reducing or eliminating ants. In short, natural, organic methods of pest control have been and will continue to be used as much as possible for the garden at St. Paul's.

It was revealed through several non-focus group discussions (prior to the study) that the women believe diet is the major problem in their families and their communities. Childhood obesity and diabetes are apparent concerns for this population and the women

have expressed that learning more about nutrition and gardening will best equip them for addressing and preventing these prevalent health woes. When discussing the issues of diabetes, the women agreed that parents have the greatest influence on the health of their children. When asked what health means to the women personally, it was revealed that the health of the women's families determines the health of the women. The mothers are one and the same with their children, for their wellbeing depends on the wellbeing of their households. The women find it difficult to enforce healthy eating to their children when their husbands are not modeling healthy behaviors. The women explained how their husbands often buy food that is calorie dense and nutrient poor; they prefer junk food to vegetables, which influences the choices their children make. In an emotional narration, for example, one mother described a doctor visit with her son who was diagnosed with pre-diabetes. The doctor told her that he could not eat any more candy or drink any more sodas. This woman's son humbly asked his mom to *ayúdame, por favor* (help me, please).

A different subject revealed during the February 26 discussion, was the initiative of two women to create and begin a walking schedule three days a week, which assisted them in reaching their activity goals! Also, several women indicated that they are also having success with their spiritual goals and noted how important that aspect of health is to them (though they did not go into detail). At that same meeting, the garden coordinator engaged the women in making a "dream list" of garden produce. The women listed over thirty items they'd like to grow in the garden (Appendix C). Table 4 depicts this list in categories of plants in Spanish and English.

Table 4.

Garden Dream List

Category	Spanish Name	English Name
Herbs *Hierbas*	Cilantro	Cilantro
	Manzanilla	Chamomile
	Perejil	Parsley
	Yerba buena	Spearmint
	Mejorana	Marjoram
	Comino	Cumin
	Estafiate-Artemisia	Mexican white sagebrush
	Azafrán	Saffron
	Romero	Rosemary
	Eucalipto	Eucalyptus
	Té	Tea
Vegetables *Verduras*	Brócoli	Broccoli
	Alcachofas	Artichokes
	Repollo	Cabbage
	Lechuga	Lettuce
	Chile pequeño	Small chili
	Chile de árbol	Tree chili
	Chile habanero	Habanero chili
	Hongos	Mushrooms
	Coliflor	Cauliflower
	Espárrago	Asparagus
Legumes *Legumbres*	Frijoles	Beans
	Lentejas	Lentils
	Ejotes	Green beans
	Chícharos	Peas
	Cacahuates	Peanuts
Roots *Raíces*	Jengibre	Ginger
	Jícama	Jicama
	Cúrcuma	Turmeric
	Camote	Sweet potato
Fruits *Frutas*	Plátanos	Bananas
	Melón	Melon
	Sandía	Watermelon
	Fresas	Strawberries
	Cerezas	Cherries
	Papaya	Papaya
	Tomatillos	Green tomatoes
	Pepinos	Cucumbers
	Chayote	Squash
	Calabazas	Pumpkins
Grains *Granos*	Elote	Corncob
Flowers *Flores*	Cempasúchil	Mexican marigold
	Las rosas	Roses
	Zinnias	Zinnias

Not all of the plants listed were able to grow in this climate, so the list was later tailored and appropriate growing procedures were identified. The women also shared with the group what plants and flowers they were growing at home, in which the aspects of taste and aesthetics were recognized as elements of health.

Additionally, a later discussion (April, 2014) affirmed that the women should focus on one goal. One woman re-evaluated her goals and explained how she still struggles with eating healthy and exercising. For example, she admitted that if she waited too long between meals, she was more likely to overeat at the next meal. She recognized that she lacks energy to exercise in the mornings after she takes her kids to school, and that if she would eat a good breakfast she would not eat so much in the afternoon. Another woman shared that walking in the morning boosts her energy for the day; otherwise, she falls asleep in the mornings. Still another woman admitted that she does not feel full if she does not have tortillas with her meal. Another woman shared that she feels the need to have something sweet after each meal, even if she is not hungry (thus reinforcing the notion of psychological effects of sugar). These confessions sparked the conversation about the importance of eating mindfully, such as sitting at the table, limiting distractions, and overcoming food addictions.

