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A Cross-National Analysis of the Nutrition Habits of Hispanic Mothers and Daughters

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A CROSS-NATIONAL ANALYSIS OF THE NUTRITION HABITS OF HISPANIC MOTHERS AND DAUGHTERS

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
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Acknowledgments

I dedicate my dissertation to my sons, Maximilian, Ivan and Simon. The happiness in your eyes and the joy in your hearts are my inspiration.

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I am grateful to the women who participated in this study whose generosity allows me to work towards making a contribution to the health of other Hispanic women.

Lastly, I would like to honor the memory of my friend, Leonard Leos. We both so strongly believed in education and how its gifts allow us to help others.

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Abstract

A CROSS-NATIONAL ANALYSIS OF THE NUTRITION HABITS
OF HISPANIC MOTHERS AND DAUGHTERS

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The rates of obesity in Hispanic women increased significantly between 1994 and 2008 from 35.3% to 45.1% (National Center for Health Statistics, 2010). Poor nutritional habits and obesity have longterm negative health ramifications that warrant targeted efforts to stem this growing epidemic. Two articles are included in this portfolio. The first article discusses the state of the science in relation to cultural aspects of nutrition choices of Hispanic women. The aim of this article is to set the context for the cross-national study which is the focus of the second article. This study examines current eating habits, weight history, health perception, future time perspective, family dietary support, friend dietary support, and the health outcomes of BMI, waist circumference, and nutrition of 157 Hispanic daughters and mothers in Texas and Mexico. The differences between U.S. and Mexico cohorts are also examined in relation to their nutrition choices and their generational preferences. This work indicates that the younger generation appears to have nutrition habits more closely associated with their age cohort than their family unit. In the context of the surging epidemic of obesity in the Hispanic culture and with an

awareness of the pivotal role played by the Hispanic woman in the health and nutrition choices of her family, this research project provides an initial dialogue regarding factors influencing the Hispanic population toward healthier eating habits and increased health promoting behaviors.

Overview of the Research Study

Overall Purpose of the Study

The purpose of this study was to explore the underlying factors involved in Hispanic women's nutritional decisions. Nutritional factors of Hispanic mothers and daughters were studied and compared with both American and Mexican respondents. This generational context provided insight into whether younger Hispanic women are generally influenced more by their family or their peer group in regard to eating choices. Further, the study examined the respondents' nutritional choices and dietary outcomes in relation to their future time perspective. This knowledge provided insight into whether or not Hispanic women view their nutritional choices as impacting their future health. The geographical context of measurement in two countries allowed some assumptions to be made about the role of acculturation on the Hispanic diet since many Hispanic Americans are first or second generation US citizens.

Introduction to Articles Appended

Included within this dissertation are two articles. The purpose of the first article, *Obesity in Hispanic Women: State of the Science,* is to examine the state of science relating to the scope and management of obesity in Hispanic women. A discussion of the prevalence of obesity within this specific aggregate is presented including the contributing factors of culture, health literacy, acculturation, and socioeconomic status. The review identified a gap in the literature associated with intervention studies within this target population. The review provides implications for practice, health policy,

education, and research associated with the health challenges faced by obese Hispanic women.

The purpose of the second article, *A Cross-national Analysis of the Nutrition Habits of Hispanic Mothers and Daughters*, is to present the findings of the dissertation study. This article explored the basis for nutrition choices made by two generations of Hispanic women from two countries. The study examined current eating habits, weight history, health perception, time perspective, family dietary support, friend dietary support, and the health outcomes of BMI, waist circumference, and nutrition of 157 Hispanic daughters and mothers in Texas and Mexico. Of particular interest was insight into whether mothers and daughters had more in common with each other or with their respective age cohorts.

One-hundred and fifty-seven U.S. and Mexico nursing students and their mothers responded to the survey (10 U.S. mothers, 22 U.S. daughters, 14 Mexican mothers, and 111 Mexican daughters). The sample included 24 mother-daughter dyads. The total sample ranged from 18-76 years of age with a mean age of 27.6 years (SD=13.0). The mean age of the mothers was 52.8 years (sd=9.04) and the daughters was 23 years (sd=7.20). Daughters appeared to have nutrition habits more closely associated with their age cohort than their family of origin. In addition, future time perspective was significantly related to general health and eating habit confidence.

Modifications Made to the Study

The original study was proposed to be done at a private university in Texas which has a very large contingency of Hispanic students in the US along with a large group of Hispanic students based in Mexico who attend classes by distance technology. The study

was completed as originally proposed with one alteration. Due to the small number of participants after the first month of data collection at the original sites, the sites were expanded to include an additional U.S. university and two additional universities in Mexico. The original Institutional Review Board approval was amended, and approval by the additional study sites was also obtained.

Evaluation of the Project

An objective review of this study is offered for consideration. The final sample of 157 participants was larger than the proposed minimum sample size of 37 which improved confidence in some of the outcomes. However, the sample was skewed by the high participation of younger respondents from Mexico. The final sample was much higher in participants from Mexico than from the US. This skewness required the use of non-parametric statistical analysis. A normal distribution would have allowed for increased strength in statistical testing.

Because of the wide range of reported years of formal education (0-19 years), it would have been beneficial to include a definition of formal education or a more specific question that clarified the identified meaning. This clarification would allow for further analysis with increased confidence in identifying relationships between years of formal education and other variables. Variations between countries as to the expectation of educational achievement as well as the different names of the education levels weakened this variable for discerning the information that was being sought.

The findings related to data collection of height, weight, BMI and waist circumference exhibited some disagreement with other studies which found correlations between waist circumference and health status (Fernandez, Redden, Pietroelli, & Allison,

2004; Ford, Mokdad, & Giles, 2003). Weight, BMI, and waist circumference findings in the current study carry a somewhat low level of confidence due to missing or inaccurate data. There is always a question as to the veracity of self-report data, and that appears to be more critical when asking about sensitive subjects such as weight and body measurements. The ability to actually perform physical assessment to collect this data would have allowed for increased accuracy and thus greater confidence related to this hypothesis. An additional consideration would be to include the measurement of body fat composition as a component of health status. The fact that Hispanic women have been shown to have a higher percent body fat for a given BMI challenges the CDC criterion for obesity of a BMI greater than 30 kg/m^2 (Rahman, Temple, Radecki Breitkopf, & Berenson, 2009). Obesity defined by BMI alone may result in an underestimation of obesity status in all ethnic groups when compared to the World Health Organization (WHO) criterion of more than 35% body fat as a measure of obesity in women (Rahman & Berenson, 2010).

In an effort to address some of the aforementioned considerations, a co-investigator in Mexico would have been beneficial to the study. A co-investigator would have been able to assist in participant recruitment, subject and data collection oversight for quality assurance, and actual physical assessment for data collection.

Recommendations Based on Findings

The study findings suggest the need to replicate the study with a broader sample in an effort to reduce any bias introduced by the use of a health-related cohort. A sample representative of the general Hispanic population may result in findings aligned with the identified health disparities related to obesity as seen in current health statistics of this

aggregate. Future studies of generational cohorts and other lifestyle habits related to health promotion are indicated. A longitudinal study would provide a multidimensional view of the challenges and barriers to health promotion in vulnerable populations. Finally, the findings indicate that a future study inclusive of an intervention to address and change unhealthy habits would allow an opportunity to determine if generational strategies are more successful than familial interventions in impacting nutrition and other chronic health issues.

Results of Original Research in Manuscript Format

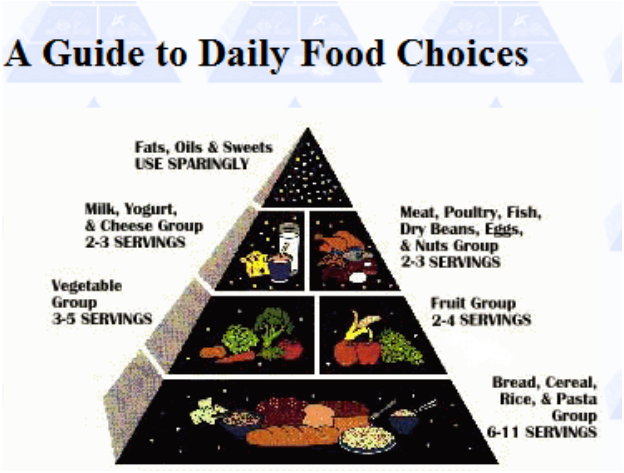
Research findings are presented in the included article, *A Cross-national Analysis of the Nutrition Habits of Hispanic Mothers and Daughters.* Several ancillary findings were not reported in the article as they did not have relevance to the hypotheses but are offered as instructive in this report. For instance, there was a relationship found between social support provided by family and social support provided by friends (r^s=490, df 139, p=.000); however, on some of the variables, family support was significantly associated while friend support was not (i.e. weight perception). This is consistent with the family-centered view of the Hispanic culture.

An interesting finding was that many women reported their weight perception as *just right*, but their BMI indicated otherwise. Acknowledging that there is some concern about the validity of the self-reported weight which is a factor in calculating the BMI, one does have to wonder if this finding is an artifact of the growing acceptance of "obesity" as the norm in today's society. The incongruence between weight perception and actual BMI could cause women who are overweight or obese to consider themselves low risk and with no need to work towards improving nutritional health behaviors.

In the examination of dietary habits of the four groups within this study (Table 1), the NHANES Dietary Screener Module (NHANES, 2010) indicated that all four groups consumed below the recommended amounts of dairy, fruits and vegetables. The Mexico cohort, both mothers and daughters, consumed an excessive amount of fats. The mothers ate too many starchy food products and too many fats compared to the daughters; and all groups ate too many fats and sweets, especially the Mexican daughters.

The value of having input across generations and across borders makes this study unique and compelling. The idea of cross-national research should be promoted as a way to improve health outcomes of a fluid population whose health needs impact both countries. The importance of intergenerational study is gaining influence with the progress in the study of genetics which shows the impact and importance of inherited traits. Further, the growing divide in technology availability and proficiency between generations makes access to health and nutrition messages different for each age group. These different ways of accessing information will have an impact on marketing and health messaging in the future. This study was proposed to help nurses guide Hispanic women toward healthier nutrition choices. It also laid groundwork for future cross-national and cross-generational research to address the global health needs of generations to come.

Table 1. Weekly Food Group Consumption by Sample Group



Food Pyramid from the U.S. Food and Drug Administration (www.mypyramid.gov)

Recommended daily amounts	Recommended weekly amounts	Group weekly median				Kruskal Wallis
		US moms	US daughters	MX moms	MX daughters	
Milk, yogurt & cheese 2-3 servings/day	Milk, yogurt & cheese 14-21 servings/week	4	7	5.5	7	X^2=8.38, df=3, p=.04
Vegetables & salads 3-5 servings/day	Vegetables & salads 21-35 servings/week	9	6	4.5	5	X^2=5.39, df=3, p=NS
Meat, poultry, fish, beans, eggs & nuts 2-3 servings/day	Meat, poultry, fish, beans, eggs & nuts 14-21 servings/week	12	10	10	10	X^2=2.10, df=3, p=NS
Fruit 2-4 servings/day	Fruit 14-28 servings/week	6	3.5	2.5	3	X^2=5.42, df=3, p=NS
Bread, cereal, rice & pasta 6-11 servings/day	Bread, cereal, rice & pasta 42-77 servings/week	9	5.5	5.5	8	X^2=13.51, df=3, p=.004
Fats Sparingly	Fats servings/week	6	4.5	7.5	8	X^2=16.50, df=3, p=.001
Sweets	Sweets servings/week	5	5	2	7	X^2=20.28, df=3, p=.000

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An extensive reference list is found at the conclusion of Manuscript Article 1: *Obesity in Hispanic Women: State of the Science*

Manuscript #1

Obesity in Hispanic Women: State of the Science

Monica N. Ramirez

Abstract

The purpose of this paper is to examine the state of science relating to the scope and management of obesity in Hispanic women. A discussion of the prevalence of obesity within this specific aggregate is presented including the contributing factors of culture, health literacy, acculturation, and socioeconomic status. The review identified a gap in the literature associated with intervention studies within this target population. The review provides implications for practice, health policy, education, and research associated with the health challenges faced by obese Hispanic women.

Obesity Issues in Hispanic Women

Obesity is the most observable and most neglected public health issue worldwide (WHO, 2000). Diet and exercise have traditionally been considered key factors in managing and mitigating obesity in women. Evidence shows that ethnicity may be a significant contributor to the mounting health issue as well (Rahman & Berenson, 2010). Obesity issues may be especially important for Hispanic women of reproductive age. Cardiovascular disease, type 2 diabetes, hypertension, and an increased risk of certain cancers have been linked to obesity (Guh, Zhang, Bansback, Amarsi, Birmingham & Anis, 2009). Because of the growing Hispanic population and the detrimental impact of obesity and its associated risks to overall health, it is becoming vital to explore the current state of science related to obesity in Hispanic women in an effort to identify gaps in the literature and guide future research priorities to organize and address this health concern more effectively.

Prevalence

Obesity is a mounting health issue worldwide and is growing within the general population. As of 2008, approximately a third of Americans were considered obese (Centers for Disease Control, 2009b). In every age and gender group, Mexican Americans have a higher rate of obesity and excess weight than other groups (Flegal, Ogden & Carroll, 2004). Mexican-American Hispanic women (45.1%) have a higher prevalence of obesity than non-Hispanic white women (33.0%) (National Center for Health Statistics, 2010). Between the 1988-1994 and 2007-2008 reporting cycles, the rate of obesity in Mexican-American Hispanic women increased by 35.3%. Healthy Hispanic women, age 20-75, tend to show a modest increase in adioposity and slightly lower

trunkal region free-fat mass than their white non-Hispanic counterparts (Casas, Schiller, DeSouza & Seals, 2001).

Contributing Factors

Culture and the processes associated with acculturation have been proposed as contributing factors to explain the noted differences in health status between various racial groups. Psychosocial and cultural factors contribute to obesity in Hispanic women who tend to have a higher frequency of lifestyles of low physical inactivity (Teran, Belkie, & Johnson, 2002). Metabolic rates and various lifestyle choices also contribute to the increased obesity rates in Hispanic women.

Health messaging may be a contributing factor in the willingness of Hispanic women to embrace a nutrition-conscious lifestyle. Literacy and health literacy are key aspects to consider in the health status of Hispanics and their communities. Literacy encompasses the ability of a person to read and assimilate words and their meanings, but health literacy is much more focused and in depth. The United States Department of Health and Human Services (2000) defines health literacy as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (p. iii). In Hispanics who may have limited English proficiency, the predominance of information that is unclear or too complicated may act as a barrier and affects health literacy. In comparison to other groups, Hispanics (at 65%) have the highest percentage of adults at the below-basic or basic levels of the health literacy scale (US Department of Education, 2003). Exposure to understandable health information and health promotion campaigns within the mass media are essential to disease prevention and choices leading to more health conscious

behaviors. Limited cultural competence of health care providers is a significant factor in the health literacy of Hispanics (Andrulis & Brach, 2007).

Acculturation has also been found to be a contributing factor to health status. Acculturation refers to the adoption of behavior patterns of the surrounding culture. It is proposed that the changes that occur with migration to other countries have a direct and adverse effect on the health status of immigrants (Wolin, Colangelo, Chiu & Gapstur, 2009). As people migrate into a new culture, they tend to want to fit into that system and change their diet, the amount of exercise they get, and other cultural norms accordingly. The stress of acculturation also can impact body composition. Acculturation-associated stress has been studied across diverse populations and been found to have an impact on overall health status (Abbott, Wong, Wong, Young & Au, 2003). Between July 1982 and December 1984, the Hispanic Health and Nutrition Examination Study (HHANES) was conducted with a sample of approximately 16,000 Hispanics between the ages of 6 months to 74 years of age (CDC, 1985). The HHANES provided insight into identifying obesity, as well as some of its comorbidities, as one of the health issues significant to Hispanics as well as demonstrated a negative correlation between acculturation and dietary balance (Marks, Garcia & Solis, 1990). Because of the limited sample size of HHANES, generalizibility was low.

Hispanic women who have a higher level of acculturation to the lifestyle of the United States have been shown to have a poorer health status (Hartweg & Isabelli-García, 2007; Kernicki, 1997). This is specifically true for middle-aged Latinas. In their study of 573 Latinas between the ages of 46-92, Cantero, Richardson, Baezconde-Garbanati, and Marks (1999) found that health practices were negatively affected by acculturation.

Elderly Latina women over 75 did not seem to be influenced by level of acculturation. Cantero et al. suggest that middle age is typically the stage of life when chronic diseases are identified, and this may explain the association between level of acculturation and health practices. Many studies use years in country and level of language skills as indicators of acculturation. These types of acculturation variables do not fully capture the multifaceted process of being a Hispanic woman in today's society as they do not take into consideration such factors as social relationships, intergenerational family impact, and cultural history.

Low socioeconomic status (SES) has been associated with increased obesity rates. The correlation between low SES and increased obesity is significantly evidenced in highly industrialized countries like the United States (Estabrook, Lee & Gyurcsik, 2003; Gordon-Larsen, Nelson, Page, & Popkin, 2006; Hansen & Chen, 2007). Multiple characteristics associated with lower SES, such as poor nutrition, less access to nutritious foods, lower levels of health consciousness, decreased levels of physical activity, and a low sense of self efficacy in the ability to make positive decisions to impact health outcomes factor into the relationship with increased trends towards obesity. A link between low SES and obesity, largely due to a lack of physical activity and exercise, has been noted in minority women more than any other group (Ball, Salmon, Giles-Corti, & Crawford, 2006). The link between economic circumstances and acculturation of succeeding generations relating to what they purchase and how they view ethnic foods has yet to be studied in a way that provides insight to obesity management.

Obesity Assessment

Body mass index (BMI) is conventionally used to identify obesity in clinical practice. BMI is calculated by dividing weight (in pounds) by the height (inches) squared and multiplying by a conversion factor of 703 (CDC, 2009a). The CDC defines obesity as a BMI greater than 30 kg/m^2. In their study of 555 women (black, Hispanic, and white), Rahman and Berenson (2010) used height, weight, and BMI as they based their evaluation against the World Health Organizations (WHO) (2000) criteria of more than 35% body fat to measure obesity in women. The National Institute of Health (1998) research agency also uses a BMI of greater than 30 kg/m^2 as criterion for obesity. Rahman and Berenson's (2010) study was significant in that it identified that obesity defined by BMI resulted in an underestimation of obesity status in all ethnic groups studied when compared to the WHO criterion. Limitations of the study were that only women between the age of 20-33 were included and that the Hispanics included in the study were primarily of Mexican descent which may limit generalizability to other Hispanic groups.

Studies have supported the argument that a universal definition for obesity across ethnicities is inappropriate (Evans, Rowe, Racette, Ross, & McAuley, 2006; Razak, Anand, Shannon, Vuksan, Davis, Jacobs, & Teo, 2007). The finding that Hispanic women have been shown to have a higher percent body fat for a given BMI challenges the WHO criterion (Rahman, Temple, Breitkopf, & Berenson, 2009). The inaccuracies related to an appropriate cutoff for defining obesity may result in Hispanic women who are truly obese being classified as normal or just overweight. This misrepresentation could result in withholding of the treatment and care needed to optimize health outcomes.

