The Association of Family Mealtime and Acculturation with Weight in Latino Youth

Joan Fleishman  
Pacific University

Recommended Citation

This Thesis is brought to you for free and open access by the College of Health Professions at CommonKnowledge. It has been accepted for inclusion in School of Graduate Psychology by an authorized administrator of CommonKnowledge. For more information, please contact CommonKnowledge@pacificu.edu.
The Association of Family Mealtime and Acculturation with Weight in Latino Youth

Abstract
The prevalence of overweight and obesity is a health concern for Latino children and adolescents in the United States. The purpose of this study is to investigate the association of acculturation and the frequency of family mealtime and examine the relationship of acculturation and weight in Mexican-American children. Participants were 23 third grade students who self-identified as Latino from an elementary school in the Pacific Northwest. Self-report questionnaires were used to assess level of acculturation and frequency of family mealtimes and participant weight and height was taken. Two levels of acculturation were identified within the sample, low and moderate. Although no significant differences were found in frequency of family mealtimes between the low acculturation and moderate acculturation groups, a significant difference in BMI percentile was detected between the different levels acculturation; those with a higher level of acculturation had higher BMIs. Overall, data suggests that a higher level of acculturation may be associated with an unhealthy lifestyle for Latino youth. Future research is needed to explore the impact of immigration, social and environmental inequities, and cultural experiences on behaviors contributing to obesity. Research is needed that investigates the most effective means to prevent overweight among Latino youth and effective intervention approaches that encompass the family unit and the physical environment.

Degree Type
Thesis

Degree Name
Doctor of Psychology (PsyD)

Committee Chair
Daniel Muñoz, Ph.D.

Subject Categories
Psychiatry and Psychology

This thesis is available at CommonKnowledge: https://commons.pacificu.edu/spp/80
THE ASSOCIATION OF FAMILY MEALTIME AND ACCULTURATION WITH WEIGHT
IN LATINO YOUTH

A THESIS
SUBMITTED TO THE FACULTY
OF
SCHOOL OF PROFESSIONAL PSYCHOLOGY
PACIFIC UNIVERSITY
HILLSBORO, OREGON

BY
JOAN FLEISHMAN

IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE
OF
MASTER OF SCIENCE IN CLINICAL PSYCHOLOGY

JULY, 24TH, 2009

APPROVED:
Daniel Muñoz, Ph.D.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td>LIST OF TABLES AND FIGURES</td>
<td>iv</td>
</tr>
<tr>
<td>INTRODUCTION AND REVIEW OF THE LITERATURE</td>
<td>1</td>
</tr>
<tr>
<td>PURPOSE AND HYPOTHESIS</td>
<td>17</td>
</tr>
<tr>
<td>METHOD</td>
<td>18</td>
</tr>
<tr>
<td>RESULTS</td>
<td>20</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>26</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>37</td>
</tr>
</tbody>
</table>
ABSTRACT

The prevalence of overweight and obesity is a health concern for Latino children and adolescents in the United States. The purpose of this study is to investigate the association of acculturation and the frequency of family mealtime and examine the relationship of acculturation and weight in Mexican-American children. Participants were 23 third grade students who self-identified as Latino from an elementary school in the Pacific Northwest. Self-report questionnaires were used to assess level of acculturation and frequency of family mealtimes and participant weight and height was taken. Two levels of acculturation were identified within the sample, low and moderate. Although no significant differences were found in frequency of family mealtimes between the low acculturation and moderate acculturation groups, a significant difference in BMI percentile was detected between the different levels acculturation; those with a higher level of acculturation had higher BMIs. Overall, data suggests that a higher level of acculturation may be associated with an unhealthy lifestyle for Latino youth. Future research is needed to explore the impact of immigration, social and environmental inequities, and cultural experiences on behaviors contributing to obesity. Research is needed that investigates the most effective means to prevent overweight among Latino youth and effective intervention approaches that encompass the family unit and the physical environment.
LIST OF TABLES AND FIGURES

Frequency of Family Mealtimes by Level of Acculturation

Weight Status Categories and Their Corresponding Percentile Range

Means, Standard Deviations, and Minimum and Maximum Values for BMI Percentiles for Level of Acculturation Groups

Number of Participants in Each Weight Status Categories by Level of Acculturation

Frequency of Family Mealtimes in Mexico Compared to in the United States

Distribution of BMI Percentile Categories
The Association of Family Mealtime and Acculturation with Weight in Latino Youth

Introduction

The prevalence of overweight and obesity is a health concern for adults, children, and adolescents in the United States. The Centers for Disease Control defines a Body Mass Index between 25 and 29.9 overweight for an adult and a BMI of 30 or higher obese. For children and teens, BMI percentiles are defined so that they take into account normal differences in body fat between boys and girls and differences in body fat at various ages. In this paper overweight will be defined as a body mass index greater of equal to the 95th percentile for age and gender (Centers for Disease Control and Prevention, 2006).

Being overweight or obese poses serious long-term physical consequences such as coronary heart disease, type 2 diabetes, high blood pressure, and asthma. Psychosocial consequences include systematic social discrimination and psychological stress of social stigmatization, which can cause low self-esteem and can hinder academic and social functioning (Bouchard, 2000; del Rio-Navarro et al., 2004; Ferraro & Kelly-Moore, 2003).