The implications of this conversation were profound: the psychological impact of food on the mind and subsequent behaviors is worth discussing and requires future attempts at overcoming sugar and/or food addictions, and finding and learning healthy alternatives to sweets. Future class ideas explored by the women in an April 23 meeting included cooking and nutrition classes, sewing classes, and English classes. They re-

emphasized the importance of family, the many benefits of gardening, and the various health goals each individual chose.

In closing, major themes from the multiple methods of data collection include the overall positivity the women have expressed toward this project, their health, and their ability to carry out their goals. Chronic diseases involving overweight, diabetes, and cancer were mentioned briefly throughout the course of the project, but did not seem to be a major theme among the women. Physical activity, including gardening, were valued and implemented among many of the women. Overlapping themes in the surveys, focus groups, notebooks, and observations consist of gardening, nutrition, family, and fitness. Interestingly, the survey data did not capture the spiritual elements of the women's goals nor the theme of idea sharing. Other themes that emerged that were not revealed through the survey were those of self-care, environmental stewardship, learning English, having and taking care of a home, having a wedding ceremony, saving money, and traveling to Mexico. The reader might be surprised that there was no direct evidence about self-efficacy in the results, though the women appeared to already have self-efficacy for making positive behavior change. A discussion about this subject follows.

CHAPTER FIVE: DISCUSSION

Since the study's intent was to be participant-led, chronic diseases, food insecurity, malnutrition, and weight status were not evaluated, as they were not themes that emerged. Though I originally planned to have the women choose one of the four *5210 Let's Go!* goals, the women were allowed to choose whichever health goal they believed to be most important to them. None of the women's goals explicitly stated less screen time or less sugary drinks, though results from survey data indicate these women improved their health in those ways. In comparison, although eating healthy and exercising were regarded as important to the women, there were additional, richer aspects of health discussed, such as family and faith, having a home, and learning English. In regards to eating healthy, I expected the women to bring up issues such as lack of access to fresh fruits and vegetables, but the main barriers seemed to be more linked to stress, their internal motivation, time, and organization (or lack thereof), and their husband's food choices and his influence on the children (barriers which are not consistent with previous research). The women did mention that healthy food is more expensive, but admitted that the aforementioned barriers influenced their diet and nutrition behaviors more than lack of access or financial resources.

The survey data represented no significant effects (P value <= 0.05), though changes in behavior were distinguished in the surveys. It seems participants had a high level of self-efficacy at the start of the study, possibly making it more difficult to detect significant change. The participants had already been engaged in health promotion activities and seemed to be more educated in their health behaviors; however

women became greatly involved in the garden and reported behavior change in both focus groups and informal discussions. Participants reported comparable fruit and vegetable intake to the national average of fruit consumption in the U.S. at 1.1 times per day and average vegetable consumption at 1.6 times per day (CDC, 2013), but none met the recommended amount of at least 5 servings per day. Though fruit and vegetable consumption did not increase over the course of the study, it is likely that an increase would be realized once the garden begins producing a harvest. Involvement in the garden likely decreased television watching (as indicated by the surveys) and increased physical activity.

Though females with lower education and income levels are at the greatest risk of inadequate physical activity (BRFSS, 2011), these participants demonstrated success in increasing their physical activity levels. Of interest, the CDC (2014) recommends 150 minutes of moderate physical activity (such as a brisk walk, water aerobics, or pushing a lawn mower) per week plus muscle strengthening activities (such as yoga, lifting weights, exercises that use body weight as resistance, and heavy gardening) two days per week. Similarly, participants moved closer to the *5210 Let's Go!* health recommendations for water intake, hours of screen time or television watching, and sugar-sweetened beverages or sodas (Let's Go, 2012) by increasing their water intake, decreasing their consumption of sugar-sweetened beverages, and decreasing their amount of recreational screen time.