These inconsistencies identify a need for further research on the most accurate criterion to define obesity related to BMI values based on percent body fat in women of different ethnicities. The National Health and Nutrition Examination Survey (NHANES, 2010) used a probability sample and determined health status with an interview and physical examination inclusive of medical, dental, and physiological measurements, as well as laboratory tests. The NHANES uses the CDC criterion for obesity of a BMI greater than 30 $kg/m^{2.}$

Waist-to-hip ratio and the subscapular-to-triceps skinfold thickness have also been reported to be greater in Hispanic than in white women (Thomas, Keller & Holbert, 1997; Stern, Patterson, Mitchell, Haffner, & Hazuda, 1990). In their study of 110 women (54 Hispanic and 56 white), Casas et al. (2001) measured obesity through BMI; measurement of total body composition (fat mass, lean tissue mass, and bone mineral density) using dual-energy X-ray absorptiometry; skinfold thickness measurement of triceps, suprailium, subscapula, abdomen, and thigh using Lange calipers; and waist circumference. The free fat mass index (FFMI) takes into account the amount of muscle mass in relation to height. This study found that Hispanic women had significantly higher BMI, percentage of body fat, and percentage fat and fat mass in the trunk ($p<0.05$). Fat mass within the trunk region, abdominal, and subscapular skinfold thicknesses were 30-40% greater in Hispanic women than in their white counterparts ($p<0.01$). This proclivity toward increased fat storage in Hispanic women makes management of their nutritional habits a vital health concern.

In a study of cardiovascular risk in older Hispanic women, Etnyre, et al. (2006) used a variation of Centers for Disease Control and Prevention Health Risk Appraisal

form to obtain subjective views of weight and nutrition. In an effort to measure the implications of psychosocial and cultural influences on health practices associated with weight management, Teran et al. (2002) used personal interviews with the goal of having participants explain what a typical day in their lives was like. Through these interviews, valuable information about work-associated physical and mental activity and its impact on nutritional behavior and opportunity and/or motivation for exercise was obtained. This interview format was reported by the researchers as very useful in assisting to collect information about nutritional practices and beliefs as well as identify support systems. These interviews were culturally sensitive and included aspects of *personalismo*. *Personalismo* is a warmth and closeness typical to the Hispanic culture.

Wolin et al. (2009) used a similar assessment and comparison method in their study investigating the association between acculturation and obesity in a sample of urban Hispanic women. A two phase approach was used. Phase I included an interview to collect demographic information (including number of years living in US) and questions surrounding physical inactivity. During Phase II, participant physical activity was measured quantitatively using the International Physical Activity Questionnaire (IPAQ). BMI was identified using the standard calculation. Although BMI has not been established as a significant indicator or predictor of health outcomes in Hispanic women, the fact that it is based on weight in relation to height makes it a key measurement in any study of nutrition practices in any culture.

Waist circumference measurement has been used as a measure to indicate nutrition status and health in various populations (Ardern, Katxmarzyk, Janssen, & Ross, 2003; Janssen, 2010). Issues with reliability of waist circumference measurement and

best practices in taking this measurement by health providers as well as by subjects themselves have arisen. The association between cultural characteristics and nutritional health status has been a focus of current research that supports a need for ethnic specific indexes for evaluating health status and the subsequent obesity-related risks. In their study of children and adolescents, Fernandez, Redden, Pietroelli, and Allison (2004) identified significant differences between ethnic groups and waist circumference as potential indicators for nutritional health status. Differences in waist circumference have also been noted in adult populations (Ford, Mokdad, & Giles, 2003). Ethnicity and acculturation have been shown to be related to waist circumference (Sundquist & Winkleby, 2000). The question remains open as to whether BMI or waist circumference is the best predictor of body fat mass and future nutrition problems (Flegal, Ogden, & Carrol, 2004; Iwao, et al., 2001). Accurate measurement for identifying trends towards obesity is key to addressing health disparities as early as possible, especially in high risk groups such as Hispanic women.

Interventions

Computer-assisted searches to identify the evidence base for interventions in obesity management of Hispanic women were conducted of three electronic databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL); Medline; and the Science Citation Index. Keyword searches were conducted using the terms *obesity*, *obese*, *overweight, physical activity*, *Hispanic and Latinas.* Studies included within this review were conducted within the last 10 years and focused on interventions to improve health outcomes in Hispanic or Latina women who are dealing with problems related to obesity and optimal nutrition management.

The most prominent study to combat obesity focused on an exercise component. The aim of the IMPACT study, Increasing Motivation for Physical ACTivity, (Albright, Pruitt, Castro, Gonzalez, Woo, & King, 2005) was to promote the adoption and maintenance of physical activity in low-income women who had sedentary lifestyles. The IMPACT study consisted of an educational component followed by a home-based follow-up intervention. The educational component consisted of culturally sensitive classes including information about cardiovascular disease, type 2 diabetes, and behavior skills associated with implementation of improved physical activity. The one-hour classes were conducted weekly for two months and were followed by a 10 month home-based intervention of either phone and mail support or just mail support. At the 10-month follow up, it was found that the IMPACT participants who had received the mail and phone support were able to maintain their increased physical activity. The participants who only received mail support were not able to maintain increased physical activity and returned to the baseline activity levels. The ability to impact positive change in physical activity was believed to have been further enhanced by the fact that the study was community based and culturally sensitive.

With the exception of the IMPACT study, the search of the current literature resulted in primarily descriptive and correlational studies with very few intervention studies. Most studies involve comparisons of NHANES and HNANES (1982-1984) data using the nutritional assessments to make projections about segments of the population, gender-specific considerations, regional and geographic assumptions, and relationships between the parameters measured. No intervention was done in the NHANES and HHANES studies. Knowing how difficult it is to change eating behaviors and to

motivate nutritional alterations, researchers appear to have limited the number of interventional studies. Interventional study is definitely a gap in research on managing the nutrition of Hispanic women.

Implications of Review

Practice

The current BMI criteria used to define obesity have been questioned related to how well they define and measure contributing factors associated with ethnicity. This concern with BMI cut-points as indicators for changes in treatment modalities coupled with the propensity for Hispanic women to have higher obesity rates than other groups, suggests that Hispanic women in their reproductive years and close to the BMI cutoff for obesity may require additional attention to address their potential for obesity-related risks (Wildman, Gu, Reynolds, Duan & He, 2004). A tendency for older Hispanics to have a progressively lower free fat mass index with age and its association with decreased capacity to perform activities of daily living is a considerable factor in addressing the abilities of older Hispanic women ability to maintain functionality (Casas et al., 2001). Clearly, the quest for effective measurement parameters and targeted interventions to promote health should be the cornerstone of evolving health practice models. In addition, health information technology (HIT) projects aimed at capturing vital information to impact health outcomes should address the parameters vital to managing the health and nutrition needs of vulnerable populations.

Health Policy

Discussions of health policy priorities and health reform actions should include issues of Hispanic nutrition issues since this group represents the fastest growing

minority group in the U.S (U.S. Census Bureau, 2004). Health policy initiatives addressing obesity in Hispanic women need to be targeted at all age levels with an emphasis on the early stages of life. Modifiable contributing factors such as physical activity and nutrition need attention. Initiatives aimed at Hispanic women, especially those of a lower socioeconomic status; need to be considerate of cultural norms, traditional gender roles, and responsibilities associated with those roles and expectations. It is vital to include Hispanic nurses and nurses with experience in Hispanic health management in commissions and groups who study health access and funding to make recommendations for future health priorities. Furthermore, international collaboration on issues of interest to both the U.S. and Mexico should include discussions of health promotion issues including access to education and information about health nutrition and disease management.

Education

Increased health promotion education is necessary to impact the overall general health of Hispanic women. In an effort to integrate the *Healthy People 2020* (www.healthypeople.gov) goal of using health communication and health information technology to improve health outcomes, health care quality, and eqity in care, it is necessary to ensure that the information provided is appropriate and meets the needs of this specific aggregate by being culturally and linguistically appropriate. An appropriate intervention with Hispanic women is through social approaches aimed at more health conscious behaviors. Through the use of social networks, supportive relationships can assist in the exchange of information as well as encourage positive changes toward more health-conscious behaviors. Other methods for addressing health literacy concerns are to

ensure printed materials are presented in an easy to read format as well as the considerations of alternate modalities of education, such as audio and video communications of health information.

Research

In 1984 there were approximately 17 million Hispanics in the United States. According to current United States Census Bureau (2010) records, there are over 50.5 million Hispanics living in the US today. This significant increase supports efforts toward targeted cultural research of Hispanics such as the HHANES that was conducted over 25 years ago.

Due to the lack of research specific to BMI and Hispanic women, further investigation is needed to establish the most accurate model for identifying obesity in this specific aggregate. The identified lack of intervention studies suggests a need to support future investigations into this type of research. There is a need for further research into obesity and Hispanic women in an effort to better understand why this disparity increases and how to best reverse this trend. In order to address the overall health status in Hispanic women, innovative studies will need to be conducted to address the cultural and contextual factors associated with obesity.

Summary of Review

This review has identified a dearth of literature on intervention studies addressing obesity in Hispanic women. A recommendation for further research to identify predictors of obesity, specifically in Hispanic women, will make it possible to design effective interventions. Subsequent evaluation of interventions must also be designed and completed in order to demonstrate impact, cost-effectiveness, cultural appropriateness,

and health outcomes. Further investigation into health issues that affect Hispanic women will not only assist to address their direct and immediate health needs, but proactive nutrition-promotion studies will lay the groundwork for healthier Hispanic generations across the lifespan.The goal of a Healthy America is profoundly tied to the ability to identify the underlying processes that may be associated with obesity in Hispanic as well as other ethnic groups and promote active initiatives for promote healthier lifestyles in the future.

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Manuscript #2

A Cross-national Analysis of the Nutrition Habits of Hispanic Mothers and Daughters

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Abstract

Problem: The rates of obesity in Hispanic women increased significantly between 1994 and 2008 from 35.3% to 45.1% (National Center for Health Statistics, 2010). Poor nutritional habits and obesity have longterm negative health ramifications that warrant targeted efforts to stem this growing epidemic.

Purpose: This study examined current eating habits, weight history, health perception, future time perspective, family dietary support, friend dietary support, and the health outcomes of BMI, waist circumference, and nutrition of 157 Hispanic daughters and mothers in Texas and Mexico. Of particular interest was whether mothers and daughters had more in common or if age cohorts were more alike. Inquiry was also made into whether differences in nutrition habits exist between US and Mexico residents.

Design: Cross-sectional survey design involving 91 items administered online via Internet-based data collection system.

Sample: One-hundred and fifty-seven Hispanic nursing students and their mothers participated (10 U.S. mothers, 22 U.S. daughters, 14 mothers in Mexico, and 111 were Mexican daughters). The sample included 24 mother-daughter dyads. Ten of the dyads were from the US, 13 were from Mexico, and 1 dyad consisted of a US-based daughter whose mother was from Mexico. The total sample ranged from 18-76 years of age with a mean age of 27.6 years (SD=13.0).

Key Findings: Daughters appeared to have nutrition habits more closely associated with their age cohort than their family of origin. Future time perspective was significantly related to general health and eating habit confidence.

A Cross-national Analysis of the Nutrition Habits of Hispanic Mothers and Daughters

The health-related impact of nutrition patterns throughout the world has added to the global imperative to manage obesity and its devastating long-term effects. With an estimated 30% of the American population considered obese, the Centers for Disease Control and Prevention (CDC) (2010) proposes that American society has become "obesogenic" by creating a sociocultural atmosphere where unhealthy food choices, excessive intake, and decreased activity are openly encouraged. The purpose of this paper is to focus a lens on the Hispanic female population and their ongoing struggle with obesity-related health issues. A cross national approach using Hispanic female nursing students from the United States and Mexico along with their mothers provided a contextual backdrop against which to discuss the prevention of morbidity and mortality in Hispanic women from obesity-linked health problems.

Diet and exercise have traditionally been considered the key factors to obesity in Hispanic women. Evidence is emerging that ethnicity may be a significant contributor to the mounting health issue (Rahman & Berenson, 2010). In every age and gender group, Hispanics have a higher rate of obesity and excess weight (Flegal, Ogden & Carroll, 2004). Hispanic women (45.1%) have a higher prevalence of obesity than non-Hispanic white women (33.0%) (National Center for Health Statistics, 2010). This appears to be a growing problem as rates of obesity in Hispanic women increased significantly between 1994 and 2008 from 35.3% to 45.1%. Because of the growing Hispanic population and the detrimental impact of obesity and its associated risks to overall health, it is imperative to identify the current status of obesity in Hispanic women in order to design intervention

programs to enhance the likelihood of finding solutions to address this health concern. This study was designed to provide an environmental scan of the nutrition habits and eating patterns of Hispanic women on both sides of the southern U.S. border.

Nutritional factors of 157 Hispanic women from Mexico and the United States were explored. A subset of 24 mother/daughter dyads was studied using both American and Mexican respondents to assess the impact of family association on the development of healthy and unhealthy eating patterns. This generational context of the study was to provide insight into how younger Hispanic women make nutritional decisions. An additional cultural perspective was provided by the measurement of the respondents' nutritional choices and dietary outcomes in relation to their future time perspective. This knowledge provides insight into whether or not Hispanic women view current nutritional choices as impacting their future health. The geographical context of measurement in two countries allowed some assumptions to be made about the role of acculturation on the Hispanic diet since many Hispanic Americans are first or second generation U.S. citizens.

Brief Overview of the Literature

A BMI greater than 30 kg/m^2 is conventionally used to define obesity within clinical practice (Centers for Disease Control and Prevention, 2010). It is arguable that a universal definition for obesity across ethnicities is appropriate (Evans, Rowe, Racette, Ross, McAuley, 2006; Razak, Anand, Shannon, Vuksan, Davis, Jacobs, & Teo, 2007). The correlations between cultural characteristics and nutritional health status necessitates ethnic specific indexes for the evaluation of overall health status and the risks associated

with obesity (Fernandez, Redden, Pietroelli,& Allison, 2004; Ford, Mokdad, & Giles, 2003; Sundquist & Winkleby, 2000).

Culturally, Hispanics have a strong familial social network that extends beyond the traditional nuclear family. Traditionally, the father is seen as the head of household, but it is the mother that typically manages the home, the nutritional decisions, and the health of her family. Obesity trends have been shown to exist within families where obesity exists (Lee, Reed & Price, 1997). Investigation into the genetic component has not proven to significantly contribute toward obesity trends as much as the obesogenic environment that exists in highly socialized cultures such as Hispanics (Lee, Reed & Price, 1997).

Hispanic women tend to have higher obesity rates than other cultural groups and tend to have their health status affected by factors such as low socioeconomic status (SES) and acculturation to the lower physical activity associated with highly industrialized societies like the United States (Estabrooks, Lee & Gyurcsik, 2003; Gordon-Larsen, Nelson, Page, & Popkin, 2006; Hansen & Chen, 2007; Hartweg & Isabelli-García, 2007; Kernicki, 1997; Teran, Belkie, & Johnson, 2002). Low SES has implications for health status, such as less than adequate nutrition and limited opportunity for inclusion of nutritious food choices because of inaccessibility within their immediate environment (Poston & Foreyt, 1999). Minority women groups with a low SES have demonstrated significant relationships between obesity and a lack of health promotion activities (Ball, Salmon, Giles-Corti, & Crawford, 2006).

In an assessment of the current literature, a lack of intervention studies that address the health issue of obesity in Hispanic women was identified. In an effort to

better address the increasing obesity trends within this cultural group, further research is needed to investigate cultural and nutritional aspects, not as standalone factors, but rather to identify the relationships that exist between the Hispanic culture (specifically women), nutrition and obesity. Further assessment of generational implications on nutritional behaviors also needs to be conducted. It is only through a more inclusive assessment of the various factors that affect Hispanic women's nutritional decisions that effective and culturally appropriate interventions can be implemented. Cultural aspects must be considered if there is to be any impact on the reversal of the obesity epidemic that is affecting the overall health status of Hispanic women.

Theoretical Framework Guiding the Study

The framework guiding the study was the Pender Health Promotion Model (revised, 1996) as proposed by Nola J. Pender. The Health Promotion Model (HPM) is a multidimensional framework that integrates the perspectives of behavioral science into nursing in an effort to explain the foundational and motivational process of engagement and actions toward healthy behaviors. The interaction between person and environment during engagement towards healthy behaviors is the primary relationship that HPM aims to explain. Pender proposes that as people interact with their environment towards health, a process which includes specific components will lead to health promoting behaviors.

Pender's Health Promotion Model features three main components: individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes. The clarity of these three components make this model particularly appropriate for single measurement studies when the outcomes can be related to predisposing factors, such as in obesity. Pender (1996) proposes that within these three components are ten

determinants of health promoting behavior: prior related behavior, personal factors (behavioral, psychological, socio-cultural), perceived benefit of action, perceived barriers to action, perceived self-efficacy, activity related affect, interpersonal influences (family, peers, providers), situational influences, commitment to a plan of action and immediate competing demands and preferences (low and high control). These factors have been shown to act as predictors of health behaviors (Esperat, Feng, Zhang, & Owen, 2007; Shin, Kang, Park, Cho, & Heitkemper, 2008; Walker, Pullen, Hertzog, Boeckner, & Hageman, 2006). For the purpose of the study, the selected variables which appeared to have the highest cross-cultural impact were measured including prior related behavior (health self-perception), personal factors such as age, perceived self-efficacy (eating habits confidence), activity-related affect (future time perspective), interpersonal influences (friend and family support), situational influences (weight loss history), and health outcomes (BMI, waist circumference, healthy nutrition score, and unhealthy nutrition score).

Instruments

The instruments used in this study to measure the determinants of health promoting behaviors as outlined by the Pender's Health Promotion Model were the NHANES Current Health Status subscale, the Eating Confidence Survey (Sallis, Pinski, Grossman, Patterson & Nader, 1988), Future Time Perspective Scale (Carstensen & Lang, 1996), the Social Support and Eating Habits Survey (Sallis, Pinski, Grossman, Patterson & Nader, 1987), the NHANES Weight History Scale Survey (NHANES, 2010) and the NHANES Dietary Screener Module (NHANES, 2010) to document nutritional history. These instruments were selected because of appropriateness with the theoretical

framework (Figure 1) and because most of them have established reliability and validity to measure the variables to be studied. Permission to use these instruments was obtained by the researcher. Instruments including number of items, descriptors, range, and reliability and validity statistics are found in Table 1. Demographic questions relating to age, education, economic status, height, and weight were collected using questions developed by the researcher.