Data from the 2007 National Health and Nutrition Examination Survey (NHANES) show the prevalence of obesity is rising, particularly in children and adolescents. During the past two decades, the percentage of children who are overweight has nearly doubled and the percentage of adolescents who are overweight has nearly tripled in the U.S (National Center for Health Statistics, 1999; US Department of Health and Human Services, 2001). Ogden and colleagues (2006) compared and analyzed data
from the three most recent NHANES reports and estimated the prevalence of overweight among children and adolescents to be 17.1%.

The National Center for Health Statistics (2007) reported a prevalence of overweight and obesity of 66% in adults and of over 17% in children and adolescents. There is no doubt that there is an increasing trend in overweight and obesity among children (Centers for Disease Control and Prevention, 2006). However, some researchers argue that because there is no consensus as to diagnostic criteria for overweight and obesity the real prevalence cannot be known (Amigo, 2003; del Rio-Navarro et al., 2004).

Risk Factors

There are many factors that may contribute to the obesity epidemic. Risk factors for being overweight include genetics, diminished physical activity, greater reliance on high-calorie and high-fat foods generally associated with poverty and food insecurity, and unhealthy eating patterns (Reilly et al., 2005). Children of obese or overweight parents are at greater risk of becoming obese or overweight (Reilly et al., 2005). Recent research has shown that factors such as race and ethnicity, and family and community socioeconomic status (SES) influence child and adolescent obesity (Karlson & Nazroo, 2002; Wang, 2001).

Socioeconomic Status

Level of education and SES are predictors for the prevalence of obesity (Delva, O’Malley, & Johnston, 2007; Hernández et al. 2003; James et al., 2001; Lamerz et al., 2005; National Center for Health Statistics, 2007; Peña & Bacallao, 2000). Obesity rates tend to follow a socioeconomic slope and have greater effect on people with limited resources, racial-ethnic minorities, and the poor. Wickrama, Wickrama, and Bryant
(2006) examined the influences of community poverty, race, and ethnicity on adolescent obesity. They found that the prevalence of obesity is significantly higher in poor communities and minority groups. They reported that race and ethnicity moderate the influence of community poverty and the prevalence of obesity. Lamerz and colleagues (2005) assessed the association between SES and childhood obesity to understand which factor stands out in relation to obesity. They found that children of the lowest SES were three times more likely to be obese than children of the highest SES. Miech and colleagues (2006) examined trends in adolescent overweight over 30 years by family poverty status. They found increasing overweight was more prevalent for those families living below the poverty line among older but not younger adolescents. This research supports the premise that lower SES is a risk factor for overweight and obesity.

Although there is much evidence that suggests low SES is closely related to overweight and influences it in a number of strong indirect ways, there is recent evidence to suggest the link between socioeconomic status and obesity is weakening (Wang & Zhang, 2006).

Education

The level of education of parents has also been investigated as a risk factor of childhood obesity. Lamerz and colleagues (2005) found a strong negative relationship between parental years of education and childhood obesity. Hernández-Valero and colleagues (2007) also found that educational attainment was a significant predictor for overweight. They found that mothers with less than a high school education were more likely to have overweight children than their more educated peers.

Race and Ethnicity
Evidence suggests significant racial and ethnic differences in the prevalence of obesity. Latinos are now the largest racial/ethnic minority group in the United States and obesity is becoming one of the most pressing health concerns for this population (US Census Bureau, 2008). The prevalence rate of obesity is higher among minorities than it is among whites. Ogden and colleagues (2006) and the National Center for Health Statistics (2007) reported an obesity prevalence rate of over 75% of Mexican American adults and over 20% of Mexican American children and adolescents. Latinos have been particularly affected by the growing prevalence of overweight and obesity. The largest increases in obesity among minorities in the U.S. have been among Latinos, who have experienced an 80% increase in the last decade.

Racial disparities in obesity also occur in children and adolescents. African American and Hispanic children have a higher prevalence of being overweight than other ethnic groups (National Center for Health Statistics, 2007). The most recent NHANES data (2003-2004) for overweight Mexican-American girls 12-19 years of age showed an increase from 9.2% in NANES III (1988-1994) to 14.1%. Several studies have found Latino youth to have a higher prevalence of overweight than non-Latino white and black populations (Delva, O’Malley, & Johnston, 2007; Jollife, 2004; Ogden et al., 2006). Devla, O’Malley, and Johnston (2007) compared differences in overweight among adolescents of different Latin American heritages who live the in United States and found a higher proportion of Mexican-American girls were overweight than other Latin American girls.

*Obesity in Mexico*
There have been several studies documenting a high prevalence of overweight and obesity in Mexico (Hernández et al., 1996; Sepúlveda-Amor et al., 1990). Rivera and Sepúlveda-Amor (2003) reported in their conclusions from the Mexican National Nutrition Survey 1999 that the prevalence of overweight and obesity are serious public health problems in women and are a concern in school-age children. In another study measuring the prevalence of overweight and obesity in Mexican schoolchildren ages 5-11 in the National Nutrition Survey 1999, Hernández found the national prevalence to be about 20%, with the highest prevalence being among girls. Fernald and Neufeld (2007) reported data from Mexico’s National Nutrition Survey indicating that the combined prevalence of overweight and obesity was 20% in children ages 5-11. A study done by del Río-Navarro and colleagues (2004) using data from the National Health Survey done in 2000 compared overweight/obesity rates in 10-17 year-old Mexican children to those in the US. They found that Mexican children have one-half the overweight/obesity prevalence of U.S. Mexican-American children, with the highest rates being in northern Mexico, which is closest to the U.S.