The women who continued to come and participate in the group all expressed interest in gardening and were eager to plant seeds in the Garden at St. Paul (*Las Flores* garden). Since there are at least seven women who demonstrated investment in the garden (which represents the majority of the participants in the overall project) there is sufficient

interest to support a community garden within this population. Some women mentioned how gardening reminds them of their homes or mothers in Mexico. Others explained how gardening relieves stress and is good for overall health. Associated benefits to membership in a community garden include increased physical fitness, fresh food access, socioeconomic status, education, job satisfaction, leadership skills, and community ties (Kingsley et al., 2009), though not all benefits have yet been realized by this group of women. Other focus group themes included healthy eating, physical activity, and sharing ideas.

Using visual elicitation (notebook collages) as a means of guiding conversation provided a focus for many of the women and served to validate their goals and dreams. This method was beneficial because it went beyond what the women were already doing and served as a visual reminder of what they want to do or where they would like to be. Prominent collage themes were food, faith, fitness, and family. Visual elicitation seems to be more appropriate for those of low literacy (Wang & Burris, 1994) as well; even if women did not feel comfortable reading or writing, they were all able to participate in choosing pictures for their collages. Other researchers may consider using collages as a CBPR approach to needs assessment, priority setting, and group dialogue because it gives depth to conversation and may be less threatening than other methods of conversation.

In contrast, the journaling portion of the project evidently did not have as much impact as the collages, the actual activity of gardening, and learning about nutrition and cooking. Journal prompts were given, but many of the women did not follow through with writing in their journals. The ideas they shared occurred verbally and/or via Internet (Facebook) and were not recorded in the context of the journal in the notebooks. Time

was a factor that limited the women's investment in the journaling portion of their notebooks, while Internet issues limited the women's involvement in the *Las Flores* Facebook page and their ability to search online for recipes. Again, the women gravitated towards activities that fostered community and collective responses rather than independence and individual responses.

Current models of health promotion and disease prevention revolve around motivating *individuals* toward behavior change via education (Brownell, 2013). Emphasis on individual motivation may prove ineffective when making a healthy choice is the more difficult decision. Let us instead consider the environment: People in the U.S. have too much access to unhealthy foods and too little access to healthy foods. Marketing schemes influence the cost of healthy foods versus unhealthy ones, indicating a need for a switch in making the healthier option the easier option. Legislation, environmental factors, economics, and regulation can influence the choices individuals make. Therefore, future interventions aiming for individual behavior change should consider what societal, spiritual, political, and environmental aspects shape the way people behave.

Strengths and Limitations

The strengths of this study include a mixed-methods approach that allows for data triangulation (Tashakori & Teddlie, 1998) and a CBPR framework that guides decision-making (Shalowitz et al., 2009). The interpretive data from the focus groups provides an insightful and meaningful perspective (Morse, 2009), one that could not possibly be captured by quantitative analysis alone. Additionally, engaging women as participants, rather than subjects, in a trusting environment increases the likelihood of valid responses (Shalowitz et al., 2009). Of note, a visitor to the women's group observed how the

women felt safe to express themselves and practice English without fear of being judged or ridiculed. Other strengths include the relationship between the participants and I, which was established over time to build trust and facilitate open dialogue. Trust develops slowly among this population, making it important to focus on familial and cultural strengths rather than on shortcomings (Sue & Sue, 2013). One of the open-ended survey questions was positively worded, so as to identify strengths rather than point out deficits. Furthermore, this study was peer-reviewed and I was qualified to carry out the research.

Potential limitations are multifaceted due to the various means of data collection. First of all, recall bias may be a limitation since the tracking tools for the surveys depended on the participant's memory. Also, contamination was possible since the group setting influenced the way women responded to questions. Barriers to the focus groups included language, noise level, distractions, and inconsistent attendance. Though I established a positive relationship with participants over time, it is possible the participant's responses were biased to please me (social desirability). Likewise, community-based approaches may complicate the decision-making process and result in a lack of clarity among both researchers and participants, or research and community partners (Downey et al, 2010). Striking a balance between having a defined plan and letting the participants guide the direction of the conversations and activities was difficult.

The design of the survey may not have been the best format for the intended population, because several participants did not answer according to directions. For example, some participants noted not knowing what to identify as a serving in regards to

fruit and vegetable consumption. Similarly, the definition of moderate physical activity is subjective; some responded that they have no physical activity while other responded they have three hours a day, indicating a varying range of definitions. In retrospect, the survey could have been more accurately translated since some words were not appropriate in Spanish, which was not realized until after the study. Low sample size, lack of time, and inconsistent attendance most likely influenced the statistical significance of health behavior items.