Conceptual definitions of the study factors were derived from Pender's descriptions of the variables. Barriers, benefits, and immediate competing demands and preferences (high and low control) were not measured in the study. Barriers and benefits needed a more culturally-focused evaluation since the barriers in Mexico arise not only from accessibility, availability, and cost but also from a culture where food is central to the social and ceremonial aspects of tradition (Dixon, Sundquist, & Winkleby, 2000). Immediate competing demands and preferences are the alternative actions that interfere with a plan of action. Family and work responsibilities are examples of immediate competing demands over which individuals may have little to no control. Since this study was a one-time snapshot of subjects' perceptions, measuring items termed as "immediate" was not considered relevant to the current status of the outcomes. The goal of the study was to measure the cumulative contributions of the variables to the outcomes.

Three of the surveys used in this study were from the CDC's National Health and Nutrition Examination Survey (NHANES) program of studies designed to assess the health and nutritional status of adults and children in the United States. NHANES has been conducted three times using a large national sample (National Health and

Nutrition…, 2006). Data came from interviews, examinations, and laboratory tests on biological samples and are acknowledged to be subject to measurement error. Because its extensive protocols have been developed, scrutinized, and revised by the scientific community over the years, there is some confidence in the consistency of the NHANES instruments because "the overall sample design and weighting methodology has been similar over the history of the survey" (p. 5). Due to the size of the previous survey samples (1999-2000 survey, n= 9,282; 2001-2002 survey, n=10,477; 2003-2004 sample, n=9,643) and the rigor of question design, three of the scales were included in this study. Because NHANES is a complex probability sample, the findings cannot be appropriately compared with samples arising from a different sampling format, such as the current convenience sample. For this reason, the sample data were not directly compared with the NHANES data. However, data have been collected from a large sample consisting of only Hispanic respondents building confidence that the methods and translations are appropriate to the bilingual sample in the current study. The Hispanic Health and Nutrition Examination Survey (HHANES) was conducted on a nationwide probability sample of approximately 16,000 persons (Hispanic Health and…, 1985) and includes a section on dietary practices, food frequency, and total nutrient intake. As advised by the HHANES analytics section, assessment of the linearity of the variable relationships were tested prior to statistical analysis. Furthermore, cross-tabulations tables were used to determine whether each cell has sufficient number for inclusion in the analysis.

Individual Characteristics and Experiences

Prior related behavior

Prior related behavior addresses the impact that past experiences have on the present state and future expectations of a behavior. This determinant can impact the likelihood that a person will actually engage in a health-promoting behavior, directly and indirectly (Pender, 1996). Prior experiences shape a person's attitude towards motivation and follow through to a change that leads to health behaviors such as sound nutritional decisions and exercise. Previous studies have shown significant correlations between perceived health perception and health promoting behaviors (López, Pinzón, González, & Martínez, 2009; Triviño, Stiepovich, & Merino, 2007). Prior experiences was operationalized by the single-item Self-perception of Health question from the National Health and Nutrition Examination Survey.

Personal Factors

The determinant of *personal factors* refers to general characteristics of the individual which influence health behavior (Pender, 1996). Personal factors are subcategorized into biological, psychological and sociocultural aspects. Biological factors are inclusive of demographic information such as age, gender, and BMI. Psychological factors are inclusive of, but not limited to, data associated with self-esteem, self-perception and personal competence. Sociocultural factors may include data such as race, education and economic status. In this study the personal factors of age, education, economic status, height, and weight were measured by specific demographic questions. Height and weight were used in the calculation of BMI. Race was a constant as the study was limited to Hispanic women.

Behavior-Specific Cognitions and Affect

The behavior-specific cognitions and affect category of the HPM model was important to measure because it is considered to be modifiable through intervention (Pender, 1996). Included within this category are the determinants of perceived benefits, perceived barriers, perceived self-efficacy, activity related affect, interpersonal influences and situational influences. Despite the fact that some studies do support the HPM proposition that greater self-efficacy, benefits, interpersonal support, and fewer barriers are associated with healthy lifestyle behaviors, these findings are inconsistent (Walker, Pullen, Hertzog, Boeckner, & Hageman, 2006). This study examined the significance of perceived self-efficacy, activity-related affect and interpersonal and situational influences in relation to positive nutritional health behaviors. Instrument summaries including parameters, reliability, and validty are found in Table 1.

Perceived Self-Efficacy

Pender (1996) uses Bandura's definition of self-efficacy as the judgment of capability to manage and carry out a particular course of action. *Perceived nutritional self-efficacy* is conceptually defined as an individual's confidence level in the ability to maintain a healthy diet (Sallis, Pinski, Grossman, Patterson & Nader, 1988). The operational definition was defined as the sum score of the Eating Confidence Survey (Sallis et al., 1988), a 20 item, 5 point Likert scale.

Activity-Related Affect

Activity-related affect includes the subjective feelings that are stimulated by a specific behavior. These feelings can be positive or negative and can occur prior to, during, and after the behavior. As activity-related affect becomes more positive, feelings

of self-efficacy also increase, therefore increasing the probability of action. The activity-related affect variable was operationalized by measuring future time perspective (FTP) as the score on the Future Time Perspective Scale (Lang & Carstensen, 2002). FTP is an unconscious psychological process that allows for the conceptualization of the future (Lens, 2001; Nuttin, 1985). A person's FTP, whether it is negative or positive, can act as a strong motivational force that can be perceived as relevant to outcomes occurring in the future (Andriessen, Phalet & Lens, 2006; Lang & Carstensen, 2002; McInerney, 2004; Phan, 2009). The variable was operationally defined using a 10 item, 7-point Likert scale sum score.

Interpersonal Influences

Interpersonal influences (family, peers and providers) are inclusive of norms, social support and models. This component of the model can be significantly influential especially in Hispanics where *familismo*, importance of family as opposed to the individual, is a strong social norm (Pender, 1996). Marin and Marin (1991) proposed that *familismo* includes the elements of a perceived obligation to family in the provision of support (material and emotional), a reliance on family for assistance, and the perception of family members as behavioral referents. The Social Support and Eating Habits Survey (Sallis et al., 1987) was used as the operational measure of interpersonal influences from both family and friends. The survey includes 11 items with 5 response choices from none to very often.

Situational Influences

Pender describes *situational influences* as the individual perceptions and cognitions associated with a situation or context that can encourage or delay a behavior

(Pender, 1996). Situational influences include the perception of available options, demands, and the aesthetics of the environmental factors associated with action of a health behavior. Interpersonal and situational personal influences impact a commitment to a plan leading to a healthy behavior. Situational influences was operationalized by the Weight History Scale of the NHANES survey, a 9 item scale with 2 initial items about self perceived current weight and goal of weight loss, gain, or maintenance. Seven 3-choice ordinal items (never, sometimes, a lot) were summed to create a score ranging from 7 to 21.

Health Promotion Behavior Outcome

A commitment and a plan for positive behavioral change is a determinant of actual active change (Ajzen, 2002). The six behavior-specific cognitions and affect components of the HPM directly and indirectly impact a commitment to a plan of action. The health promoting behavior was analyzed in this study in an effort to determine the association with positive nutritional outcomes.

Current nutrition status was used as the outcome measure for this single-occurrence data collection study. The NHANES Dietary Screener Module was used to establish weekly consumption of various foods as a measure of nutritional behavior. Waist circumference reports were also collected because larger circumferences have been associated with many of the complications commonly associated with obesity (Dalton, et al, 2003). Body mass index was also calculated.

Methods

Design

The problem addressed in this study was the potential for poor health outcomes in Hispanic women who are obese and who do not practice good nutritional habits. A more specific problem was the analysis of the social, cultural, and familial context within which nutritional perspectives and practices in Hispanic women occur.

This descriptive study used a four-group survey design to examine correlations between variables. Although the study did not employ multiple measures and time points, there were multiple groups which provided for a comparison between groups design. Strength of relationships was measured with the correlational design. Non-parametric statistics were used to test the hypothesis that scores were more similar between persons in a family group than persons in a generational cohort.

Sample

The study sample was obtained through purposive sampling of undergraduate and graduate nursing students from two U.S. universities in a southwestern state and three universities located in northern Mexico. Volunteer faculty in the nursing programs at the two sites were asked to explain the study and make the data collection website available to their Hispanic students through an email flyer that linked the students to further detailed study information as well as the survey. In this study, Hispanic was used to describe a person who self-described as being of Hispanic origin.

Primary contact was made with younger generation female nursing students (graduate and undergraduate) and through them, secondary contact was made with their older-generation mothers. Participation in the study was not a course requirement, and

the voluntary nature of participation was stressed. In this study, the term mother (or madre or mama) was used to refer to the person with whom the younger subject indicated having a maternal/daughter relationship regardless of blood ties. To be included in the study, students were required to be enrolled as a nursing student within the study sites with access to the Internet and be self-identified as Hispanic. Additional criteria for the mothers included having a daughter who was in the study and agreeing to provide responses by Internet, paper or telephone survey.

Sample size was estimated with the *G-Power* Program (Faul, Erdfelder, Buchner, & Lang, 2009). A priori analysis using a small effect size of 0.2 with a power of .80 and alpha level of 0.05 indicated a minimum sample size of 37 participants. Since there are four groups (U.S. mothers, U.S. daughters, Mexico mothers, and Mexico daughters), the proposed sample was to include 10 subjects per group.

The total sample consisted of 157 Hispanic women who met the inclusion criteria. A total of 176 surveys were returned, but eight were deleted due to substantial amounts of missing data and 11 were deleted because outcome data were missing. Of these 157 women, 10 were mothers from the US, 22 were daughters from the US, 14 were mothers from Mexico, and 111 were Mexican daughters. The sample included 24 mother-daughter dyads. Ten of the dyads were from the US, 13 were from Mexico, and 1 dyad consisted of a US-based daughter whose mother was from Mexico. The total sample ranged from 18-76 years of age. Table 2 shows the group demographics. Since the daughters were all nursing students attending a university, it was not surprising that the majority of the sample (65%) were single living with others. It was unexpected that almost 80% of the sample reported an adequate or more than adequate level of income.

The mean years of formal education was reported as 12.76 years with a wide range from 0-19 years. Almost half of the study sample was unemployed, possibly due to the fact that a high percentage of the sample included students.

The study was approved by the investigator's University Institutional Review Board for Protection of Human Subjects. Agreements to participate in participant recruitment were obtained from all universities involved. There was low risk to the study participants, and confidentiality was maintained throughout the study. Informed consent was obtained via the Internet prior to allowing participation in the study. The online survey site was password protected, and only the research team had access to the collected data. No student was identified to the school as having participated or not. The researcher was available via Internet and phone throughout the research process to address concerns and questions. All participants completed the survey through the internet, and no participants requested to complete the survey using paper and pencil or by telephone interview. The survey was available in English and Spanish.

Data Collection

The NHANES Dietary Screener Module is used to provide an overview of what food the respondent has eaten in the past two months. This instrument was used to measure the variable of nutritional behavior by generating a health and unhealthy nutrition score. This assessment contains foods that were classified as healthy and unhealthy based on the United States Department of Agriculture and Health and Human Services Dietary Guidelines for Americans (2010) and American Dietary Food Pyramid (www.mypyramid.gov). The screen asks the subject to relate how many times per week the food had been consumed in the last 2 months. The healthy nutrition status score came

from the sum of the number of times per week the respondent reported eating the healthy items on the scale (healthy items =6 items) and unhealthy nutrition status was determined the same way from totals for unhealthy foods or overeating of healthy products (unhealthy items = 14). To determine whether an item is healthy or unhealthy, the recommended daily allowance from the revised Food Pyramid was used. For instance, cereals or rice are recommended to be eaten daily; therefore, the combined score of both foods eaten greater than 7 times per week was entered in the unhealthy scale and less than 7 times was entered in the healthy total. Waist circumference data were also collected. A picture guide with instructions for measurement from CDC was included within the survey in an effort to ensure consistency of measurements.

This study used a self-administered web-based survey for data collection for the younger-generation cohort. The self-administered survey method was appropriate for the study in that it encourages consistency in data collection by standardization of measurement (Lyberg, Biemer, Collins, deLeeuw, Dippo, Schwarz & Trewin, 1997). Although alternative data collection methods were offered for the maternal cohort, none of the subjects took advantage of the mail-in or telephone survey methods. All data were gathered through *SurveyMonkey PRo*®, an online research data collection service which allowed the researcher to set up the survey and collect the data through a specific web link. Data were saved on the site when the respondent clicked the submit button and stored in Excel and SPSS-compatible files for analysis. This participant name and contact information was used to preclude multiple entries of data and to award incentives offered for participation. Incentives were an Ipod Nano MP3 player for the younger cohort and a $150 Western Union Money Gram for the maternal cohort which were awarded as a

result of a random drawing. Time for online completion of the survey was approximately 15 minutes. Each participant received the same questions with an option of English or Spanish versions. Web surveys were beneficial in this study in that it kept costs down and minimized issues with access to the international participants (Dillman, 2000). Data collection via the Internet also provided for rapid turnaround of information by providing automated data collection (Wright, 2005).

Procedures to Enhance Control

In an effort to enhance control within the study, names and addresses were collected at the time of acceptance into the study in order to match mother and daughter dyads and to protect against multiple data entry from the same person. Participants were directed to the data collection website. In case of multiple entries by one person, the most complete and/or recent entry was used for data analysis. Since the data collection was by a self-administered single survey being completed over a short period of time, history, maturation, testing and instrumentation were not considered significant threats to internal validity. Use of valid and reliable survey instruments strengthened the study. In an effort to not lose the mother's input, the survey was set up in a manner that provided convenience and ease of completion by allowing the participants to choose whether to take the survey in English or Spanish. Follow up reminders occurred after two weeks of the commencement of the data collection period.

Findings

Hypotheses

Ha#1. In Hispanic mother/daughter dyads from the U.S. and Mexico, the nutritional health scores of the daughter are more like those of their mothers or their age cohort.

In testing the Hispanic mother/daughter dyads from the US and Mexico to determine if nutritional health scores of the daughters are more like those of their mothers than their age cohort, the hypothesis was rejected. Daughters appear to have nutrition habits more closely associated with their age cohort. This tendency toward generational consistency conforms to the Strauss and Howe (1991) definition of a generation: "Groups of age-determined populations moving through time, each group possessing a distinctive sense of self" (p.32).

Ha#2. There is no difference in the social support of family, social support of friends, eating habits, weight history, health perception, and BMI among the four groups (Mexican daughters, Mexican mothers, U.S. daughters, U.S. mothers).

No significant differences among the four groups were found regarding social support of family, social support friends, eating habits, and weight history. However, there was a significant difference in health perception (X^2=9.53, df=3, p=.02) and BMI (X^2=25.75, df=3, p=.00) between the four groups. The mean ranks for health perception were US mothers 72.6, US daughters 68.0, Mexican mothers 52.0, and Mexican daughters 85.2. Data were not normally distributed, so the Spearman Rank test, a non-parametric test, was used. From this analysis, it can be seen that Mexican daughters had the highest perceived health perception scores, and their mothers had the lowest health

perception scores. They were not significantly different from the others. Mean ranks for BMI were U.S. mothers 100.05, U.S. daughters 85.22, Mexican mothers 111.36, and Mexican daughters 60.00 indicating that the BMI of the mothers were significantly higher than the daughters.

Ha#3. There are relationships among health perception, eating habits confidence, future time perspective, social support, weight history, and nutritional status in adult Hispanic women.

Table 3 shows the relationships between the variables based on the entire sample of Hispanic women. The three variables which showed the largest network of relationship were those which are culturally related. They were family social support, future time perspective, and general health. Future time perspective was significantly related to general health (r^s .276, p=.001, df 147) and eating habit confidence (r^s 273, p=.002, df 129) indicating that those with a future orientation to life tended to see themselves as healthier and to have more confidence in themselves to manage their nutrition successfully.

Ha#4. There are relationships among Hispanic women's reported nutritional status, waist circumference and BMI.

The findings indicated that BMI and waist circumference were related (r = .356, df 126, *p*=.000) although waist circumference was not associated with perceived nutritional status. This finding was contradictory to other studies that have found an association between waist circumference and perceived nutritional status (Fernandez, Redden, Pietroelli, & Allison, 2004; Ford, Mokdad, & Giles, 2003). However, there is

low confidence in the self-reported and self-measured waist circumference measurements.

Other significant findings

Data which did not meet the assumptions for parametric statistical analysis were subjected to Mann Whitney U nonparametric testing; otherwise, a t-test was used. *Weight perception* was measured as perceiving oneself as being fat/overweight, too thin, or about right. Because perceptions of both being too fat or too thin signified a negative weight perception, these two categories were combined into a negative weight perception score with stating "just right" being designated as a positive weight perception. There were significant differences in weight perception and future time perspective (t= -2.97, df=145, p=.004). Those with a more futuristic perspective had a higher mean rank indicating more satisfaction with how they look than those who mainly dwell in the here-and-now. Differences were also noted with family social support (t= -2.189, df=148, p=.03) with higher support shown by those who liked the way they look, but the relationship of weight perception to friend support was not significant. A significant difference was noted between weight perception and weight history (t=4.339, df=149, p=.000) meaning that those who perceived themselves as "about right" were less likely to have undertaken severe dietary restrictions in the past year. Mann Whitney U testing showed general health perception was significantly higher for those with more positive weight perception (U =1698.5, p=.000), but there was no difference in their confidence in their ability to engage in dietary restrictions when eating and their weight perception.

Another insightful measure came from the NHANES nutrition screen which asked the actual amount of various foods that were consumed in the past month. Using

Kruskall Wallas statistics for analysis, significant differences were found between the four groups regarding what they reported that they ate (Table 4). Using medians for comparison and the Kruskall Wallas test, the US mothers ate significantly more starchy foods (bread, cereal, rice and pasta) than their daughters, but the opposite was found in the Mexican cohort. The Mexican mothers ate the least sweets, but the Mexican daughters ate the most. The daughters ate significantly more servings of dairy foods than their mothers whose age range place them in the population most at risk for calcium deficiency (Heaney, Recker, Stegman, & Moy, 1989; Nordin, Need, Morris, O'Loughlin & Horowitz, 2004).

Discussion

The Hispanic culture is family centered with a social support system that is inclusive of extended family relationships outside the typical nuclear family (Pierce, Sarason & Sarason, 1996). The exploration of intergenerational and familial health perceptions and behaviors in Hispanic populations has been rarely studied. This is specifically true in the high-risk aggregate of Hispanic females. In the investigation of the nutritional health scores of mother/daughter dyads from the US and Mexico, the study identified that the scores were more like those of their age cohort. The implications of this finding provide support for planning interventions geared toward intra-generational as opposed to intergenerational groups. Based on this analysis, it would seem that more effective methods for advertisement or education of health promotion, specifically in nutritional behaviors, would be through the age cohort as opposed to the familial unit.