In Mexico, the prevalence of obesity has greatly increased in all population groups, particularly in low socioeconomic level populations. There is a high prevalence of overweight and obesity in the poorest sector of the Mexican population. Fernald and colleagues (2003) examined data from rural and low-income regions of Mexico that was obtained as part of the National Health Survey. They found that the combined prevalence of overweight and obesity was nearly 60% in women and more than 50% in men. Researchers have also proven that high obesity rates are not just found in poverty stricken regions. Brewis (2003) investigated obesity related to over-nutrition in a sample of 6-12
year old middle class Mexican children from an economically and socially privileged community. She found that 24% of her sample was classified as obese. She found that children are more likely to be obese if they are boys, from small households with few or no other children, and have more permissive, less authoritarian parents. Brewis suggested that the gender variation may be explained by food treats as a cultural index of parental care and by parents valuing child fatness as a sign of health.

Risk Factors for Latinos

There are many contributing factors to the prevalence of overweight and obesity in Hispanic children. Hernendez et al. (1996) found the risks for overweight and obesity in Mexico were positively associated with father’s literacy status, mother’s schooling, child’s age and child’s SES. Urrutia-Rojas and colleagues (2008) found specific risk factors associated with obesity for Hispanic children to include physical inactivity and frequent consumption of multiple servings of fruit. Although eating more fruits is usually considered a healthy behavior, Urrutia-Rojas and colleagues suggest excessive fruit consumption appeared to increase the likelihood of obesity among Hispanic children in their sample. In a study of Hispanic and African American parental feeding strategies, Urrutia-Rojas and colleagues found that Hispanic parents practice higher levels of control and their children have higher risk of obesity than African American parents (Hughes et al., 2006).

Snethen, Beauchamp, and Petering (2007) conducted a study that aimed to understand one Latino community’s perspectives about childhood overweight within that high-risk ethnic group. They found that the following themes emerged: parents’ demanding work schedule, lack of time, transportation issues, lack of opportunities for
physical activities, and lack of meal preparation. They reported that participants in all focus groups knew that good nutrition and physical activity prevent obesity. Additionally, the focus groups reported lack of time, high caloric intake, and children being given sweets to reward or placate them as being factors affecting dietary intake.

Maternal overweight/obesity are risk factors for overweight/obesity in children. Hispanic adults experience high rates of obesity and their children are more likely to be obese or overweight. Flores and colleagues (2005) evaluated the data from the National Nutrition Survey done in 1999. They assessed the effects of maternal overweight and obesity as risk factors for overweight and obesity in children. Flores and colleagues found that children with overweight mothers had almost twice the risk of being obese and children of obese mothers have over three times high risk of being obese.

**Obesity Among Immigrants**

Obesity and overweight among immigrants from Mexico, Central America and Asia has been investigated. Goel, McCarthy, Phillips, and Wee (2004) conducted a study to estimate the prevalence of obesity among immigrant subgroups in the U.S., quantify the magnitude of the association of obesity with duration of U.S. residence, and describe diet and exercise counseling by birthplace, race, and ethnicity. They reported that among foreign-born white, black, Latino, and Asian immigrant populations, longer duration of residence in the U.S. is associated with higher BMI. Goel and colleagues found that this trend is present among the three populations and suggest that trends in obesity among immigrants may reflect acculturation and adoption of U.S. lifestyle.
Acculturation

Increased length of U.S. residency has been suggested as a risk factor for obesity among immigrant adults (Bárcenas, Wilkinson, Strom, et al., 2007; Goel, McCarthy, Phillips, & Wee, 2004; Kaplan, Huguet, Newsom, & McFarland, 2004). There are many definitions of acculturation and for the purpose of this review acculturation will be defined as the process through which immigrants adopt the norms, behaviors, and practices of the dominant culture post-immigration. Recent research has showed a positive correlation between acculturation and psychological stress (Kaplan & Marks, 1990). According to Smart and Smart (1995) acculturation stress may be one of the greatest challenges facing Latinos living in the U.S.

Cultural attitudes and practices have been linked to obesity trends. The effect of acculturation appears to play a role in the prevalence of obesity in the Hispanic and Asian cultures, as second and third generation children show increased prevalence of obesity when compared to first generation immigrants (Ritchie, Ivey, Woodward-Lopez, & Crawford, 2003). As reported by Terán and colleagues (2002), some researchers argue that acculturation is associated with lower prevalence of obesity and others report tendencies in the opposite direction. Past research has suggested that changes in culture explain the substantial weight gain seen in many immigrant groups with length of residence in the U.S. and across generations of residence in the U.S. (Gordon-Larsen et al., 2003; Kaplan et al., 2004; Sundquist & Winkleby, 2000). Yoosun and colleagues (2008) found that increased duration of U.S. residence was significantly associated with higher BMI among Hispanics. They suggest that acculturation is associated with weight gain. Kaplan and colleagues (2004) found that recent Hispanic immigrants are generally
in better health than the U.S.-born population, and that this difference is reduced over
time as immigrants adapt to the different sociocultural environment. Hubert, Snider, and
Wilkeby (2004) report that higher acculturation status was the strongest correlate of
obesity in their study investigating and identifying specific correlates of obesity within
the Latino population. These researchers suggest that there is a strong positive
relationship between acculturation and weight gain.