For this research, attrition was significant; for example, three of the women who initially completed the pre-survey did not shown up to any other classes. However, as noted above, three new participants agreed to be part of the study, completed the survey after the project initiation date, and contributed valuable information to group discussions and idea sharing. Several other women participated in project activities, but did not agree to be part of the study. Those women were allowed to participate in all project activities as normal. In sum, there were five consistent participants. Several factors that influenced the participation of the women included issues regarding transportation, family, pregnancy, weather, and job schedule. Flexibility in working with this population is crucial. There is no way to control if and when participants come, though making house visits, contacting the women via telephone, or offering monetary incentives may have improved attrition (Torre et al., 2013). Additionally, the classes were offered free of charge to the women, which may have influenced their perception of value of the program.

The timeframe for the study spanned a period of five months, with a total of ten sessions specifically related to the behavior change process. However, there were no set

dates and little or no warning before each session for the women to expect what would be occurring each class. Pressures to finish the project under an academic calendar posed another limitation. At times I felt forceful in pushing my research agenda rather than letting things occur organically.

Further Musings

Was I able to validly assess a minority culture through the research? These women are empowered; researchers' generalizations of fatalism among this population are wrong. The participating women are already strong, possess amazing abilities, and are creatively resourceful. They are in tune with the environment and are eager to learn more. Being in touch with nature connects them to their familial and cultural roots in Mexico. Many possess knowledge of alternative, mostly plant-based medicines, in which they should be teaching us. They are geniuses in a different way than mainstream U.S. culture identifies genius. Perhaps mainstream U.S. culture's lack of value for Hispanic women's knowledge, skills, and creativity inhibits them from developing in a way that enriches their own lives and the lives of their community.

In the future, it would be useful to have someone within the community help design and develop the survey to make sure the questions are appropriate and the directions clear. A future study may ensure that educational levels were assessed for this population before creating survey and project materials. In regards to the focus groups, I would be more directive with my questions to better clarify the purpose of the study, the length of the project, the specific dates, and the amount of time I expected them to participate. Idealistically, I would have chosen someone from the group to train as a co-researcher to

help with the process and make the questions and approach more relevant to the specific population.

Looking back, I wish I had been freer to listen to the women rather than having a specific research agenda. Participatory methods do not seem to pair well with traditional research methods. My research agenda hampered my listening skills and my ability to see how one woman's dream of going to Mexico influenced her health, for example. It is contradictory to have a research agenda and allow a conversation to flow naturally. For instance, I felt manipulative in giving the women surveys that seemed to go against my hopes for making the entire process of the research process equal and participatory. I wonder if the few women who did not return after the pre-survey felt manipulated? Freire emphasizes that collective decision-making and knowledge is ideal; it is a shared experience in which no individual decisions are made (Wallerstein & Berstein, 1988), but I wonder if conducting this study negatively impacts the work of empowerment.

Conclusion

The most prominent findings of this study revolve around the women's connection to nature, and seemed to emerge most when topics turned toward the garden as a means of improving health and wellbeing, where their connectedness to community nurtures free expression of their ideas and where opportunities to lead are prevalent. The overall positivity of the women, their enthusiasm and appreciation to be part of the women's group, and their contribution to not only the garden but to other participating women displays an aspect of their depth of character. And the outcomes and benefits of the women's group are yet to come! This summer, the women will be able to reap a harvest of all they have sown. They will also be given opportunities to share their

experiences with women who come to the summer wellness program, by leading cooking demonstrations and sharing ideas, suggestions, and support. The potential of these women to become leaders in their community is profound.

The participating women in the study taught me far more than I think I taught them. At the onset of the study, my goal was to facilitate an environment for women to create a product (the behavior change notebook), which I imagined would be a factor in moving the women from one stage of change to another. I thought the notebooks would be an ideal way to identify strengths, barriers, and behaviors related to their health goals, as well as a place to record and share information. However, the women were not engaged in the *product* of the notebook as they were in the women around them, the process of behavior change, and their investment in the garden.