Examination of the differences among dyads and individual groups of Mexican Daughters, Mexican Mothers, U.S. Daughters, and U.S. Mothers demonstrates that health

perception appears to be a sensitive indicator of their health actions. In looking at the relationship between health perception, eating habits confidence, future time perspective, social support, weight history, and nutritional status in adult Hispanic women, the finding of a significant relationship between future time perspective and general health perception supports the fact that the Hispanic women who do think of future consequences tend to feel they have the capability to engage in healthy behaviors and impact their overall health status. Future time perspective orientation is not something that is likely to change in any population. Realizing the persistent cultural implications of future time perspective would assist in planning programs that are inclusive of cultural preferences and short term goals leading to long term outcomes.

The findings that waist circumference was not associated with perceived nutritional status was unexpected. Previous studies have shown a substantial relationship between waist circumference and perceived nutritional status (Fernandez, Redden, Pietroelli, & Allison, 2004; Ford, Mokdad, & Giles, 2003). However, these studies had waist circumference measurements performed by an educated clinician. Self report of weight and waist circumference eroded confidence in these measures resulting in the elimination of data due to inaccuracies, missing data and the potential bias of self reporting of this information. These findings imply the necessity for actual physical assessment (weight, height, waist circumference measurement) in future studies.

Strengths and Limitations

A strength of the study was the focus on a vulnerable but rarely studied group, Hispanic women. An additional strength regarding access and recruitment was the fact that the primary researcher is Hispanic. This descriptive study used a four-group

relational design to test hypotheses about the nutritional scores among international and multigenerational groups as well as examine the factors that impact nutritional outcomes in Hispanic women. The study tested the Health Promotion Model and also was used to develop recommendations for influencing the nutrition habits of Hispanic women. Further research to improve the nutritional outcomes of Hispanic women is also recommended. This study assisted in filling a gap in knowledge associated with a vital health issue with potential to inform future health policy.

A limitation of this study was the use of a convenience sample that limits generalizability. It should also be considered that a threat of bias within the sample may have existed towards a more health conscious perspective due to the fact that participants were nursing students and the potential for increased health consciousness of the mothers by association with their daughters' health knowledge. The low mean weight indicates that this was a nutritionally–sound group which is perhaps not indicative of the natural-occurring populations of Hispanic women in the U.S. and Mexico. However, use of a health-related cohort may have promoted a higher participation rate. The fact that the NHANES screens are not specifically designed as research instruments may have contributed to the weak showing of the healthy and unhealthy scores in analysis. The final sample number was skewed by the high number of younger generation subjects from the Mexico cohort. A consideration may be that the use of online data collection may have been responsible for the lower participation rates of the potential maternal cohort. However, the opportunity to be able to describe and compare this group is considered to be a plus.

Recommendations for Future Research

A recommendation for future research is to replicate the study with a broader sample so that any bias represented by the use of a health related cohort could be reduced. A sample more representative of the general Hispanic population may yield more appropriate findings aligned with the identified health disparities related to obesity as seen in current health statistics of this aggregate. Future studies of generational cohorts and other lifestyle habits related to health promotion are indicated. A longitudinal study would also allow a more multidimensional view of the challenges and barriers to health promotion in vulnerable populations. Finally, a future study which includes an intervention to address and change unhealthy habits would allow an opportunity to determine if generational strategies are more successful than familial interventions in impacting nutrition and other chronic health issues.

This study investigated the factors involved in Hispanic women's nutritional decisions. The current literature consistently identifies that obesity in Hispanic women is a critical and mounting health issue but did not provide much insight into this specific aggregate's nutritional habits and perceptions. The goal of the study was to explore the factors associated with obesity in Hispanic women by evaluating the strength in the relationships that exist between nutritional health perceptions and social support implications within a controlled cultural context. This study added to the current body of knowledge regarding health promotion in Hispanic populations and offered information that can be used to plan appropriate and effective interventions to address obesity in Hispanic women.

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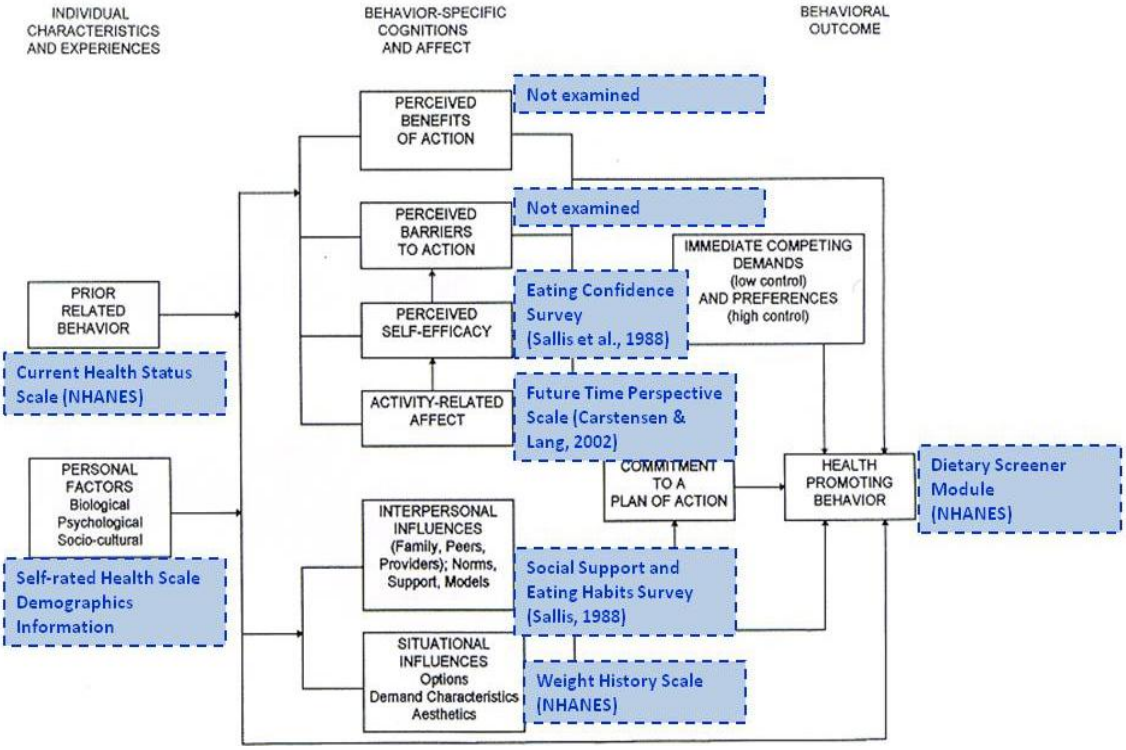
Figure 1. Instrumentation Methods Based on Pender's Health Promotion Model



Pender, N. J., & Pender, A. R. (1996). *Health promotion in nursing practice* (3rd ed.).

Stamford, Conn.: Appleton & Lange.

Table 1. Instruments: Parameters, Reliability, and Validity

Tool	# items	Scoring Parameters	Reliability & Validity
Individual Characteristics and Experiences			
Demographics Information	12	Age, education, economic status, height, and weight	
NHANES Current Health Status Subscale	1	Five-point scale for perceived health: excellent, very good, good, fair, poor.	National database survey, no reported reliability statistic
Behavior-Specific Cognitions and Affect			
Eating Habits Confidence Survey (Sallis et al., 1988)	20	Five-point Likert scale (from 1 – I know I cannot to 5- I know I can); range of 20-100.	Established reliability and validity with a Cronbach's alpha of .85 to .93
Future Time Perspective Scale (Lang & Carstensen, 2002)	10	Seven-point response scale from 1(not at all) to 7 (to a very great degree); range of 10-70.	Validated in previous studies (Bal, Jansen, van der Velde, Lange, & Rousseau, 2010; Cate & John, 2007; Zacher & Frese, 2009); Cronbach's alpha of .80
Social Support and Eating Habits Survey (Sallis, 1987)	20	Five-point Likert (1- none, 2-rarely, 3-a few times, 4-often, 5-very often; range of 20-100.	Established test-retest from .55-.86 and validity with a Cronbach's alpha of .61 to .91 (Sallis et al., 1987)
NHANES Weight History Scale Survey (NHANES, 2010)	9	Two descriptive questions; 7 items regarding weight management in past year; range of 7-21.	National database survey, no reported reliability statistic
Behavioral Outcome			
NHANES Dietary Screener Module (NHANES, 2010)	20	Quantities of each food item or group consumed in past 2 months.	National database survey, no reported reliability statistic
Waist Circumference	1	Subject asked to measure with standard flexible tape measure.	
Body Mass Index	1	$Wt / Ht^2 \times 703$	

Table 2. Demographics of Four Groups: U.S. Mothers and Daughters and Mexico Mothers and Daughters

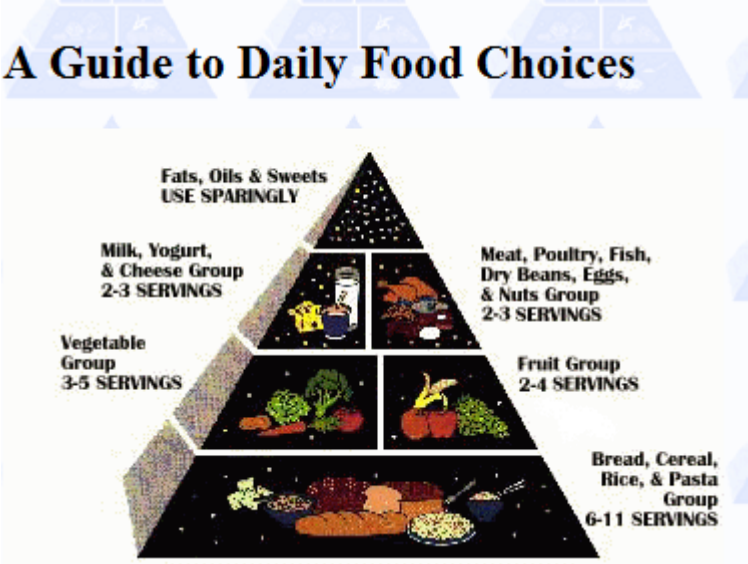
Demographic	US Mothers	US Daughters	Mexico Mothers	Mexico Daughters
Number in sample	10	22	14	111
Age range	43-59	21-38	39-76	18-47
Age mean (sd)	52.3 (4.69)	25.33 (7.69)	53.15 (11.36)	22.61 (7.06)
Marital status (# married)	80%	30%	51%	77%
Employment (full and parttime)	90%	50%	23%	41%
Adequate income	80%	80%	76%	86%
Years of education mean (sd)	8.7 (6.8)	11.3 (6.2)	7.09 (5.97)	14.01 (2.66)

Table 3. Relationship of Variables in Total Sample of Hispanic Women (Spearman rank)

		Unhealthy Nutrition	General Health	Eating Confidence	Future Time Persp	Soc Supp Family	Soc Supp Friends	Weight History
Healthy Nutrition	r^s p df	NS*	NS	NS	NS	187 .022 150	NS	NS
Unhealthy Nutrition	r^s p df	_	NS	-0191 .027 134	NS	NS	NS	NS
General Health	r^s p df		_	.181 .035 135	.276 .001 147	.174 .033 150	NS	.274 .001 151
Eating Confidence	r^s p df			_	.273 .002 129	NS	NS	NS
Future Time Persp	r^s p df				_	NS	NS	NS
Soc Supp Family	r^s p df					_	.490 .000 139	-.185 025 146
Soc Supp Friends	r^s p df						_	NS
Weight History	r^s p df							_

*NS=non-significant

Table 4. Weekly Food Group Consumption by Sample Groups



Food Pyramid from the U.S. Food and Drug Administration (www.mypyramid.gov)

Recommended daily amounts	Recommended weekly amounts	Group weekly median				Kruskal Wallis
		US moms	US daughters	MX moms	MX daughters	
Milk, yogurt & cheese 2-3 servings/day	Milk, yogurt & cheese 14-21 servings/week	4	7	5.5	7	X^2=8.38, df=3, p=.04
Vegetables & salads 3-5 servings/day	Vegetables & salads 21-35 servings/week	9	6	4.5	5	X^2=5.39, df=3, p=NS
Meat, poultry, fish, beans, eggs & nuts 2-3 servings/day	Meat, poultry, fish, beans, eggs & nuts 14-21 servings/week	12	10	10	10	X^2=2.10, df=3, p=NS
Fruit 2-4 servings/day	Fruit 14-28 servings/week	6	3.5	2.5	3	X^2=5.42, df=3, p=NS
Bread, cereal, rice & pasta 6-11 servings/day	Bread, cereal, rice & pasta 42-77 servings/week	9	5.5	5.5	8	X^2=13.51, df=3, p=.004
Fats Sparingly	Fats servings/week	6	4.5	7.5	8	X^2=16.50, df=3, p=.001
Sweets	Sweets servings/week	5	5	2	7	X^2=20.28, df=3, p=.000

Appendix A: Detailed Research Procedure Protocol

The student cohort was recruited through one of their courses at the participating universities. Students were provided with an email flyer containing the URL survey information site. The site provided study information and for a link to the online survey. Students were asked to do two things:

1. Complete the online survey.
2. Inform their mothers and encourage them to complete the survey process by providing them with the web address for the study information.

If their mother was unable to complete via internet, students were asked to provide the name and contact information (either a street address for a mail-in survey or a telephone number for a telephone interview for collection of survey responses) for her mother so that the researcher could contact the mother.

This study used a self-administered web-based survey for data collection for the younger-generation cohort. Although alternative data collection methods were offered, none of the subjects took advantage of the mail-in or telephone survey methods. All data were gathered through the online data collection method through *SurveyMonkey PRo*. Data were saved on the site when the respondent clicked the submit button and were saved in Excel and SPSS-compatible files for analysis

Appendix B: Research Instruments Daughter (English)

DEMOGRAPHIC INFORMATION (Survey for daughter)

1. Name: _____

2. Please enter your date of birth _____/_____/_____

   (format MM/DD/YYYY)

3. Has your mother agreed to partake in this study?

   _____Yes
   _____No

4. If your mother is partaking in this study, what is her name?
   _____

5. Please enter the following information for yourself

   Where do you live?
   Address _____
   City_____
   State_____
   Zip/Postal Code _____
   Country_____
   Phone Number _____

6. Are you

   _____Married
   _____Single, living alone
   _____Single, living with others

7. Is your annual income
   _____less than adequate to meet your needs
   _____adequate to meet your needs
   _____more than adequate to meet your needs

8. Education: What is the total number of years of formal education?
   _____

9. Employment status:

   _____Employed full time
   _____Employed part time
   _____Unemployed
   _____Retired

10. How much do you weigh? (enter in pounds) _____pounds

11. How tall are you? (enter in inches) _____inches

12. Please use a standard tape measure, place it around your waist against your bare skin at the level of your belly button (do not pull tight), just let it rest normally, and write down the measure to the nearest inch.
    _____inches

CURRENT HEALTH STATUS

1. Would you say your health in general is (circle one)

Excellent - 1 Very good - 2 Good - 3 Fair - 4 Poor- 5

EATING HABITS CONFIDENCE

Please only select one in reference to how sure you are that you can do these things.

1. Stick to your low fat, low salt foods when you feel depressed, bored or tense

2. Stick to your low fat, low salt foods when there is high fat, high salt food readily available at a party

3. Stick to your low fat, low salt foods when dining with friends or coworkers

4. Stick to your low fat, low salt foods when the only snack close by is available from a vending machine

5. Stick to your low fat, low salt foods when you are alone and there is no one to watch you

6. Eat smaller portions at dinner

7. Cook smaller portions so there are no leftovers

8. Eat lunch as your main meal of the day, rather than dinner

9. Eat smaller portions of food at a party

10. Eat salads for lunch

11. Add less salt than the recipe calls for

12. Eat unsalted peanuts, chips, crackers, and pretzels

13. Avoid adding salt at the table

14. Eat unsalted, unbuttered popcorn

15. Keep the salt shaker off the kitchen table

16. Eat meatless (vegetarian) entrees for dinner

17. Substitute low or non-fat milk for whole milk for dinner

18. Cut down on gravies and cream sauce

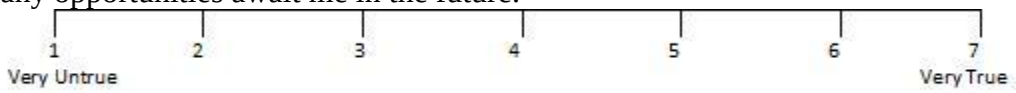
19. Eat poultry and fish instead of red meat at dinner

20. Avoid ordering red meat (beef, pork, ham, lamb) at restaurants

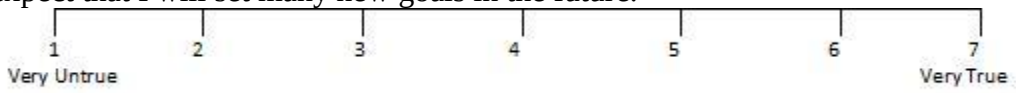
ACTIVITY RELATED AFFECT – TIME PERSPECTIVE

Please select one answer on the following scale in order to indicate agreement with the items

1. Many opportunities await me in the future.

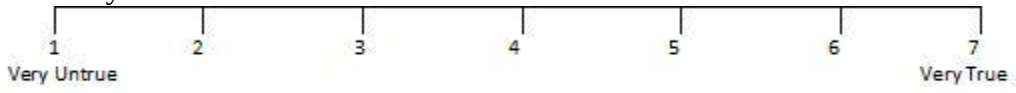


2. I expect that I will set many new goals in the future.

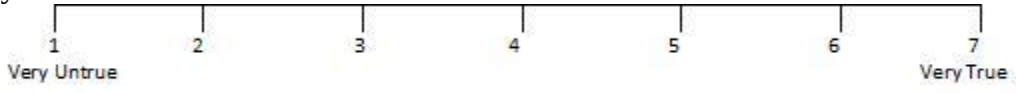


3. My future is filled with possibilities.

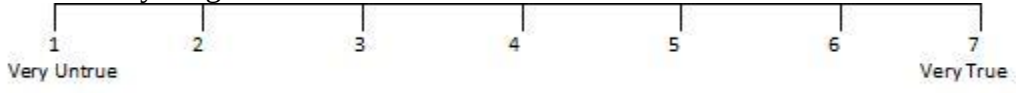
4. Most of my life lies ahead of me.



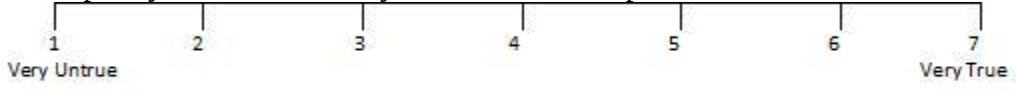
5. My future seems infinite to me.



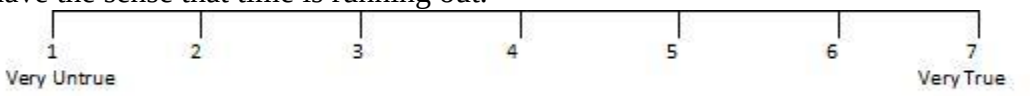
6. I could do anything I want in the future.