Other factors that play a role are maternal nutrition knowledge and feeding
practices, cultural beliefs, and language issues. Sudquist and Winkleby (2000) report that
English language usage is associated with abdominal obesity in a national sample of
Mexican-American adults. Hernández-Valero and colleagues (2007) conducted a study to
evaluate the relationship between maternal and childhood BMI at baseline in a group of
5- to 18-year-old children and their mothers, all of whom were of Mexican origin and low
SES. The found the most consistent predictor for at-risk-for-overweight or overweight
status was maternal BMI; the heaviest mothers had the heaviest children. They also
found that women born in the U.S. were two times more likely to have a child who was
overweight or at-risk-for-overweight than women born in Mexico. Bárcenas, Wilkinson,
Strom and colleagues (2007) found length of U.S. residency among Mexican immigrants,
especially women, is directly associated with increased risk of obesity. A study by
Neuhouser, Thompson, Coronado, and Solomon (2004) which examined associations of
diet with acculturation among Hispanic immigrants from Mexico to Washington state
found dietary habits changed as Hispanics acculturated to the U.S. and highly
acculturated Hispanics ate fewer servings of fruits and vegetables per day compared with
those not. The authors suggest that acculturation is an independent predictor of diet. As
people assume for themselves the values of the white population, they become heavier.
Compared with whites, Latinos eat more servings of meat and a less varied diet in general
(Murphy, Castillo, Martorell, & Mendoza, 1990).

Mexican and Mexican-American culture-specific views of the ideal body type
differ from that of the American ideals. Mexican and Mexican-American culture
idealizes a larger female body size than mainstream American culture; Mexicans and
Mexican-Americans may manifest their health through their weight and encourage their
children to gain weight. In a study assessing Latina mothers’ health beliefs and attitudes
regarding early childhood weight issues, Crawford and colleagues (2004) found “thinness
was especially worrisome to immigrant Latinas who considered malnutrition and
intestinal infections a greater threat to a child’s health than overweight” (p. 389).

In contrast to mainstream Western culture, Mexican culture traditionally idealizes
a larger, curvy physique (Chamorro & Flores-Ortiz, 2000) and values interdependent,
close family relationships (“familismo”), community, collectivism, deterministic thinking
(“fatalismo”), and socialbility (“personalismo”; Santiago-Rivers, Arredondo, & Gallardo-Cooper, 2002). These study findings suggest that obesity is associated with the adoption
of an American lifestyle including an overabundance of calorie rich food and less
physical exercise.

*Family Mealtime*

Family is an important factor influencing children’s eating practices (Story,
Neumark-Sztainer, & French, 2002). Children’s behaviors are substantially affected by
the influential adults in their lives such as parents and grandparents. Many parents are
unaware of food guidance recommendations for eating a variety of foods as they plan
meals for their families. Regular family meals provide an opportunity for the modeling of healthy eating patterns and social interactions among family members, and may thus help to reinforce healthy eating patterns and prevent disordered eating behaviors (Muñoz, Isreal, & Anderson, 2007).

Researchers have found that the frequency of family mealtime is a protective factor for disordered eating, depressive symptoms, and drug and alcohol use for children and adolescents (Eisenberg et al., 2004; Fulkerson et al., 2007; Koivisto et al., 1994; Muñoz et al., 2007, Neumark-Sztainer et al., 2004; Story et al., 2002; Story & Neumark-Sztainer, 2004). Mealtimes are an opportunity for parents to promote appropriate nutrition and to provide an environment for family discussions that act as a protective factor for the development of eating disorder symptomology (Ackard & Neumark-Sztainer, 2001).

Sharing of food and mealtimes have been the joining force of the social system and have been symbolic of social connections in every human society (MacKenzie, 1993). The family meal can also be viewed in the context of family rituals. Family rituals reinforce family identity and provide a shared sense of belonging and structure. Meals provide opportunities for families to establish regular traditions and routines. As defined by Boyce, Jensen, James, and Peacock (1983), family routines are “observable, repetitive behaviors that involve two or more family members and occur with predictable regularity in the ongoing life of the family” (p. 611). Family mealtimes are an element of family routines, which have been found to act as a protective factor for, and be associated with, higher levels of academic achievement and lower reported levels of internalizing
disorders in families of children with respiratory tract illness. (Boyce et al., 1977; Brody & Flor, 1997).

Family meals are be a measure of family connectedness, which may protect teens from a wide array of negative experiences including emotional distress, suicidal thoughts, and violence (Resnick et al., 1997). Story and Neumark-Sztainer (2002) reported that frequency of family meals is associated with higher academic performance, less tobacco, alcohol, and marijuana use, and fewer depressive symptoms, suicidal ideation, and suicide attempts. They suggest that family meals provide a protective factor in the lives of teens. Mellin, Neumark-Sztainer, Story, Ireland, and Resnick (2002) reported that family connectedness was associated with better health and psychosocial outcomes among overweight youths.