The scope of this study will extend well past the three months I originally allotted for data collection. This study could very easily turn into a five year, or even lifelong process, in which the women take ownership of the community garden and become agents of community change. This research study would not be profitable to either the women or the community if I planned on leaving them when the official data collection for the project ends. To leave them would affirm their mistrust in researchers. Therefore, my partnership with the women reaches past the date of final data collection, as I plan to keep meeting with them weekly and hope to obtain outcome measures from them at different points in time. During the course of this thesis, I was asked to join the medical team at SPCF to fill a new role as their pediatric dietitian/nutrition therapist. This position will start officially in August 2014, so I will continue investing in the community and client population and advocating for broader systems change. I expect to

take what I have learned from this thesis project into my job working with Hispanic children and families in order to facilitate healthy behavior change. I plan to incorporate the garden in my nutrition education and continue learning from the Hispanic population as we work together for improved health.

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Appendices

Appendix A: Habits Questionnaire (adopted from *5210! Let's Go*)

Habitos Questionario

Nombre *(Name)*: _____ Fecha *(Date)*: _____

1. Cuantas porciones de frutas y vegetales comes al día? _____
How many servings of fruits or vegetables do you eat a day?

2. Cuantas veces por semana cenas en la mesa con tu familia? _____
How many times a week do you eat dinner at the table together with your family?

3. Cuantas veces por semana desayunas? _____
How many times a week do you eat breakfast?

4. Cuantas veces por semana comes comida rápida o restaurantes? _____
How many times a week do you eat takeout or fast food?

5. Cuantas horas por día pasas mirando la televisión, los videos? _____
How many hours a day do you watch TV/movies?

6. Tienes televisión en la habitación donde duermes? Si □ No □
Do you have a TV in the room where you sleep?

7. Tienes computadora en la habitación donde duermes? Si □ No □
Do you have a computer in the room where you sleep?

8. Cuanto tiempo por día pasas haciendo algún tipo de actividad física moderada?
How much time a day do you spend doing some type of physical activity? _____

9. Cuantas porciones de 8-onzas bebes de lo siguiente al día?
How many 8-ounce servings of the following do you drink a day?

100% Jugo *(juice)* ____

Bebidas de fruta o para deportes *(fruit drinks or sports drinks)* _____

Soda o ponche *(soda or punch)* _____

Leche entera *(whole milk)*_____

Leche reducida en grasa o descremada *(nonfat or reduced fat milk)* _____

Agua (water) _____

10. Por favor marque solo uno por cada columna. *(Please mark only one per column.)*

A. comportamiento lo más difícil de cambiar *(the most difficult behavior to change)*	B. comportamiento tú quieres más cambiar *(the behavior you most want to change)*	
☐	☐	Comer más frutas y verduras *(eat more fruits & vegetables)*
☐	☐	Menos tiempo en la televisión/video juegos *(less time watching TV/video games)*
☐	☐	Sacar la televisión y/o la computadora del dormitorio *(take the TV and/or the computer out of the bedroom)*
☐	☐	Comer menos comida de restaurants fast food *(eat less fast food/takeout)*
☐	☐	Caminar afuera más seguido *(walk outside more often)*
☐	☐	Beber menos soda, jugo, o ponche *(drink less soda, juice, or punch)*
☐	☐	Beber más agua *(drink more water)*

11. Lo que has marcado en No. 10B, puedes hacerlo fácilmente *(That which you have marked in #10B, you can do easily)*

¨ Si ¨ No

12. ¿Qué piensa que es el problema número 1 de salud que tiene su familia? *(What do you think is the number one health problem your family has?)*

_____

13. Indicar uno de los valores siguientes *(Indicate one of the following values)*

1----------2----------3----------4----------5----------6

Muy Falso *(Very false)*	Falso *(False)*	Poco Falso *(Somewhat False)*	Poco Verdadero *(Somewhat True)*	Verdadero *(True)*	Muy Verdadero *(Very True)*

Tengo confianza que yo puede cambiar cualquier cosa saludable. _____
(I have confidence that I can change whatever healthy thing.)

Creo que mi familia puede lograr nuestras metas de salud. _____
(I believe that my family can achieve our health goals.)