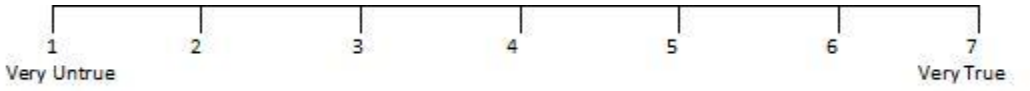
7. There is plenty of time left in my life to make new plans.



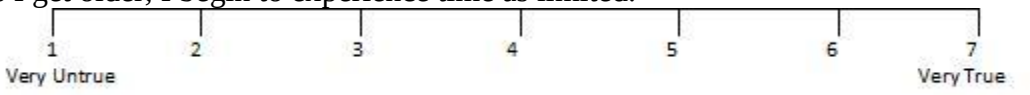
8. I have the sense that time is running out.



9. There are only limited possibilities in my future



10. As I get older, I begin to experience time as limited.



SOCIAL SUPPORT

Ques	During the past three months, my family (or members of my household) or friends:	FAMILY	FRIENDS
1	Encouraged me not to eat "unhealthy foods" (cake, salted chips) when I'm tempted to do so	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
2	Discussed my eating habits, changes with me (asked me how I'm doing with my eating changes).	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
3	Reminded me not to eat high fat, high salt foods.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
4	Complimented me on changing my eating habits ("Keep it up", "We are proud of you").	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
5	Commented if I went back to my old eating habits.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
6	Ate high-fat or high-salt foods in front of me.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
7	Refused to eat the same foods I eat.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
8	Brought home foods I am trying not to eat.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
9	Got angry when I encouraged them to eat low salt, low fat foods	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
10	Offered me food I'm trying not to eat.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply

WEIGHT HISTORY

1. Do you consider yourself to be
   _____Fat or overweight
   _____Too thin
   _____About right weight

2. Which of the following are you trying to do about your weight
   _____Lose weight
   _____Gain weight
   _____Stay the same weight
   _____Not doing anything about my weight

3. In the past year, how often have you tried to lose weight?
   _____Never
   _____Sometimes
   _____Alot

4. In the past year, how often have you been on a diet to lose weight?
   _____Never
   _____Sometimes
   _____Alot

5. In the past year, how often have you gone without eating for a day or more (starved) to lose weight?
   _____Never
   _____Sometimes
   _____Alot

6. In the past year, how often have you cut back on what you eat to lose weight?
   _____Never
   _____Sometimes
   _____Alot

7. In the past year, how often have you skipped meals to lose weight?
   _____Never
   _____Sometimes
   _____Alot

8. In the past year, how often have you eaten less sweets or fatty foods to lose weight?
   _____Never
   _____Sometimes
   _____Alot

9. In the past year, how often have you exercised to lose weight?
   _____Never
   _____Sometimes
   _____Alot

NUTRITIONAL HISTORY
Think about the last two months when answering these questions
(Do not enter any text other than whole numbers)

1. How many times per week did you eat hot or cold cereals?
   _____
2. How many times per week did you drink at least a cup of milk?
   _____
3. Do you usually buy ❑ whole milk or ❑ skim milk (Check one)
4. How many times per week did you drink regular soda or pops that contain sugar?
   _____
5. How many times per week did you drink 100% pure fruit juice, not fruit flavored?
   _____
6. How many times per week did you eat fruit, including fresh, canned or frozen?
   _____
7. How many times per week did you eat green leafy or lettuce salad?
   _____
8. How many times per week did you eat any kind of fried potatoes including French fries and hash browns?
   _____
9. How many times per week did you eat any other kind of potatoes, such as baked, mashed, sweet potatoes, potato salad?
   _____
10. How many times per week did you eat beans, such as refried beans, baked, beans in soup? (not green beans)
    _____
11. How many times per week did you eat rice?
    _____
12. How many times per week did you eat vegetables besides salads?
    _____
13. How many times per week did you eat any kind of cheese?
    _____
14. How many times per week did you eat red meat such as beef, port, ham or sausage?
    _____
15. How many times per week did you eat poultry such as chicken or turkey?
    _____

16. How many times per week did you eat bread or bread products, such as tortillas, toast, rolls, and in sandwiches?

    _____

17. How many times per week did you eat chocolate or other types of candy?

    _____

18. How many times per week did you eat cookies, cake, pie, or brownies?

    _____

19. How many times per week did you eat frozen desserts such as ice cream?

    _____

20. How many times per week did you add lard, grease, or oil to food when cooking or eating it? (not including sprays like PAM)

    _____

Appendix C: Research Instrument Mother (English)

DEMOGRAPHIC INFORMATION (Survey for mother)

1. Name: _____

2. Please enter your date of birth _____/_____/_____
   (format MM/DD/YYYY)
3. Daughter's name"

   _____

4. Please enter your daughter's date of birth _____/_____/_____
   (format MM/DD/YYYY)

5. Please enter the following information for yourself

   Where do you live?
   Address _____
   City_____
   State_____
   Zip/Postal Code _____
   Country_____
   Phone Number _____

6. Are you

   _____Married
   _____Single, living alone
   _____Single, living with others

7. Is your annual income
   _____less than adequate to meet your needs
   _____adequate to meet your needs
   _____more than adequate to meet your needs

8. Education: What is the total number of years of formal education?
   _____

9. Employment status:

   _____Employed full time
   _____Employed part time
   _____Unemployed
   _____Retired

10. How much do you weigh? (enter in pounds) _____pounds

11. How tall are you? (enter in inches) _____inches

12. Please use a standard tape measure, place it around your waist against your bare skin at the level of your belly button (do not pull tight), just let it rest normally, and write down the measure to the nearest inch.
    _____inches

CURRENT HEALTH STATUS

1. Would you say your health in general is (circle one)

Excellent - 1 Very good - 2 Good - 3 Fair - 4 Poor- 5

EATING HABITS CONFIDENCE

Please only select one in reference to how sure you are that you can do these things

1. Stick to your low fat, low salt foods when you feel depressed, bored or tense

2. Stick to your low fat, low salt foods when there is high fat, high salt food readily available at a party

3. Stick to your low fat, low salt foods when dining with friends or coworkers

4. Stick to your low fat, low salt foods when the only snack close by is available from a vending machine

5. Stick to your low fat, low salt foods when you are alone and there is no one to watch you

6. Eat smaller portions at dinner

7. Cook smaller portions so there are no leftovers

8. Eat lunch as your main meal of the day, rather than dinner

9. Eat smaller portions of food at a party

10. Eat salads for lunch

11. Add less salt than the recipe calls for

12. Eat unsalted peanuts, chips, crackers, and pretzels

13. Avoid adding salt at the table

14. Eat unsalted, unbuttered popcorn

15. Keep the salt shaker off the kitchen table

16. Eat meatless (vegetarian) entrees for dinner

17. Substitute low or non-fat milk for whole milk for dinner

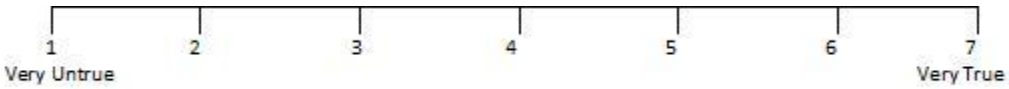
18. Cut down on gravies and cream sauce

19. Eat poultry and fish instead of red meat at dinner

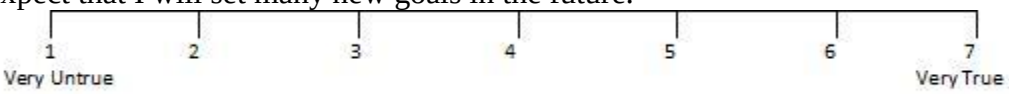
20. Avoid ordering red meat (beef, pork, ham, lamb) at restaurants

ACTIVITY RELATED AFFECT – TIME PERSPECTIVE
Please select one answer on the following scale in order to indicate agreement with the items

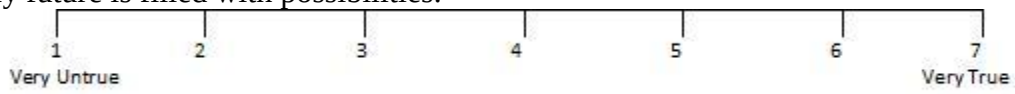
11. Many opportunities await me in the future.



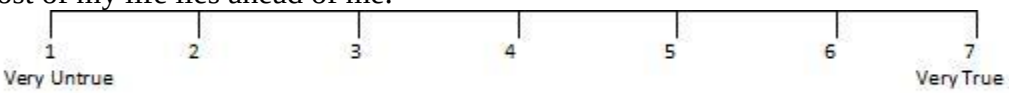
12. I expect that I will set many new goals in the future.



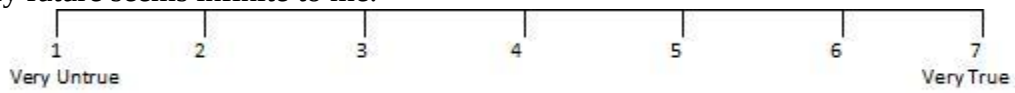
13. My future is filled with possibilities.



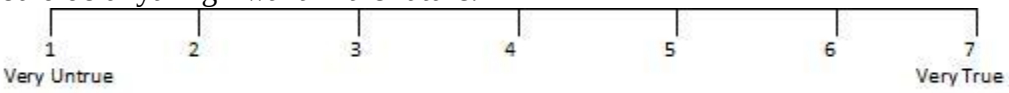
14. Most of my life lies ahead of me.



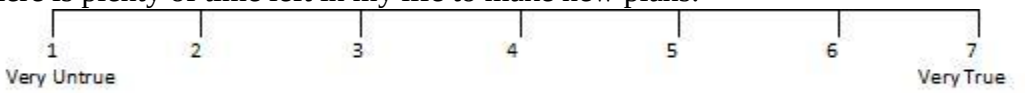
15. My future seems infinite to me.



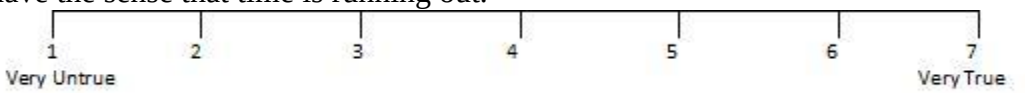
16. I could do anything I want in the future.



17. There is plenty of time left in my life to make new plans.

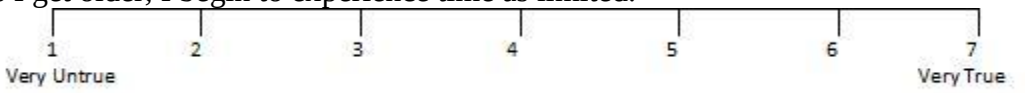


18. I have the sense that time is running out.



19. There are only limited possibilities in my future

20. As I get older, I begin to experience time as limited.



SOCIAL SUPPORT

Ques	During the past three months, my family (or members of my household) or friends:	FAMILY	FRIENDS
1	Encouraged me not to eat "unhealthy foods" (cake, salted chips) when I'm tempted to do so	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
2	Discussed my eating habits, changes with me (asked me how I'm doing with my eating changes).	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
3	Reminded me not to eat high fat, high salt foods.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
4	Complimented me on changing my eating habits ("Keep it up"; "We are proud of you").	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
5	Commented if I went back to my old eating habits.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
6	Ate high-fat or high-salt foods in front of me.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
7	Refused to eat the same foods I eat.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
8	Brought home foods I am trying not to eat.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
9	Got angry when I encouraged them to eat low salt, low fat foods	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply
10	Offered me food I'm trying not to eat.	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply	1 None, 2 Rarely, 3 A few times, 4 Often, 5 Very Often, 6 Does not apply

WEIGHT HISTORY

1. Do you consider yourself to be
   _____Fat or overweight
   _____Too thin
   _____About right weight

2. Which of the following are you trying to do about your weight
   _____Lose weight
   _____Gain weight
   _____Stay the same weight
   _____Not doing anything about my weight

3. In the past year, how often have you tried to lose weight?
   _____Never
   _____Sometimes
   _____Alot

4. In the past year, how often have you been on a diet to lose weight?
   _____Never
   _____Sometimes
   _____Alot

5. In the past year, how often have you gone without eating for a day or more (starved) to lose weight?
   _____Never
   _____Sometimes
   _____Alot

6. In the past year, how often have you cut back on what you eat to lose weight?
   _____Never
   _____Sometimes
   _____Alot

7. In the past year, how often have you skipped meals to lose weight?
   _____Never
   _____Sometimes
   _____Alot

8. In the past year, how often have you eaten less sweets or fatty foods to lose weight?
   _____Never
   _____Sometimes
   _____Alot

9. In the past year, how often have you exercised to lose weight?
   _____Never
   _____Sometimes
   _____Alot

NUTRITIONAL HISTORY
Think about the last two months when answering these questions
(Do not enter any text other than whole numbers)

1. How many times per week did you eat hot or cold cereals?
   _____
2. How many times per week did you drink at least a cup of milk?
   _____
3. Do you usually buy ❑ whole milk or ❑ skim milk (Check one)
4. How many times per week did you drink regular soda or pops that contain sugar?
   _____
5. How many times per week did you drink 100% pure fruit juice, not fruit flavored?
   _____
6. How many times per week did you eat fruit, including fresh, canned or frozen?
   _____
7. How many times per week did you eat green leafy or lettuce salad?
   _____
8. How many times per week did you eat any kind of fried potatoes including French fries and hash browns?
   _____
9. How many times per week did you eat any other kind of potatoes, such as baked, mashed, sweet potatoes, potato salad?
   _____
10. How many times per week did you eat beans, such as refried beans, baked, beans in soup? (not green beans)
    _____
11. How many times per week did you eat rice?
    _____
12. How many times per week did you eat vegetables besides salads?
    _____
13. How many times per week did you eat any kind of cheese?
    _____
14. How many times per week did you eat red meat such as beef, port, ham or sausage?
    _____
15. How many times per week did you eat poultry such as chicken or turkey?
    _____

16. How many times per week did you eat bread or bread products, such as tortillas, toast, rolls, and in sandwiches?
    _____
17. How many times per week did you eat chocolate or other types of candy?
    _____
18. How many times per week did you eat cookies, cake, pie, or brownies?
    _____
19. How many times per week did you eat frozen desserts such as ice cream?
    _____
20. How many times per week did you add lard, grease, or oil to food when cooking or eating it? (not including sprays like PAM)_____

Appendix D: Research Instrument Daughter (Spanish)

INFORMACIÓN DEMOGRÁFICA (Para la hija)

1. Nombre: _____

2. Por favor escriba su fecha del nacimiento ____/____/____ (forma MM/DD/YYYY)

3. ¿Esta de acuerdo su madre en tomar parte en este studio?

   _____Si
   _____No

4. ¿Si su madre toma parte en este studio, cual es su nombre?
   _____

5. Entre por favor la siguiente información de usted

   ¿Donde vives?
   Dirección_____
   Ciudad_____
   Estado_____
   Código postal_____
   Pais_____
   Numero de telefono _____

6. Eres

   _____Casada
   _____Soltera, viviendo sola
   _____Soltera, viviendo con otros

7. Sus ingresos anuales son
   _____Menos que adecuado para satisfacer sus necesidades
   _____Adecuados para satisfacer sus necesidades
   _____Más que adecuado para satisfacer sus necesidades

8. Educación: ¿Que es el numero total de años de educación formal?
   _____

9. Estado de empleó:

   _____Empleó tiempo completo
   _____Empleó tiempo parcial
   _____Sin Empleoó
   _____Jubilado

10. ¿Cuanto pesa Ud.? (en libras) _____libras

11. ¿Cuanto mide Ud.? (en pulgadas) _____pulgadas

12. Por favor utilice una medida estándar de cinta, colóquelo alrededor de su cintura contra la piel descubierta al nivel del ombligo (no tire la cinta) permita solo que descanse normalments, y anote la medida a la más cercana pulgada.
    _____pulgadas

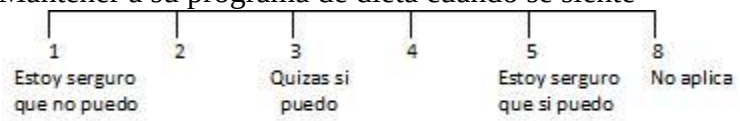
ESTADO ACTUAL de SALUD

1. Diría Ud.
   Excelente - 1 Muy buena – 2 Buena- 3 Justa - 4 Pobre- 5

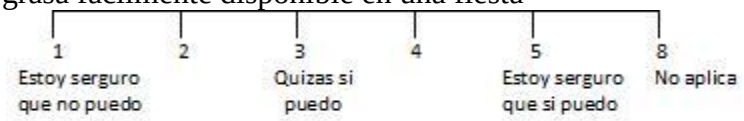
NIVEL DE CONFIANZA EN COSTUMBRES DE COMER

¿QUE TAN SEGURA ESTA DE POSER HACER ESTAS COSAS?