Muñoz, Israel, and Anderson (2007) suggest that family mealtime is a component of the larger construct of family stability. Stable occurrences of positive activities in a child’s life act as a protective factor for children of divorced parents and have been associated with fewer symptoms of depression and conduct disorder in children who have experienced the death of a parent (Sandler, Wolchik, Braver, & Forgas, 1991; West, Sandler, Pillow, Baca, & Gersten, 1991). Story and Neumark-Sztainer (2002) believe, “family meals provide opportunities for daily family interactions and enhanced communication between family members” (p. 262).

Several researchers have found that over half of families with children eat dinner together at least five times a week and one-third or less have fewer than three family meals a week (Federal Interagency Forum on Child and Family Statistics, 2003; Neumark-Sztainer, Hannan, Story, Croll, & Perry, 2003; Videon & Manning, 2003).
Videon and Manning have established a positive link between family meal frequency, youth nutrition, and healthy eating patterns. The authors reported that in the National Longitudinal Study of Adolescent Health, which surveyed 18,177 adolescents, 48% reported eating 6 or 7 family evening meals and 30% had 3 or fewer family dinners during the past week. Neumark-Sztainer, Hannan, Story, Croll, and Perry reported that in Project EAT (Eating Among Teens), a study with 4,746 teenagers, 35% reported eating 5 or more meals together with their family in the past seven days, and 33% said they ate zero to two meals together in the past week. Neumark-Sztainer, Story, Ackard, Moe, and Perry (2000) reported that in the Project EAT study, 98% of the parents of the adolescents surveyed agreed that it was important for their family to eat at least one meal a day together. The authors also reported that 79% of the teens said they enjoyed eating meals together with their family.

Story and Neumark-Sztainer (2002) suggest “family meals and table talk improve literacy and fluency in young children” (p. 263) and can impact child development and learning. Researchers have found that mealtime conversations generated the largest amount of family talk and parental sophisticated word usage compared to other activities (Beals and Tabors, 1995; Beals, 1997; Weizman & Snow, 2001). Beals and Tabors found that mealtimes presented many opportunities for families to engage in lively conversation which included stories about past events, plans for the future, and explanations about how the world works; that was in addition to talk focused on food, nutrition, and eating.

Importance of family mealtimes and the general atmosphere surrounding them has been found to be predictive of eating pathology (Neumark-Sztainer et al., 2004). Girls
who have five or more meals a week with their families are one-third less likely to
develop unhealthy eating habits, which can range from skipping meals to full-fledged
anorexia or abusing diet pills (Project EAT, 2008). Neumark-Sztainer, Wall, Story, and
Fulkerson (2004) analyzed data from Project EAT to examine associations between
family meal patterns and disordered eating in adolescent girls and boys. They found that
“adolescents who reported more frequent family meals, high priority for family meals, a
positive atmosphere at family meals, and more a structured family meal environment
were less likely to engage in disordered eating” (p. 350). A longitudinal study by Mamun,
Lawlor, O’Callaghan, Williams, and Najman (2005) found that mothers’ positive feelings
toward eating family meals was associated with lower BMI percentile in adolescents.
Fulkerson, Strauss, Neumark-Sztainer, Story, and Boutelle (2007) suggest there are
“specific links between making family meals a priority and fewer unhealthy weight-
control behaviors among overweight female adolescents and less depressed mood among
overweight male adolescents” (p. 184). One study reported that when parents make
family meals a priority and a frequent occurrence, and when they create a positive
atmosphere for meals, children have healthier diets and less disordered eating, including
binge eating (Neumark-Sztainer, Wall, Story, & Fulkerson, 2004). They suggest that
making family meals a priority could be the most consistent protective factor for
disordered eating. Their findings suggest that family meals have the potential to play an
important role in the prevention of unhealthy weight control behaviors among youth.

Increasing frequency of family dinner is associated with more healthful dietary
intake patterns and has shown positive relationships with adolescent health (Fulkerson et
al., 2006; Gillman et al., 2000; Neumark-Sztainer, Hannan, Story, Croll, & Perry, 2003;
Neumark-Sztainer, Wall, Story, & Fulkerson, 2004; Taveras et al, 2005; Videon & Manning, 2003). Videon and Manning (2003) found that children who regularly ate evening meals with their parents were less likely to skip breakfast and had higher rates of healthy food consumption including fruits, vegetables, and dairy. Neumark-Sztainer, Hannan, Story, Croll, and Perry (2003) concluded that family meals appear to play an important role in promoting positive dietary intake among adolescents and are positively associated with intakes of fruits, vegetables, grains, and calcium-rich foods and are negatively associated with soft drink consumption. These studies suggest that family meals have a strong influence on dietary intake of children and that family meals are positively associated with more healthful eating patterns.

Not all evidence suggests family mealtime to be beneficial for all populations. Taveras et al. (2005) found that family meal frequency, although inversely related to the prevalence of overweight in children cross sectionally, did not predict the onset of overweight over time. Thus, the relationship between overweight and family meal frequency merits further investigation.