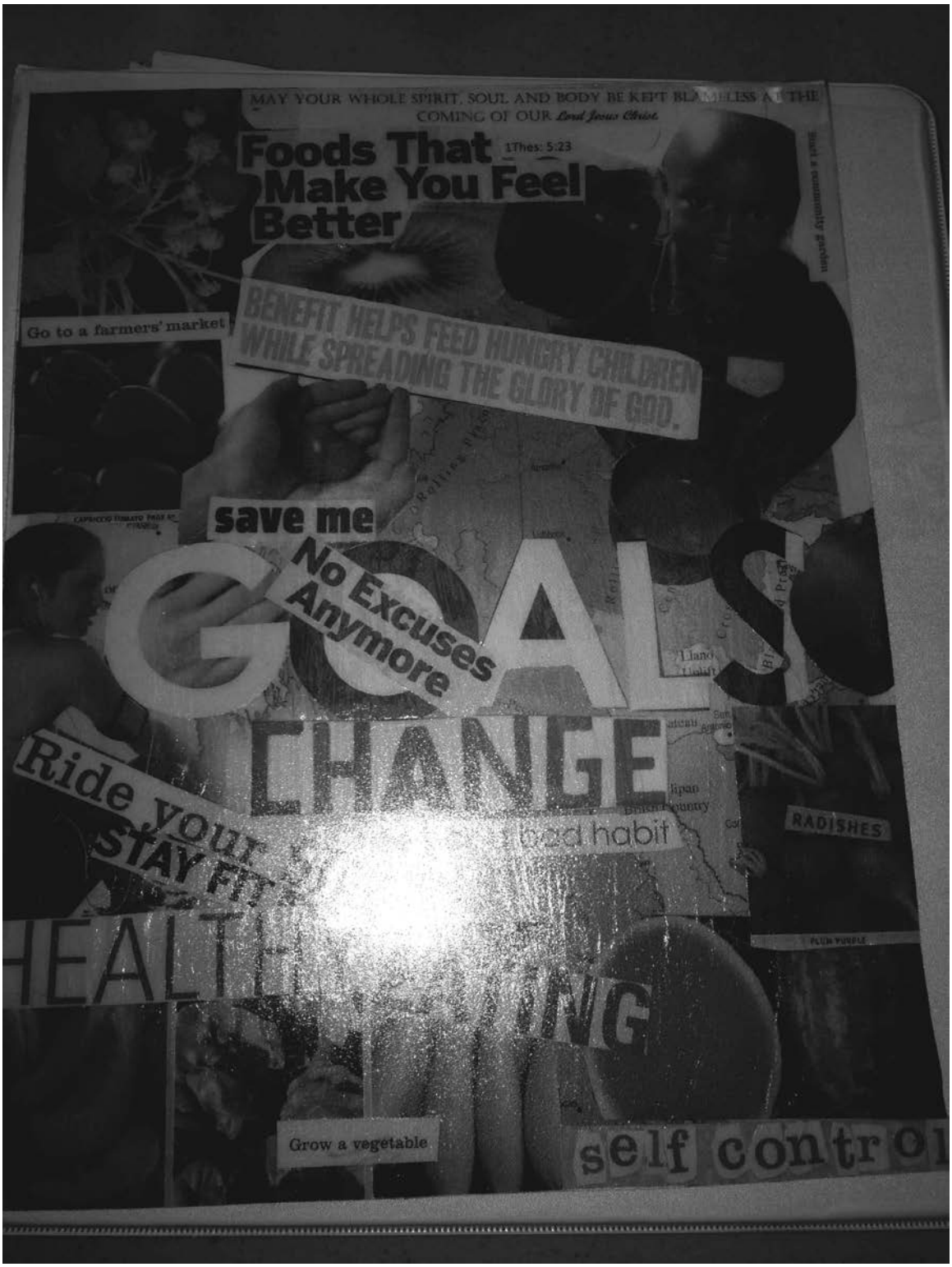
Creo que mi comunidad puede mejorar si trabajamos en juntos. _____
(I believe that my community can improve if we work together.)