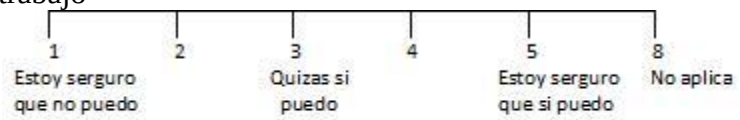
1. Mantener a su programa de dieta cuando se siente



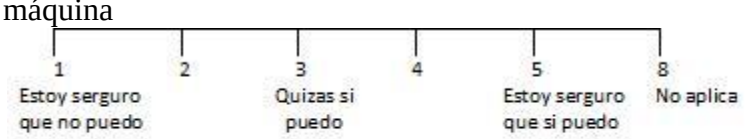
2. Mantener a su programa de dieta baja de sal o graso cuando hay comida en sal u grasa fácilmente disponible en una fiesta



3. Mantener a su programa de dieta cuando cena con amigos o con compañeros de trabajo



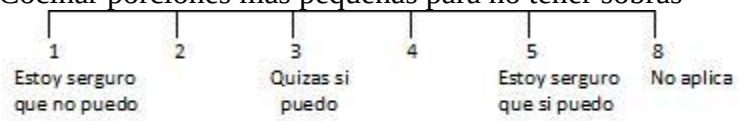
4. Mantener a su programa de dieta cuando los unicos antojitos cerca son de una máquina



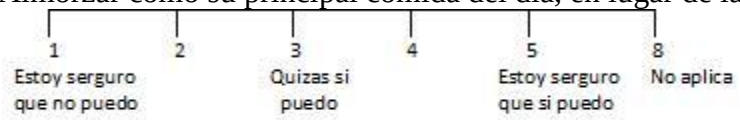
5. Mantener a su programa de dieta cuando esta sola y no hay nadie que la vea

6. Comer porciones más pequeñas en la cena

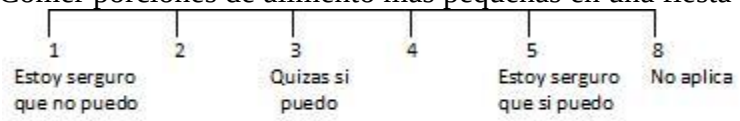
7. Cocinar porciones más pequeñas para no tener sobras



8. Almorzar como su principal comida del día, en lugar de la cena

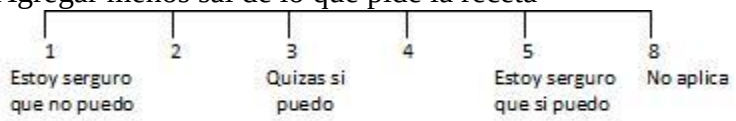


9. Comer porciones de alimento más pequeñas en una fiesta

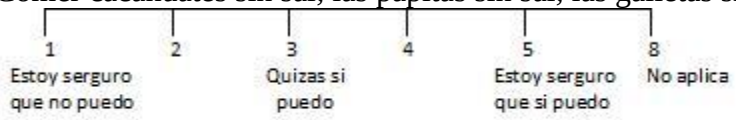


10. Comer ensaladas para el almuerzo

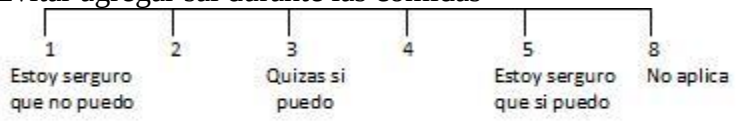
11. Agregar menos sal de lo que pide la receta



12. Comer cacahuates sin sal, las papitas sin sal, las galletas sin sal y pretzels sin sal

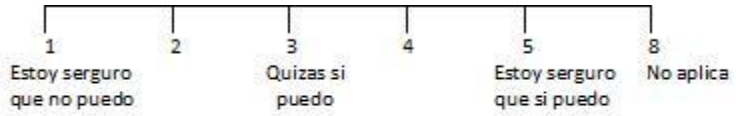


13. Evitar agregar sal durante las comidas

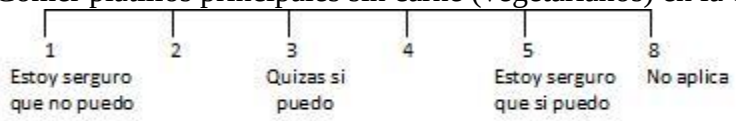


14. Comer palomitas de maiz sin sal, y sin mantequila

15. Mantener el salero fuera de la mesa de cocina



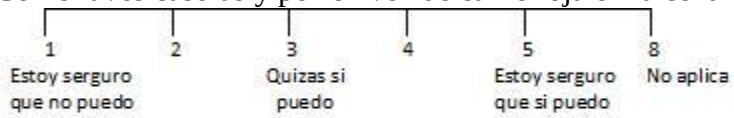
16. Comer platillos principales sin carne (vegetarianos) en la cena



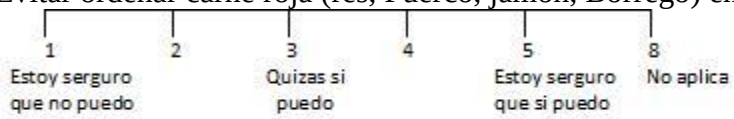
17. Sustituir leche sin grasa por la leche entera en la cena

18. Reducir salsas de carne y salsa de crema

19. Comer aves caseras y pez en vez de carne roja en la cena



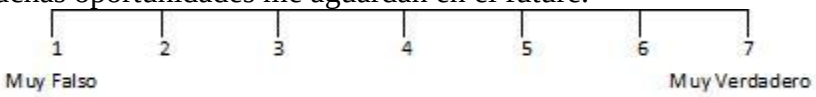
20. Evitar ordenar carne roja (res, Puerco, jamon, Borrego) en los restaurantes



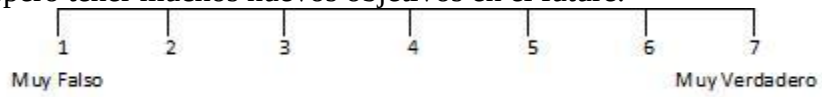
EL AFECTO EN RELACION A LA ACTIVIDAD-PERSPECTIVA DE TIEMPO

Por favor seccione una repuesta en la escala siguiente para indicar su acuerdo con los articulos

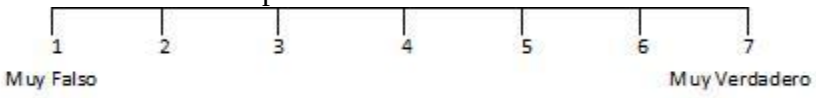
1. Muchas oportunidades me aguardan en el future.



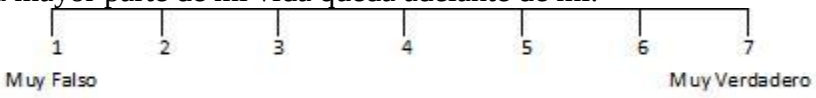
2. Espero tener muchos nuevos objetivos en el future.



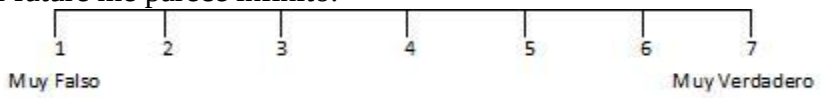
3. Mi future esta lleno de posibilidades.



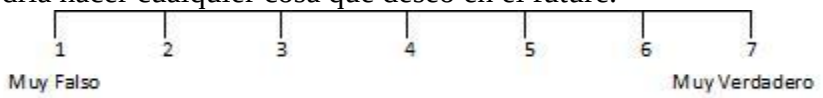
4. La mayor parte de mi vida queda adelante de mí.



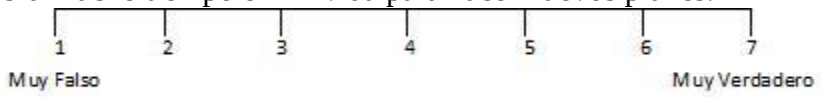
5. Mi future me parece infinito.



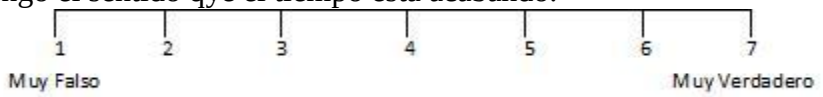
6. Podria hacer cualquier cosa que deseo en el future.



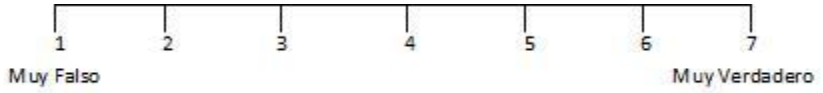
7. Sobra mucho tiempo en mi vida para hacer nuevos planes.



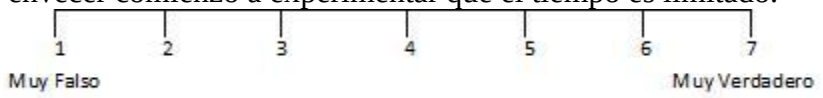
8. Tengo el sentido qye el tiempo esta acabando.



9. Solo hay posibilidades limitadas en mi future.



10. Al envecer comienzo a experimentar que el tiempo es limitado.



APOYO SOCIAL

Ques	Durante los ultimos tres meses, mi familia (o los miembros de mi casa) o los amistades	FAMILIA	AMISTADES
1	Me animaron a no comer "comidas no saludables" (golosinas, pasteles, chicharrones) cuando se me antojan	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica
2	Platicaron conmigo sobre mis cambios de constumbres de comer (me preguntaron como me iba con mis cambios de costumbres alimenticios)	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica
3	Me recordaron no comer comida altas en sal or altas en grasa	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica
4	Me premiaron por mantener mis constumbres sanas de comer ("siguelo", "estamos orgullosos de ti")	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica
5	Comentaron si regresaba a mis viejas constumbres de comer	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica
6	Comieron comidas alto en grasa o sal delante de mi	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica
7	Se negaron a comer lo mismo que yo	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica
8	Trajeron a casa comidas que estoy tratando de no comer	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica
9	Se enojaron cuando los anime a comer comidas baja en sal o graso	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica
10	Me ofrecieron comidas que estoy tratandode comer	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica	1 Nunca 2 Raramente 3 Pocas Veces 4 Seguido 5 Muy Seguido 6 No aplica

HISTORIA DE PESO

1. Se conidera que usted sea
   _____Con exceso de peso
   _____Muy delgada
   _____Cerca del peso adecuado

2. Cuál de los siguiente esta tratando de hacer de su peso
   _____Adelgace
   _____Engórdar
   _____Estancia el mismo peso
   _____No hacer nada acerca de mi peso

3. ¿En el año pasado, con qué frecuencia ha tratado de adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

4. ¿En el año pasado, con qué frecuencia se puso a dieta para adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

5. ¿En el año pasado, con qué frecuencia ha ido sin comer por un día o más (privarse de alimentos) para bajar de peso.
   _____Nunca
   _____A veces
   _____Muchas

6. ¿En el año pasado, con qué frecuencia ha reducida lo que usted come para adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

7. ¿En el año pasado, con qué frecuencia ha omitido comidas para adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

8. ¿En el año pasado, con qué frecuencia ha comido menos dulces o alimentos adiposos para adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

9. ¿En el año pasado, con qué frecuencia ha hecho ejercicio para adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

HISTORIA NUTRICIONAL
Piense en los últimos dos meses al contester estas preguntas (no entre ningún texto mas que numerous enteros)

1. ¿Cuántas veces a la semana comío usted cereal caliente o frio?
   _____
2. ¿Cuántas veces a la semana bebió usted por lo menos una taza de leche?
   _____
3. Compra generalmente ❑ leche entero ❑ leche sin grasa
4. ¿Cuántas veces a la semana bebió usted sodas regulars que contienen azúcar?
   _____
5. ¿Cuántas veces a la semana bebió usted 100% puro jugo de frutas, no bebidas de sabor de fruta?
   _____
6. ¿Cuántas veces a la semana comió usted fruta, inclusive fresco, enlatado o congelado?
   _____
7. ¿Cuántas veces a la semana comió usted ensalada verde frondoso o ensalada de lechuga?
   _____
8. ¿Cuántas veces a la semana comió usted cualquier clase de papas fritas inclusive papas a la fracesa y papas doradas?
   _____
9. ¿Cuántas veces a la semana comió usted cualquier otra clase de papas, como horneada, pure de papas, los camotes, la ensalada de papas?
   _____
10. ¿Cuántas veces por semana comió usted frijoles, como frijoles refritos, horneadas, los frijoles en la sopa) (no ejotes)
    _____
11. ¿Cuántas veces a la semana comió usted arroz?
    _____

12. ¿Cuántas veces a la semana comió usted verduras además de ensaladas?
    _____

13. ¿Cuántas veces a la semana comió usted cualquier clase de queso?
    _____

14. ¿Cuántas veces a la semana comió usted carne roja carne de res, puerco, jamon o salchicha?
    _____

15. ¿Cuántas veces a la semana comió usted aves como pollo o pavo?
    _____

16. ¿Cuántas veces a la semana comió usted pan, como tortillas, tostadas, los rollos, y en bocadillos?
    _____

17. ¿Cuántas veces a la semana comió usted chocolate o otros tipos de dulces?
    _____

18. ¿Cuántas veces a la semana comió usted galletas, el pastel, el pay, o los bizcochos de chocolate con nueces?
    _____

19. ¿Cuántas veces a la semana comió usted postres congelados como nieve?
    _____

20. ¿Cuántas veces a la semana agrega manteca, la grasa, o aceite a su alimento a cocinar o comerlo (no incluyendo aceite como PAM)
    _____

Appendix E: Research Instrument Mother (Spanish)

INFORMACIÓN DEMOGRÁFICA (Para la madre)

1. Nombre: _____
2. Por favor escriba su fecha del nacimiento ____/____/____

   (forma MM/DD/YYYY)
3. Nombre de su hija
   _____
4. Por favor enscriba la fecha de nacimiento de su hija____/____/____
   (forma MM/DD/YYYY)
5. Entre por favor la siguiente información de usted

   ¿Donde vives?
   Dirección_____
   Ciudad_____
   Estado_____
   Código postal_____
   Pais_____
   Numero de telefono _____
6. Eres

   _____Casada
   _____Soltera, viviendo sola
   _____Soltera, viviendo con otros
7. Sus ingresos anuales son
   _____Menos que adecuado para satisfacer sus necesidades
   _____Adecuados para satisfacer sus necesidades
   _____Más que adecuado para satisfacer sus necesidades
8. Educación: ¿Que es el numero total de años de educación formal?
   _____
9. Estado de empleó:

   _____Empleó tiempo completo
   _____Empleó tiempo parcial
   _____Sin Empleoó
   _____Jubilado
10. ¿Cuanto pesa Ud.? (en libras) _____libras

11. ¿Cuanto mide Ud.? (en pulgadas) _____pulgadas

12. Por favor utilice una medida estándar de cinta, colóquelo alrededor de su cintura contra la piel descubierta al nivel del ombligo (no tire la cinta) permita solo que descanse normalments, y anote la medida a la más cercana pulgada. _____pulgadas

ESTADO ACTUAL de SALUD

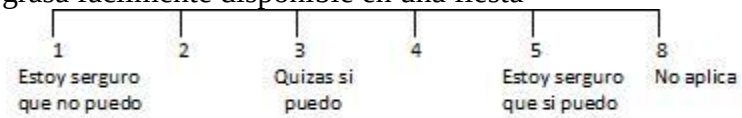
1. Diría Ud.
   Excelente - 1 Muy buena – 2 Buena- 3 Justa - 4 Pobre- 5

NIVEL DE CONFIANZA EN COSTUMBRES DE COMER

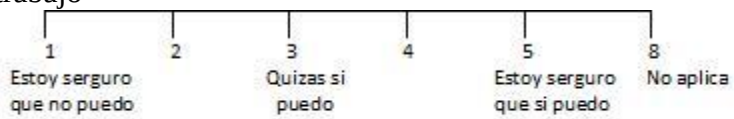
¿QUE TAN SEGURA ESTA DE POSER HACER ESTAS COSAS?

1. Mantener a su programa de dieta cuando se siente

2. Mantener a su programa de dieta baja de sal o graso cuando hay comida en sal u grasa fácilmente disponible en una fiesta



3. Mantener a su programa de dieta cuando cena con amigos o con compañeros de trabajo



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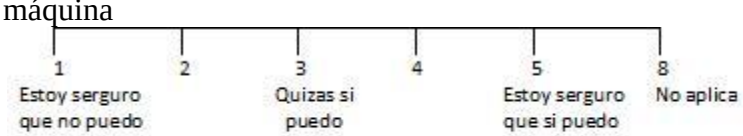

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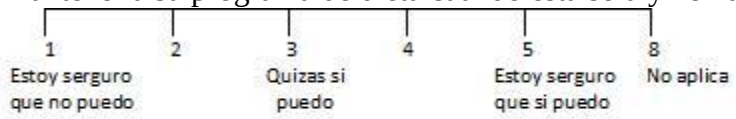
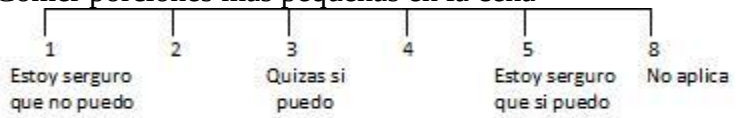
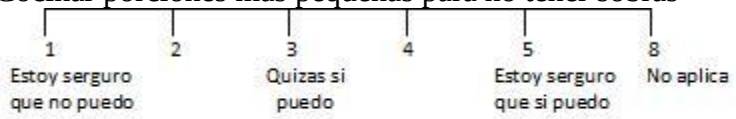


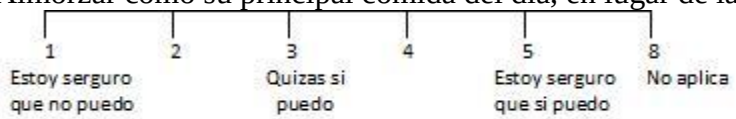
6. Comer porciones más pequeñas en la cena



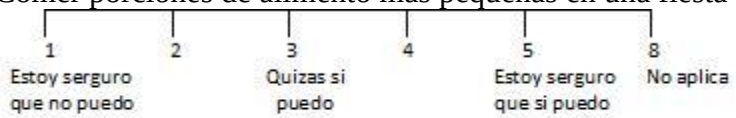
7. Cocinar porciones más pequeñas para no tener sobras



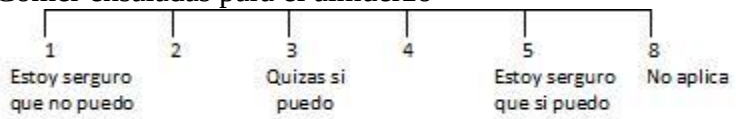
8. Almorzar como su principal comida del día, en lugar de la cena



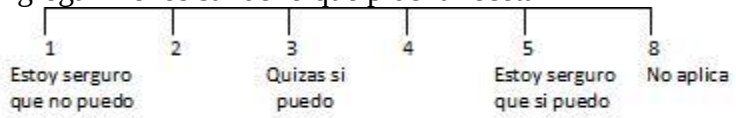
9. Comer porciones de alimento más pequeñas en una fiesta



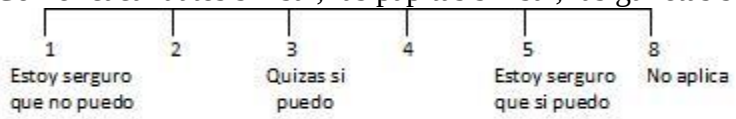
10. Comer ensaladas para el almuerzo



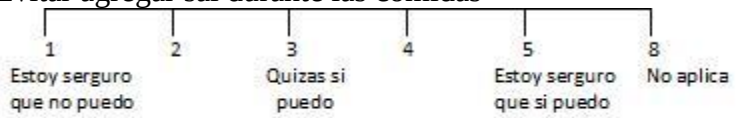
11. Agregar menos sal de lo que pide la receta



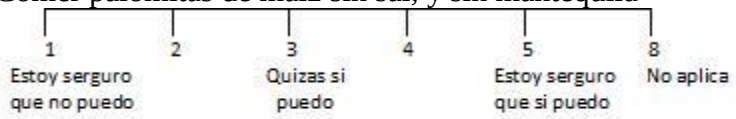
12. Comer cacahuates sin sal, las papitas sin sal, las galletas sin sal y pretzels sin sal



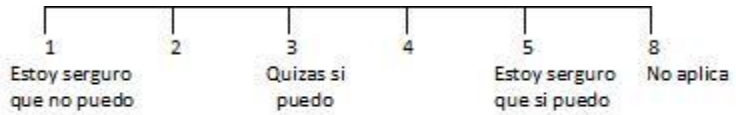
13. Evitar agregar sal durante las comidas