There are many factors influencing the frequency that families have meals together. Children today are being raised in very different family environments from those of 50 years ago. Families are smaller and more likely to be headed by one parent, and more mothers are in the labor force. Story and Neumark-Sztainer (2002) suggest, “these profound social changes in family structure and maternal employment may effect family meals” (p. 262). Story and Neumark-Sztainer (2002) reported that busy or conflicting schedules of parents and adolescents are the most frequent reasons for families not eating meals together.
Socioeconomic status may be one of the factors influencing the frequency of family mealtime. Neumark-Sztainer, Hannan, Story, Croll, and Perry (2003) conducted a study to examine family meal patterns and associations with sociodemographic characteristics and dietary intake in adolescents. They found that youths consuming more meals with their families reported healthier dietary intake. They found that mothers’ employment status was inversely associated with family meal patterns. There was a positive association between family meals and SES; higher SES youths reported more family meals. SES is positively related to the frequency of family meals, which have been shown to produce healthy diet and behaviors (Neumark-Sztainer, Hannan, Story, Croll, & Perry, 2003).

In summary, there are many benefits to family meals. As a ritual, meals can provide a sense of family solidarity, unity, and identity. They transmit family values, attitudes, cultural, and ethnic heritage, provide a vehicle for daily communication and can strengthen family connections. They also provide an opportunity for parents to monitor their children’s moods, behaviors, and where-abouts and provide a structure and routine to the day.

Family meals are opportunities for role modeling healthy eating, such as enjoying food, eating moderate portion sizes, tasting new foods, and stopping when full. They can positively impact overall diet quality of children and young children’s language acquisition and literacy development. Taking all this into account, family meals can serve as a protective factor in the lives of teens and may be associated with decreased risk of adolescent substance use, increased psychosocial well-being, and higher academic performance.
Hypothesis

For Mexican-Americans, the family unit is an important social unit. Family responsibilities many times come before all other responsibilities. In a traditional Mexican family, the father is the leader of the family and the mother runs the household, shops, and prepares the food. It would be expected for the frequency of family mealtimes to be high among this population.

Acculturation affects family diet, eating habits, and family traditions. With immigration to the United States, major changes occur in the Mexican-American's diet. Previously mentioned studies have consistently reported a high prevalence of obesity, diabetes, and over/under nutrition in the Mexican-American population. Overweight and obesity are reportedly higher in Hispanic women and children. Latino children have the highest rates of obesity in the U.S. When acculturation and the factors associated with immigration, such as lower SES and education level, are taken into account, family mealtime may not be as frequent.

Researchers have not investigated the association of acculturation on frequency of family mealtimes. To date there is no research that examines the relationship of family mealtime frequency, BMI, and level of acculturation of Mexican-American children. There is no research that has identified the frequency of family mealtime in a Latino population in the U.S. and it’s relationship with a child’s BMI and level of acculturation. The purpose of this study is to investigate the association of acculturation and the frequency of family mealtime and examine the relationship of level of acculturation and weight in Mexican-American children.
Method

Participants

Participants were 23 third grade students who self-identified as Latino from an elementary school in the Pacific Northwest. Over half (65.2%) of the sample had lived in the United States their whole lives and 34.8% had lived in Mexico before moving to the United States. The majority of the sample was between ages 8-9 and was also predominantly (79%) Latino. The average Body Mass Index Percentile Adjusted for Age, Gender, and Height was 71.39 (SD= 28.49; range = 5.00 to 96.00).

Measures

The Short Acculturation Scale for Hispanic Youth (SASH-Y). The SASH-Y was developed by Barona & Miller (1994) and is a short self-report acculturation scale designed for use with Hispanic youth. It was adapted for a youth population from the Short Acculturation Scale for Hispanics, which aids in identifying Hispanics who are low or high in acculturation. It includes 12 items related to three factors: (a) “Language Use,” (b) “Media,” and (c) “Ethnic Social Relations.” The scale has been used with respondents from a variety of Hispanic subgroups including Mexican Americans, Cuban Americans, Puerto Ricans, Dominicans, and South Americans. Each item is scored 1-5, with higher scores representing greater acculturation. An acculturation score is calculated by summing the corresponding score for each of the 12 items.

Previous research has supported the psychometrics of SASH-Y. Strong internal consistency, as reflected in Cronbach’s alpha of .94, and odd-even split half reliability using the Spearman-Brown prophecy of .96 (Barona & Miller, 1994). Serrano and Anderson (2003) have demonstrated strong test-retest reliability (70.8% agreement).
Their analysis yielded a strong internal consistency (0.89) and split-half reliability (0.84). Based on factor analysis, personal language use, external language use, and ethnic social relations accounted for 82.6%, 13.5%, and 5.9% of all variance, respectively. Their findings demonstrated that the SASH-Y, especially questions related to language use, is robust with a young, rural-based Latino population.

**Family Mealtime Questionnaire (FMQ).** The FMQ (Ackard & Neumark-Sztainer, 2001) is a three-question assessment of the frequency of shared family mealtimes at breakfast, lunch, and dinner. The frequency of each family mealtime was measured with separate questions that used a Likert-scale for responses. The question was, “How often did your family eat [specify meal] together when you were growing up?” and the five response choices were never; 1–2 times per week; 3–4 times per week; 5–6 times per week; or every day. Responses were regrouped for a portion of the analysis into three response choices to obtain a larger cell group for each response: never; sometimes; or frequently.