Tengo los recursos necesario de hacer cambios saludables. _____
(I have the resources necessary to make healthy changes)

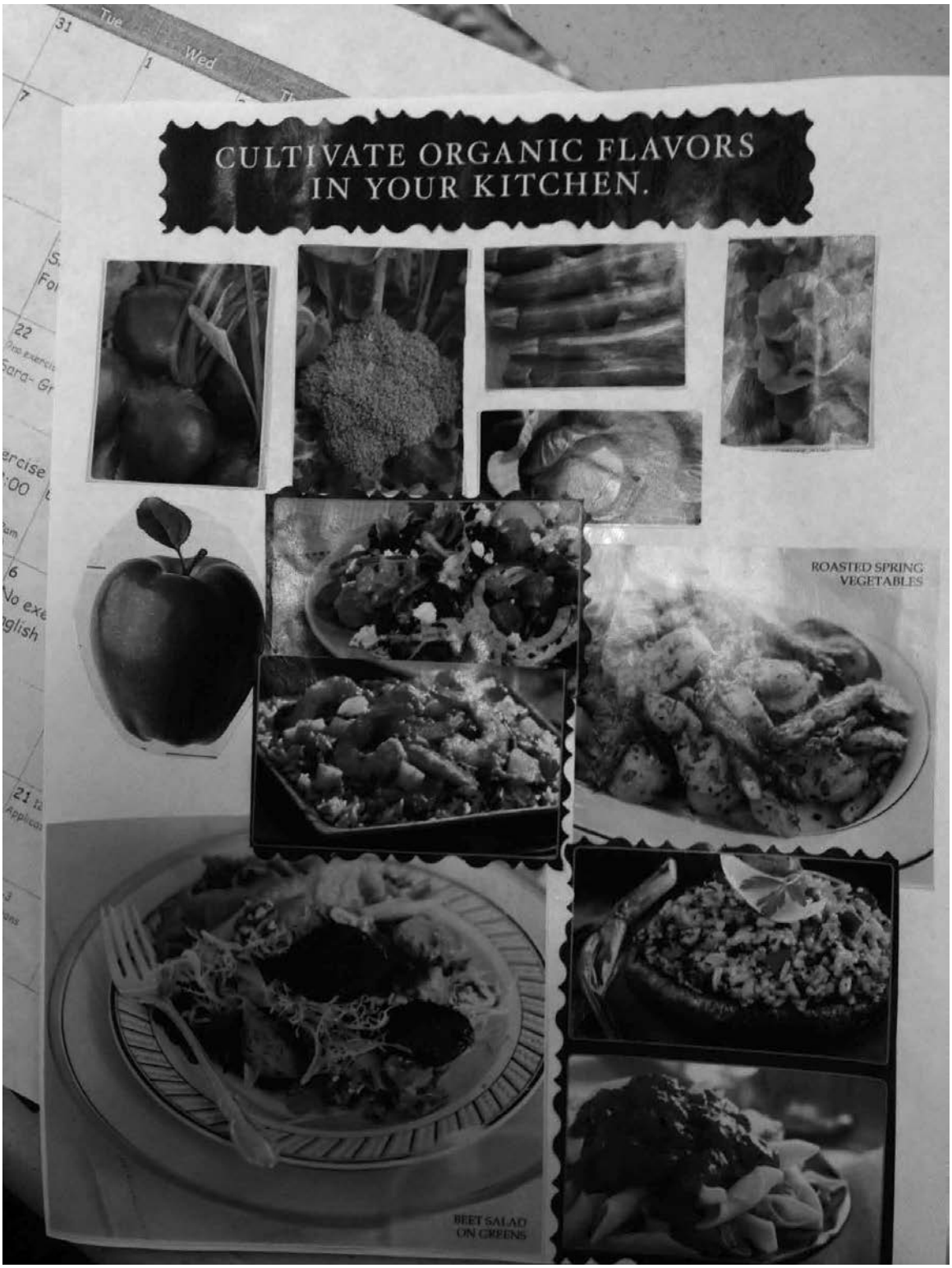
14. Que piensas que hagas ahora que es buena para tu salud? *(What do you think you do now that is good for your health?)*