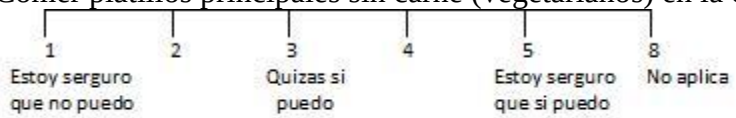
14. Comer palomitas de maiz sin sal, y sin mantequila



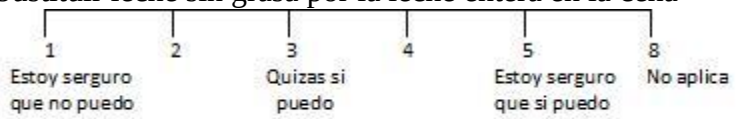
15. Mantener el salero fuera de la mesa de cocina



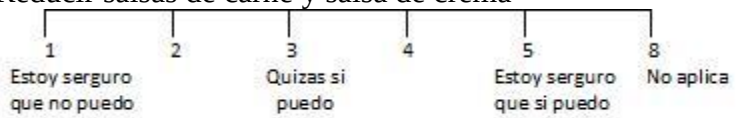
16. Comer platillos principales sin carne (vegetarianos) en la cena



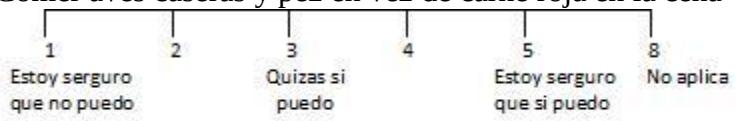
17. Sustituir leche sin grasa por la leche entera en la cena



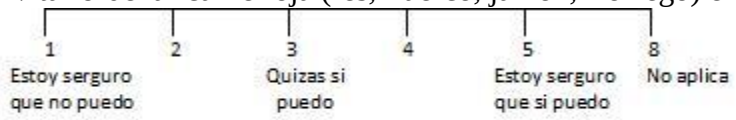
18. Reducir salsas de carne y salsa de crema



19. Comer aves caseras y pez en vez de carne roja en la cena

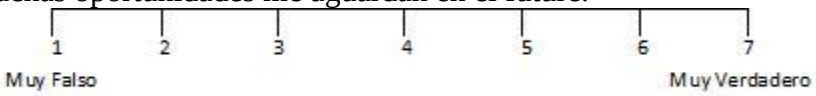


20. Evitar ordenar carne roja (res, Puerco, jamon, Borrego) en los restaurantes

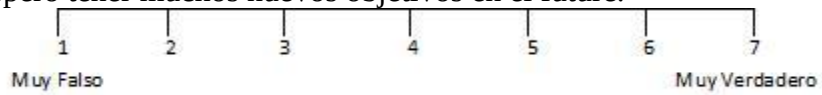


EL AFECTO EN RELACION A LA ACTIVIDAD-PERSPECTIVA DE TIEMPO
Por favor seccione una repuesta en la escala siguiente para indicar su acuerdo con los articulos

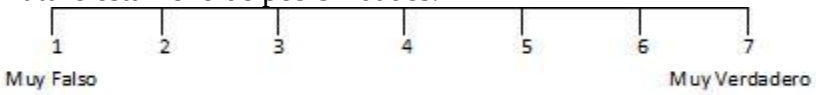
1. Muchas oportunidades me aguardan en el future.



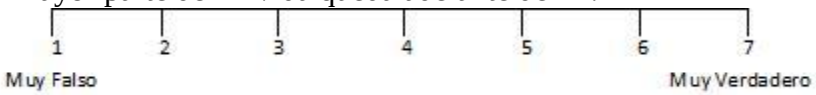
2. Espero tener muchos nuevos objetivos en el future.



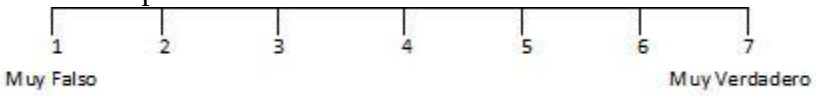
3. Mi future esta lleno de posibilidades.



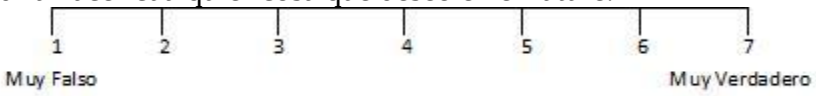
4. La mayor parte de mi vida queda adelante de mí.



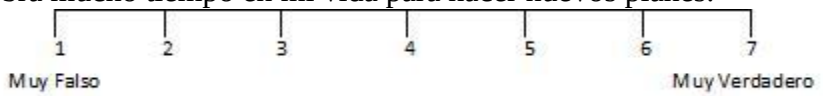
5. Mi future me parece infinito.



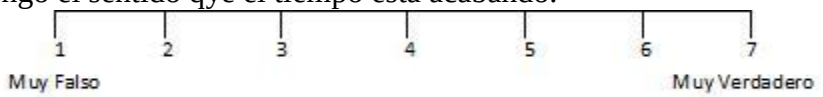
6. Podria hacer cualquier cosa que deseo en el future.



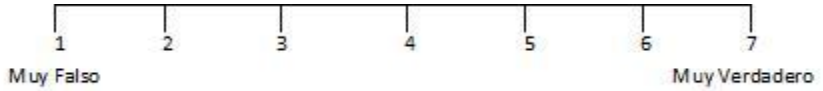
7. Sobra mucho tiempo en mi vida para hacer nuevos planes.



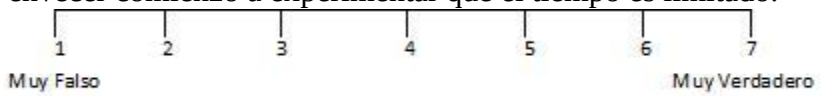
8. Tengo el sentido qye el tiempo esta acabando.



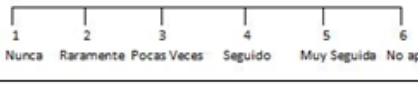
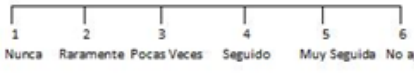
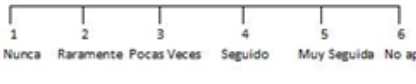
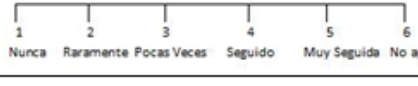
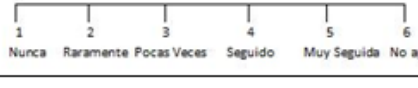
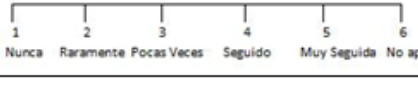
9. Solo hay posibilidades limitadas en mi future.



10. Al envecer comienzo a experimentar que el tiempo es limitado.



APOYO SOCIAL

Ques	Durante los ultimos tres meses, mi familia (o los miembros de mi casa) o los amistades	FAMILIA	AMISTADES
1	Me animaron a no comer "comidas no saludables" (golosinas, pastels, chicharrones) cuando se me antojan		
2	Platicaron conmigo sobre mis cambios de constumbres de comer (me preguntaron como me iba con mis cambios de costumbres alimenticios)		
3	Me recordaron no comer comida altas en sal or altas en grasa		
4	Me premiaron por mantener mis constumbres sanas de comer ("siguelo", "estamos orgullosos de ti")		
5	Comentaron si regresaba a mis viejas constumbres de comer		
6	Comieron comidas alto en grasa o sal delante de mí		
7	Se negaron a comer lo mismo que yo		
8	Trajeron a casa comidas que estoy tratando de no comer		
9	Se enojaron cuando los anime a comer comidas baja en sal o graso		
10	Me ofrecieron comidas que estoy tratandode comer		

HISTORIA DE PESO

1. Se conidera que usted sea
   _____Con exceso de peso
   _____Muy delgada
   _____Cerca del peso adecuado

2. Cuál de los siguiente esta tratando de hacer de su peso
   _____Adelgace
   _____Engórdar
   _____Estancia el mismo peso
   _____No hacer nada acerca de mi peso

3. ¿En el año pasado, con qué frecuencia ha tratado de adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

4. ¿En el año pasado, con qué frecuencia se puso a dieta para adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

5. ¿En el año pasado, con qué frecuencia ha ido sin comer por un día o más (privarse de alimentos) para bajar de peso.
   _____Nunca
   _____A veces
   _____Muchas

6. ¿En el año pasado, con qué frecuencia ha reducida lo que usted come para adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

7. ¿En el año pasado, con qué frecuencia ha omitido comidas para adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

8. ¿En el año pasado, con qué frecuencia ha comido menos dulces o alimentos adiposos para adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

9. ¿En el año pasado, con qué frecuencia ha hecho ejercicio para adelgazar?
   _____Nunca
   _____A veces
   _____Muchas

HISTORIA NUTRICIONAL
Piense en los últimos dos meses al contester estas preguntas (no entre ningún texto mas que numerous enteros)

1. ¿Cuántas veces a la semana comío usted cereal caliente o frio?
   _____
2. ¿Cuántas veces a la semana bebió usted por lo menos una taza de leche?
   _____
3. Compra generalmente ❑ leche entero ❑ leche sin grasa
4. ¿Cuántas veces a la semana bebió usted sodas regulars que contienen azúcar?
   _____
5. ¿Cuántas veces a la semana bebió usted 100% puro jugo de frutas, no bebidas de sabor de fruta?
   _____
6. ¿Cuántas veces a la semana comió usted fruta, inclusive fresco, enlatado o congelado?
   _____
7. ¿Cuántas veces a la semana comió usted ensalada verde frondoso o ensalada de lechuga?
   _____
8. ¿Cuántas veces a la semana comió usted cualquier clase de papas fritas inclusive papas a la fracesa y papas doradas?
   _____
9. ¿Cuántas veces a la semana comió usted cualquier otra clase de papas, como horneada, pure de papas, los camotes, la ensalada de papas?
   _____
10. ¿Cuántas veces por semana comió usted frijoles, como frijoles refritos, horneadas, los frijoles en la sopa) (no ejotes)
    _____
11. ¿Cuántas veces a la semana comió usted arroz?
    _____
12. ¿Cuántas veces a la semana comió usted verduras además de ensaladas?
    _____

13. ¿Cuántas veces a la semana comió usted cualquier clase de queso?
    _____
14. ¿Cuántas veces a la semana comió usted carne roja carne de res, puerco, jamon o salchicha?
    _____
15. ¿Cuántas veces a la semana comió usted aves como pollo o pavo?
    _____
16. ¿Cuántas veces a la semana comió usted pan, como tortillas, tostadas, los rollos, y en bocadillos?
    _____
17. ¿Cuántas veces a la semana comió usted chocolate o otros tipos de dulces?
    _____
18. ¿Cuántas veces a la semana comió usted galletas, el pastel, el pay, o los bizcochos de chocolate con nueces?
    _____
19. ¿Cuántas veces a la semana comió usted postres congelados como nieve?
    _____
20. ¿Cuántas veces a la semana agrega manteca, la grasa, o aceite a su alimento a cocinar o comerlo (no incluyendo aceite como PAM)
    _____

Appendix F: Institutional Review Board / Institutional Approval

The University of Texas at Tyler
Institutional Review Board

December 7, 2010

Dear Ms. Ramirez,

Your request to conduct the study entitled *A Cross-national Analysis of the Nutrition Habits of Hispanic Mother/Daughter Dyads* is approved as an expedited study, IRB #F2010-29 by The University of Texas at Tyler Institutional Review Board. This approval includes waiver of written informed consent. Please ensure that any research assistants or co-investigators have completed human protection training, and have forwarded their certificates to the IRB office (G. Duke). **Please review the UT Tyler IRB Principal Investigator Responsibilities, and acknowledge your understanding of these responsibilities and the following through return of this email to the IRB Chair within one week after receipt of this approval letter**:

- This approval is for one year, as of the date of the approval letter
- Request for Continuing Review must be completed for projects extending past one year
- Prompt reporting to the UT Tyler IRB of any proposed changes to this research activity
- Prompt reporting to the UT Tyler IRB and academic department administration will be done of any unanticipated problems involving risks to subjects or others
- Suspension or termination of approval may be done if there is evidence of any serious or continuing noncompliance with Federal Regulations or any aberrations in original proposal.
- Any change in proposal procedures must be promptly reported to the IRB prior to implementing any changes except when necessary to eliminate apparent immediate hazards to the subject.

Best of luck in your research, and do not hesitate to contact me if you need any further assistance.

Sincerely,

Gloria Duke, PhD, RN
Chair, UT Tyler IRB

Appendix G: Institutional Review Board / Modification Approval

February 14, 2011

Dear Ms. Ramirez:

Your request to modify the approved research project: *A Cross-national Analysis of the Nutrition Habits of Hispanic Mother/Daughter Dyads,* IRB #F2010-29, has been approved by The University of Texas at Tyler Institutional Review Board. This modification includes recruitment of sample participants from the Universidad Autonoma de Tamaulipas - Matamoros Mexico, the Universidad Autonoma de Tamaulipas- Tampico Mexico, and from TAMU-CC. Best of luck in your research!

Please acknowledge your understanding of the following through return of this email to the IRB Chair within one week after receipt of this approval letter:

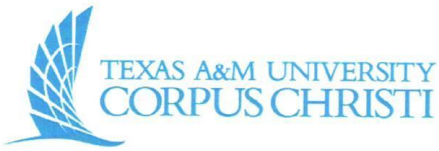
- This approval is for the duration of the original study that was approved December 7, 2010.
- Request for Continuing Review must be completed for projects extending past the year above
- Prompt reporting to the UT Tyler IRB of any proposed changes to this research activity
- Prompt reporting to the UT Tyler IRB and academic department administration will be done of any unanticipated problems involving risks to subjects or others
- Suspension or termination of approval may be done if there is evidence of any serious or continuing noncompliance with Federal Regulations or any aberrations in original proposal.
- Any change in proposal procedures must be promptly reported to the IRB prior to implementing any changes except when necessary to eliminate apparent immediate hazards to the subject.

Sincerely,

Gloria Duke, PhD, RN

Gloria Duke, PhD, RN
Chair, UT Tyler IRB

Appendix H: Institutional Approval – Texas A&M Corpus Christi



ERIN L. SHERMAN, MAcc, CRA
Research Compliance Officer

6300 Ocean Drive, Unit 5844
Corpus Christi, Texas 78412
O 361.825.2497 • F 361.825.2755

February 15, 2011

Ms. Monica Ramirez
The University of Texas at Tyler
College of Nursing and Health Sciences

Dear Ms. Ramirez,

The research project entitled "A Cross-national Analysis of the Nutrition Habits of Hispanic Mother/Daughter Dyads" (TAMU-CC IRB# 12-11) (UT Tyler IRB #F2010-29) has been granted approval for implementation at Texas A&M University – Corpus Christi through an Authorization Agreement with The University of Texas at Tyler. You are authorized to conduct the project as outlined in The University of Texas at Tyler approved IRB protocol.

Please submit any protocol updates and a completion date to the Texas A&M University – Corpus Christi Office of Research Compliance for our records.

We wish you the best on the project. Please contact me with any questions.

Sincerely,

Erin L. Sherman

Erin L. Sherman, MAcc, CRA
Research Compliance Officer

Appendix I: Institutional Approval -

Facultad de Enfermerìa de Tampico, Universidad Autònoma de Tamaulipas

AGREEMENT TO PARTICIPATE IN RESEARCH

Our school, FACULTAD DE ENFERMERÍA DE TAMPICO, UNIVERSIDAD AUTÓNOMA DE TAMAULIPAS__ agrees to participate in the research project of Monica Ramirez, PhD candidate in the doctoral program at The University of Texas at Tyler. We have been provided with a description of the study, information about subjects' rights, and a copy of the human subjects protection approval form (IRB). We agree to comply with the safeguards to protect confidentiality and voluntary right to participate.

Signed: HORTENSIA CASTAÑEDA-HIDALGO, MCE_____
(My typed electronic signature may be used in lieu of an original signature.)

Position: ____SECRETARIA TÉCNICA_____

Appendix J: Institutional Approval -l

Unidad Académica Multidisciplinaria Matamoros - UAT

ACUERDO PARA PARTICIPAR EN INVESTIGACIÓN

H Matamoros, Tam. 15 Febrero 2011

Nuestra escuela, UNIDAD ACADÉMICA MULTIDISCIPLINARIA MATAMOROS-UAT acepta participar en el proyecto de investigación de Mónica Ramírez, candidato de PhD en el programa doctoral en The University of Texas at Tyler College of Nursing. Miss Ramírez nos ha proporcionado una descripción del estudio, información sobre los derechos de los participantes, y una copia de la forma de aprobación de protección de participantes humanos (IRB). Estamos de acuerdo en cumplir con los requisitos para salvaguardar y proteger la confidencialidad y el derecho voluntario de participar.

Dra. Laura Vázquez Galindo
Directora Unidad Académica Multidisciplinaria
Matamoros-UAT

(Mi firma electrónica escrita a máquina puede ser usada en lugar de una firma original.)

Appendix K: Institutional Approval -

University of the Incarnate Word, San Antonio, Texas

APPLICATION FOR INSTITUTIONAL REVIEW BOARD APPROVAL FORM
University of the Incarnate Word

(PLEASE TYPE INFORMATION)

1. Title of Study: *A Cross-national Analysis of the Nutrition Habits of Hispanic Mother/Daughter Dyads*

2. Principal Investigator (type name, telephone number, e-mail address and mailing address):
Monica N. Ramirez, MSN, RN 210-829-3974 (office) 210-391-4037 (cell)
ramirezmn@uiwtx.edu
4301 Broadway, CPO 300
San Antonio, TX 78209

3. Co-Investigator; Faculty Supervisor; Thesis or Dissertation Chair:
Dissertation Chair – University of Texas at Tyler
K. Lynn Wieck RN, Ph.D., FAAN 281-375-8155 office
Jacqueline M. Braithwaite Professor
The University of Texas at Tyler
Jacqueline M. Braithwaite Professor

4. Division/Discipline: School of Nursing and Health Professions

5 Research Category: a. _____Exempt b.__X__Expedited Review c._____Full Board Review

6. Purpose of Study

The purpose of this study is to explore the underlying factors involved in Hispanic women's nutritional decisions. Nutritional factors of mother/daughter dyads will be studied (compared) with both American and Mexican respondents. This generational context will provide insight into whether younger Hispanic women are generally influenced more by their family or their peer group in regard to eating choices. Further, the study will examine the respondents' nutritional choices and dietary outcomes in relation to their future time perspective aspect of nutritional choices in relation to dietary outcomes. This knowledge will provide insight into whether or not Hispanic women view their nutritional choices as impacting their future health. The geographical context of measurement in two countries will allow some assumptions to be made about the role of acculturation on the Hispanic diet since many Hispanic Americans are first or second generation U.S. citizens.