**BMI Percentile.** After BMI is calculated for children and teens, the BMI number is plotted on the Center for Disease Control (CDC) BMI-for-age growth charts (for either girls or boys) to obtain a percentile ranking using the following formula: weight / (height) 2 x 703. Percentiles are the most commonly used indicator to assess the size and growth patterns of individual children in the United States. The percentile indicates the relative position of the child's BMI number among children of the same sex and age. The growth charts show the weight status categories used with children and teens (underweight, healthy weight, overweight, and obese).
Procedure

All procedures followed guidelines for research with sensitive human participants and were approved by the University’s Institutional Review Board. Once informed consent was obtained, participants in groups of two and three were verbal guided through the packet of three self-report questionnaires that took approximately ten minutes to complete. After the questionnaires were complete, the participants were weighed with a scale and their height was measured with a measuring tape against the wall.

Results

Description of Sample

Acculturation Level. Analyses of the SASH-Y indicate that the majority of the participants have a moderate level of acculturation (60.9%) and with the remainder of the sample (39.1%) having a low level of acculturation. The sample did not include any participants that scored within the high acculturation level on the SASH-Y. This is consistent with the 2007-2008 School Report Card from the Oregon Department of Education, which reports that 62.9% of the student enrolled in the school are in ESL classrooms. According to the Washington Country Commission on Children and Families in their Comprehensive Community Plan 2008-2014, the town has a Latino population percentage significantly above state average (37.4%). It’s foreign-born population percentage is also significantly above state average (24.5%); 22.4% from Latin America. This indicates that almost one quarter of the town’s residents are first generation immigrants from Latin America and may explain the breakdown of participant acculturation level.

Socioeconomic Status. In the present study the participants came from a small
agricultural town in which 16.1% of the residents have an income below the poverty level and 7.1% of the residents have an income below 50% of the poverty level in 2007 (City-Data, 2008). It is not surprising that the per capita income rose, from $10,993 in 1990 to $15,290 in 2000, but remained well below that for the county as a whole rising to $24,969 by 2000. Almost 35% of single parent household with children were living in poverty in 2000. Among Latino children living in single parent households, the poverty rate rose to almost 45% (Washington County Commission on Children and Families, 2008). With these demographics taken into account it can be assumed that a large percentage of the children in the present study do not have a high SES or an unemployed mother.

**Frequencies of Family Mealtimes.** The meal eaten most frequently with the family was dinner; 78.3% ate dinner with their family every day. The meal eaten least frequently with the family was lunch; 47.8% of participants ate lunch less then two times a week with their family. About half of the participants ate breakfast everyday with their family (47.8%).

**Association of Frequency of Family Mealtimes with Level of Acculturation.** A one-way analyses of variance (ANOVA) was conducted to investigate the association between frequency family mealtimes (breakfast, lunch, and dinner) and acculturation level (moderate and low). No significant differences were found in frequency of family mealtimes between the low acculturation and moderate acculturation groups at breakfast, $F(1,21) = .000, p = .983$, or at lunch, $F(1,21) = .420, p = .524$. The same was true for dinner, $F(1,21) = .001, p = .976$. Table 1 presents frequency of family mealtime by level of acculturation.
Table 1  
*Frequency of Family Mealtimes by Level of Acculturation*  

<table>
<thead>
<tr>
<th>Mealtime</th>
<th>Low</th>
<th>Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Never</em></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><em>1-2 times a week</em></td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><em>3-4 times a week</em></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><em>5-6 times a week</em></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><em>Every day</em></td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Lunch</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Never</em></td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><em>1-2 times a week</em></td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td><em>3-4 times a week</em></td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td><em>5-6 times a week</em></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><em>Every day</em></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Dinner</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Never</em></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><em>1-2 times a week</em></td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><em>3-4 times a week</em></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><em>5-6 times a week</em></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><em>Every day</em></td>
<td>7</td>
<td>11</td>
</tr>
</tbody>
</table>

*BMI Percentile.* BMI percentile was calculated and analyses indicated that one participant was underweight (less then 5th BMI percentile), 43.5% had a health weight (BMI percentile of between 5-85), 17.4% were overweight (85th to less then 95th percentile), and 21.7% of participants were had a BMI percentile of 95 or greater falling
into the category of obese. BMI-for-age weight status categories and the corresponding percentiles are shown in Table 2. Figure 1 presents the distribution of the BMI Percentile Categories within the sample.

Table 2

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentile Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>Less than the 5th percentile</td>
</tr>
<tr>
<td>Healthy weight</td>
<td>5th percentile to less than the 85th percentile</td>
</tr>
<tr>
<td>Overweight</td>
<td>85th to less than the 95th percentile</td>
</tr>
<tr>
<td>Obese</td>
<td>Equal to or greater than the 95th percentile</td>
</tr>
</tbody>
</table>

Figure 1

Association of BMI Percentile and Level of Acculturation. A one-way analyses of variance (ANOVA) was conducted to examine the association between BMI percentile
and acculturation level. A significant difference in BMI percentile was detected between the low and moderate level of acculturation groups, $F (1,21)= 7.26, p = .014)$. Table 3 presents the descriptive statistics for the two groups including means, standard deviations, minimum and maximum percentiles in the group. Table 4 presents the BMI percentile groupings (underweight, healthy weight, overweight, and obese) for each level of acculturation.