Appendix B: Notebook Collages

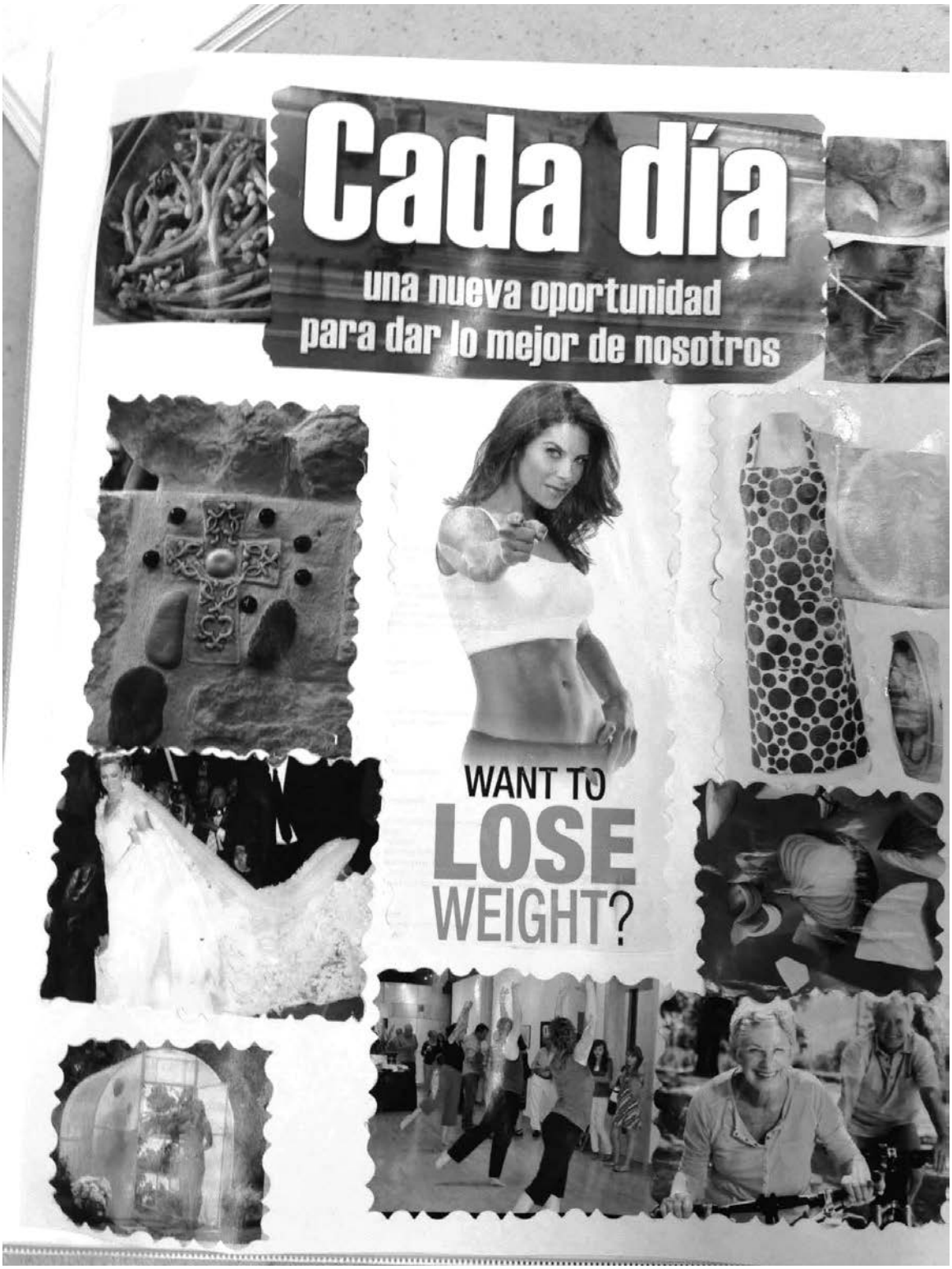
Appendix B: Notebook Collages (Continued).



Appendix B: Notebook Collages (Continued).



Appendix B: Notebook Collages (Continued).



Appendix B: Notebook Collages (Continued).

Appendix B: Notebook Collages (Continued).

Appendix B: Notebook Collages (Continued).

Appendix C: Garden Dream List