7. Number of Subjects:__40___ Controls:_____

8. Does this research involve any of the following:

	YES	NO		YES	NO
Inmates of penal institutions	____	__x__	Fetus in utero	____	__x__
Institutionalized mentally retarded	____	__x__	Viable fetus	____	__x__
Institutionalized mentally disabled	____	__x__	Nonviable fetus	____	__x__
Committed patients	____	__x__	Dead fetus	____	__x__
Mentally retarded outpatient	____	__x__	In vitro fertilization	____	__x__
Mentally disabled outpatient	____	__x__	Minors (under 18)	____	__x__
Pregnant women	____	__x__			

For each "Yes", state what precautions you will use to obtain informed consent.

9. Duration of study:12/10/10 – 12/10/11

10. How is information obtained? (Include instruments used)
Student Cohort
The student cohort will be recruited through one of their courses at the two universities. The volunteer faculty members who teach the respective courses will explain the study and provide the data collection website via email to each student inviting those who identify as being Hispanic to participate in the study. The email will contain the URL survey address for the online survey which can be accessed by a mouse-click. Students will be asked to do two things:

1. Complete the online survey.
2. Provide the name and contact information for her mother so that the survey can be sent by the researcher to the mother.

Either a street address (for a mail-in survey), a web address (for an online survey), or a telephone number (for a telephone interview for collection of survey responses) will be requested to allow contact with the mother. Students will be asked to inform their mothers and encourage them to complete the survey process.

Maternal Cohort

The mothers will be invited to participate in the study through the nursing students who agree to participate. Maternal information may be entered online. However, pencil-and-paper surveys will be mailed with a self-addressed envelope for easy return if desired. Also, if the mothers prefer a telephone interview, this option will be offered and will be done at a time convenient for the respondent.

11. Confidentiality – Are data recorded anonymously? (_____Yes __x__No)

12. If #11 is answered "No", how will the study subjects' confidentiality be maintained?
The data collected will be stored on a password-protected computer and hard copies will be kept in a file that is locked in the primary investigator's office. No one will have access to the names but the primary investigator and the Dissertation Chair. All data will be reported as an aggregate and no individuals will be identified. Names of participants will be used to ensure that correct matching of mother/daughter dyads occurs, and all identifying data will be removed at the completion of the study.

13. Benefit of research:
Obesity is the most observable and most neglected public health issue worldwide (WHO, 2000). With an estimated 30% of the American population considered obese, the Center for Disease Control and Prevention (CDC) (2010) proposes that American society has become "obesogenic" by creating a sociocultural atmosphere where unhealthy food choices, excessive intake, and decreased activity are openly encouraged. Cardiovascular disease, type 2 diabetes, hypertension, and an increased risk of certain cancers are some of the comorbidities that have been linked to obesity. These obesity-associated health consequences also have economic consequences on the American health care system of up to an estimated 147 billion dollars a year in caring for obese and overweight-associated health issues (Finkelstein, Fiebelkorn, & Guijing, 2003). As the obesity epidemic statistics increase, the health care costs will also increase causing further stress on an already strained health care system.

Diet and exercise have traditionally been considered the key factors to obesity in Hispanic women. Evidence is emerging that ethnicity may be a significant contributor to the mounting health issue (Rahman & Berenson, 2010). In every age and gender group, Hispanics have a higher rate of obesity and excess weight (Flegal, Ogden & Carroll, 2004). Hispanic women (45.1%) have a higher prevalence of obesity than non-Hispanic white women (33.0%) (National Center for Health Statistics, 2010). The rates of obesity with Hispanic women increased significantly from 35.3% to 45.1% between 1994-2008. This may be especially true for Hispanic women of reproductive age. Because of the growing Hispanic populations and the detrimental impact of obesity and its associated risks to overall health, there arises a need for identifying the current state of the science related to obesity in Hispanic women in an effort to enhance the body of knowledge regarding solutions to address this health concern.

14. Possible risk to subjects:
There is a risk of breach of confidentiality by accidental disclosure of names in an online environment. A secure data collection site is being used for which the PI pays an annual fee. Locks and passwords will also be used to ensure confidentiality.

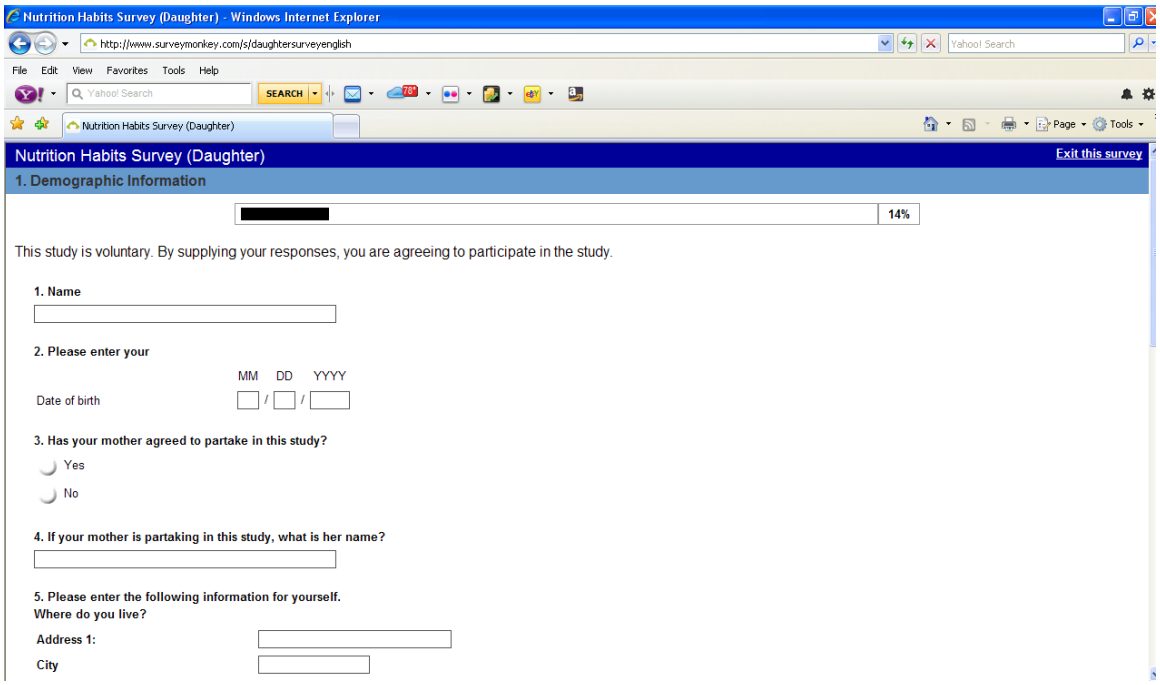
IF CHANGE IN RESEARCH OCCURS THE BOARD MUST BE NOTIFIED BEFORE RESEARCH IS CONTINUED.

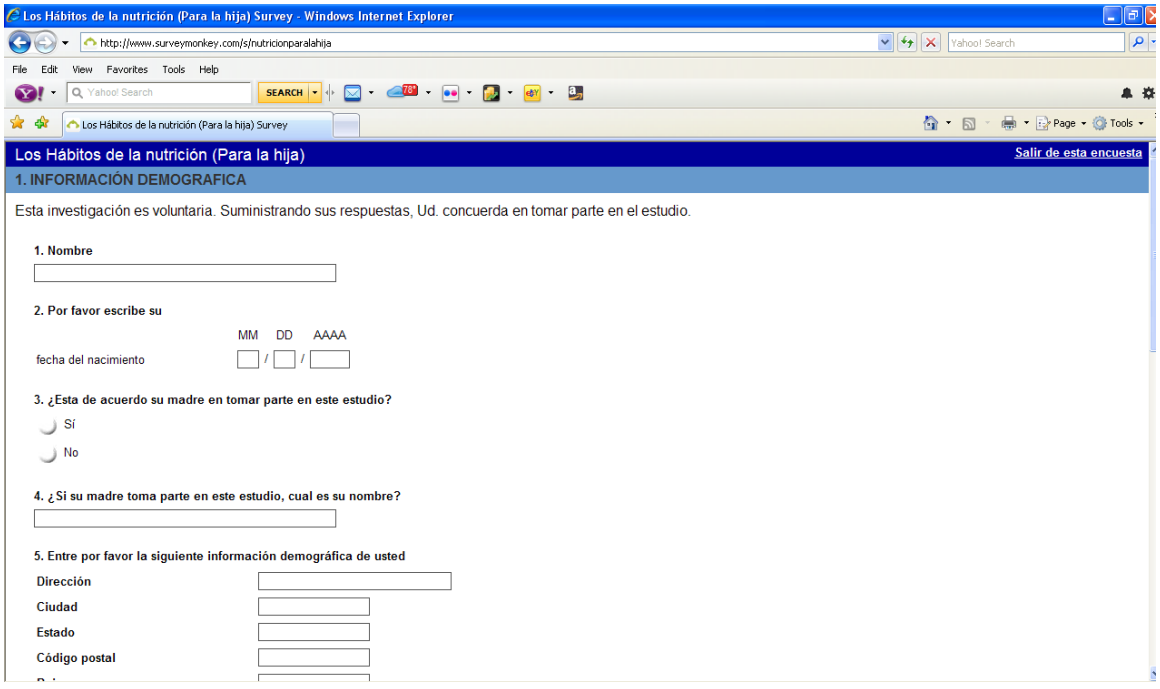
Principal Investigator signature Monica Ortiz Date 12/15/10

Responsible Faculty signature _____ Date _____
(Required if student is Principal Investigator)

IRB Approval signature _____ Date 15 December 2010
Application # 10-12-005 Helen E Smith 12/22/10

Appendix L: Participant Online Consent





Appendix M: Internet Flyer for Study Recruitment (English)

PLEASE BE A PART OF AN IMPORTANT STUDY TO IMPROVE HEALTH FOR HISPANIC WOMEN

All daughter participants will be placed in a lottery and the winner will receive an Apple iPod Nano 8GB MP3 player.

All mother participants will be placed in a lottery and the winner will receive a Western Union Money Gram of $150.

Calling Hispanic Nursing Students and Your Mothers!

I am looking at the nutrition habits of Hispanic nursing students. I also want to know what your mother thinks. All of the information is private, and neither of you will be identified. Please help me learn about ways that health providers can best work with Hispanic women to help them manage their nutrition and stay healthy.

Here is all you need to do:

1. Go to this website and fill out the survey
https://sites.google.com/site/motherdaughternutrition/home
2. Send the website to your mother. If she does not have Internet I will either send her a paper and pencil copy with a return stamped envelope or I will call her and let her answer the questions on the telephone, as you recommend.

Give me a call at 210-391-4037 or
Email me at mramirez6@patriots.uttyler.edu
if you have any questions.
Thank you so much for your help.

Monica Ramirez, RN, MSN, PhD student
The University of Texas at Tyler
College of Nursing

Appendix N: Internet Flyer for Study Recruitment (Spanish)

POR FAVOR TOME PARTE DE UN ESTUDIO IMPORTANTE PARA MEJOR LA SALUD DE LA MUJER HISPANA

Todos los nombres de participantes en la categoria de hija serán colocados en una lotería y la ganador recibirá un Apple iPod Nano 8GB jugador de MP3.

Todos los nombres de participantes en la categoria de mama erán colocados en una lotería y la ganadora recibirá un Western Union MoneyGram

Atención Estudiantes de Enfermería y Sus Mamás

Investigo en los hábitos de nutrición de estudiantes de enfermería Mexicanas. También quiero saber lo que su mamá piensa de esto. Toda la información es privada y ninguno de ustedes será identificado. Por favor ayúdeme a aprender sobre maneras que los provedores de salud pueden trabajar mejor con mujeres hispanas para ayudarles a manejar su nutrición y permanencer sanas.

Aquí está todo que usted tiene que hacer:

1. Vaya a este sitio y complete la encuesta

https://sites.google.com/site/motherdaughternutrition/home

2. Envíe el sitio a su mamá. Si no tiene Internet le enviaré una encuesta rn papel

O la llamaré y dejaréques responda a las preguntas por por teléfono,

Usted puede llamarme - 210-391-4037

o envíeme por correo electrónico a

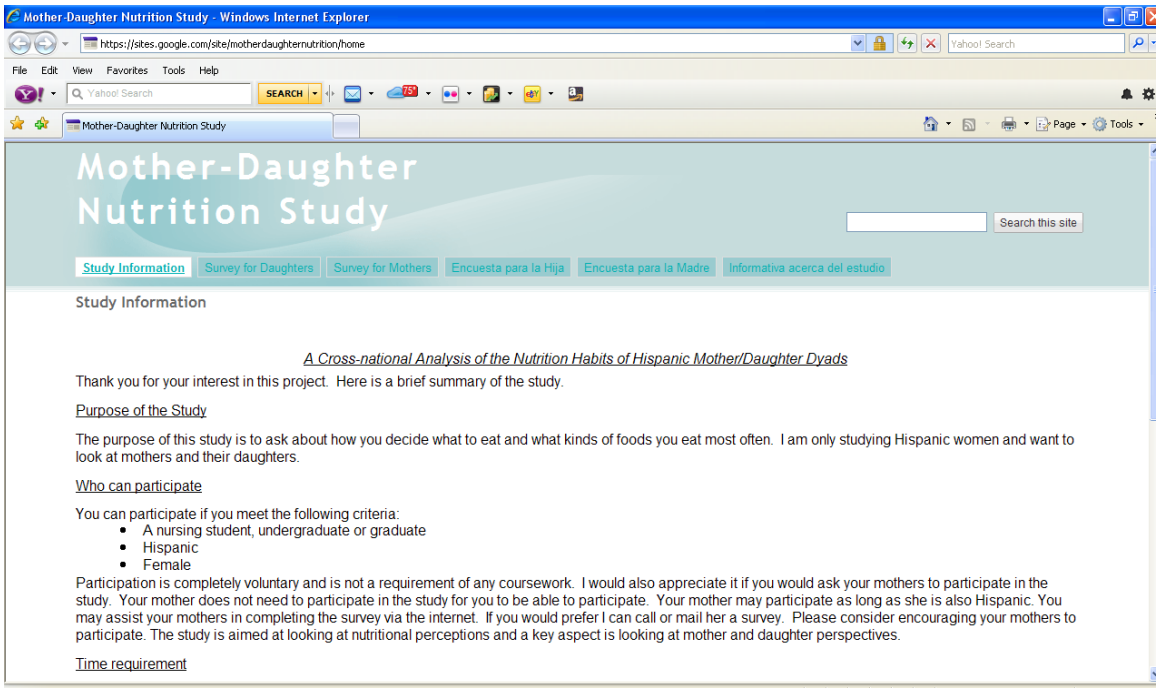
mramirez6@patriots.uttyler.ed

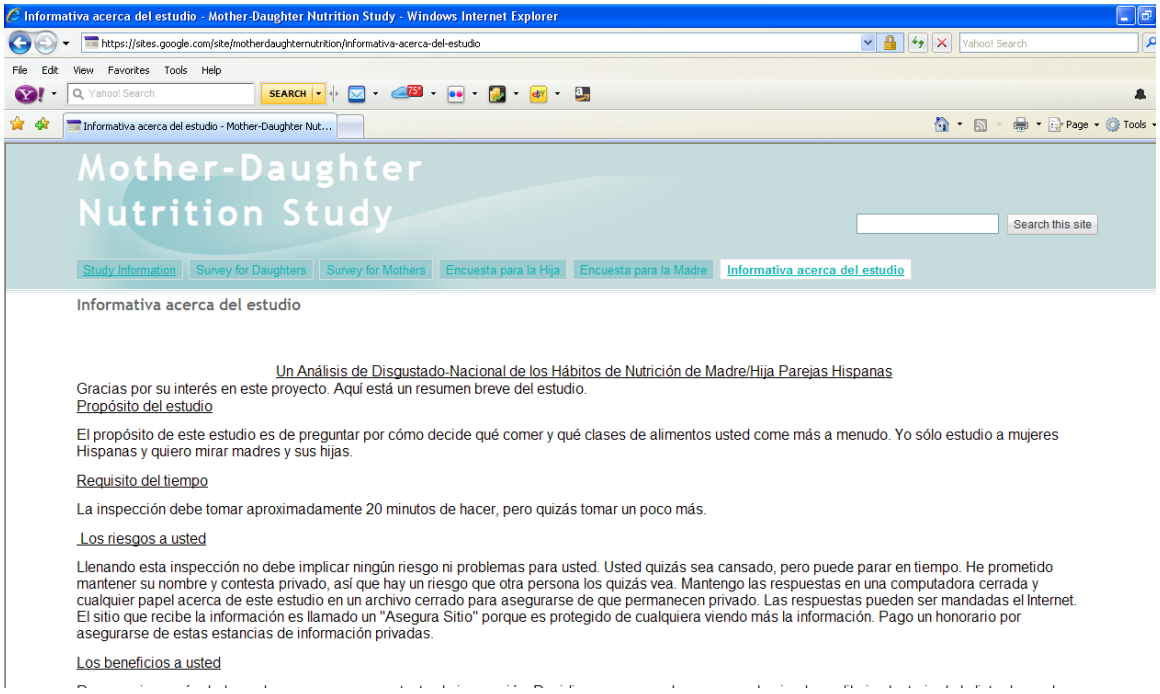
si usted tiene alguna pregunta.

Muchas gracias por su ayuda.

Monica Ramirez, RN, MSN, PhD student
The University of Texas at Tyler
College of Nursing

Appendix O: Study Information Website





BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED TWO PAGES.**

NAME	POSITION TITLE
Monica N. Ramirez	Primary Investigator - *A Cross-national Analysis of the Nutritional Habits of Hispanic Mothers and*
eRA COMMONS USER NAME	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Texas, Tyler, TX	PhD	2008-2011	Nursing
University of the Incarnate Word, San Antonio, TX	MSN	2001-2003	Nursing, minor in education
University of the Incarnate Word, San Antonio, TX	BSN	2000-2001	Nursing
San Antonio College, San Antonio, TX	ADN	1997-1999	Nursing

NOTE: The Biographical Sketch may not exceed two pages:

A. Positions and Honors.

Positions:

2003 – Present University of the Incarnate Word-San Antonio, TX
Faculty with Ila Faye Miller School of Nursing

Honors:

Texas Nurses' Association, 2002-Present
-District 8, elected Secretary – May 2004 – 2005
-District 8, delegate to TNA House of Delegates – April 2004
American Nursing Association, 2002-Present
Sigma Theta Tau – Delpha Alpha-At-Large Chapter, 2004-Present
Honors Member of the Nightingale Society, 2002-Present
Recipient of the Texas Innovations Grant, 2002-Present
University of the Incarnate Word Honors Society, 2001-Present
University of the Incarnate Word, Graduated 2003 With Distinction
University of the Incarnate Word, Graduated 2001 Summa Cum Laude

B. Publications (Project Related) Selected peer-reviewed publications (in chronological order).

Ramirez, M. N. & Strickland, S. (2005). Breastfeeding by low-income, adolescent, Hispanic mothers and their participation in a WIC peer counseling progam. *Scientific International Journal* , 2(1), 3-16.