Table 3

*Means, Standard Deviations, and Minimum and Maximum Values for BMI Percentiles for Level of Acculturation Groups*

<table>
<thead>
<tr>
<th></th>
<th>$M$</th>
<th>$SD$</th>
<th>Min.</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>53.78</td>
<td>32.05</td>
<td>5.00</td>
<td>95.00</td>
</tr>
<tr>
<td>Moderate</td>
<td>82.71</td>
<td>19.71</td>
<td>36.00</td>
<td>96.00</td>
</tr>
</tbody>
</table>

Table 4

*Number of Participants in Each Weight Status Categories by Level of Acculturation*

<table>
<thead>
<tr>
<th>Weight Status Category</th>
<th>Level of Acculturation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Underweight</td>
<td>1</td>
</tr>
<tr>
<td>Healthy Weight</td>
<td>6</td>
</tr>
<tr>
<td>Overweight</td>
<td>2</td>
</tr>
<tr>
<td>Obese</td>
<td>0</td>
</tr>
</tbody>
</table>

*Frequency of Family Mealtime in Mexico Compared to in the United States.*

Table 5 presents family mealtime frequency when living in Mexico before moving to the United States and current family mealtime frequency in the United States. Those who
had lived in Mexico before moving to the United States reported eating breakfast at least 3-4 times a week with their families when living in Mexico. Over 40% reported that they now eat breakfast with their family less then 3-4 times week. 62.5% of these participants ate lunch everyday with their family in Mexico and now 21.7% report eating lunch with their family, and over 45% eat lunch with their family less then three times a week. For dinner in Mexico, 12.5% reported never eating with their family, 12.5% reported eating with their family 1-2 times a week, and 75% reported eating everyday with their family. Presently in the U.S. 4.3% reported never eating with their family, 8.7% reported eating with their family 1-2 times a week, 4.3% reported eating with their family 3-4 times a week, 4.3% reported eating with their family 5-6 times a week, and 78% reported eating with their family everyday.
Table 5

*Frequency of Family Mealtimes in Mexico Compared to in the United States*

<table>
<thead>
<tr>
<th>Mealtime</th>
<th>Mexico</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>1-2 times a week</td>
<td>30.4%</td>
<td></td>
</tr>
<tr>
<td>3-4 times a week</td>
<td>12.05%</td>
<td>4.3%</td>
</tr>
<tr>
<td>5-6 times a week</td>
<td>4.3%</td>
<td></td>
</tr>
<tr>
<td>Every day</td>
<td>87.5%</td>
<td>48.7%</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>17.4%</td>
<td></td>
</tr>
<tr>
<td>1-2 times a week</td>
<td>25%</td>
<td>30.4%</td>
</tr>
<tr>
<td>3-4 times a week</td>
<td>12.5%</td>
<td>17.4%</td>
</tr>
<tr>
<td>5-6 times a week</td>
<td>13.0%</td>
<td></td>
</tr>
<tr>
<td>Every day</td>
<td>62.5%</td>
<td>21.7%</td>
</tr>
<tr>
<td><strong>Dinner</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>12.5%</td>
<td>4.3%</td>
</tr>
<tr>
<td>1-2 times a week</td>
<td>8.7%</td>
<td></td>
</tr>
<tr>
<td>3-4 times a week</td>
<td>12.5%</td>
<td>4.3%</td>
</tr>
<tr>
<td>5-6 times a week</td>
<td>4.3%</td>
<td></td>
</tr>
<tr>
<td>Every day</td>
<td>75%</td>
<td>78.3%</td>
</tr>
</tbody>
</table>

Discussion

The purpose of the present study is to investigate the association of level of acculturation and frequency of family mealtimes and examine the relationship of frequency of family mealtime and BMI in Latino children. There was no significant
difference in frequency of family mealtimes between the low and moderate level of acculturation groups. This does not support the hypothesis that those who have a higher level of acculturation have less frequent family mealtimes. Acculturation affects family diet, eating habits, and family traditions and may influence the frequency that a family eats together. When acculturation and the factors associated with immigration, such as lower socioeconomic status and education level are considered, family mealtime may not be frequent.

This premise was based on the idea that as families become more acculturated they will adopt the behavioral practices and values of the larger society. Family life has traditionally occupied a central place in Hispanic culture, and this has influenced dietary behaviors through home preparation of meals and the practice of families eating together. There are many realities in our fast paced modern world that tend to pull family members away from the home and each other. In previous research authors have found that they are predictive factors that make family mealtime more frequent. In a study done by Neumark-Sztainer and colleagues (2003) to examine family meal patterns and associations with sociodemographic characteristics and dietary intake in adolescents they found that more frequent family meals were associated with mothers not being employed and high socioeconomic status.

Based on the data from the National Survey of Children’s Health adolescents living in poverty are more likely than others to eat family meals 6-7 times a week, suggesting that our population would be more likely to have a high frequency of family mealtime (Child Trends Data Bank, 2005). Other authors suggest evidence in support of high frequency of family mealtimes in foreign born and Latino children. Child Trends
Data Bank (2005) reports data from the National Survey of Children’s Health done in 2003 that foreign-born adolescents are more likely than native-born teens to eat meals with their families 6-7 times a week (62% vs. 40%). There is not any interpretation including with this data of why this may be. The same source reports Hispanic adolescents and children are more likely than white and black teens and children to eat together 6-7 times a week (54% vs. 40%).

Clinical studies have consistently reported a high prevalence of obesity, diabetes, and over/under nutrition in the Mexican-American population. In the present study 43.5% had a healthy weight, 17.4% were overweight, and 21.7% of participants were obese. In a study done by Ogden and colleagues (2008) to estimate the prevalence of high body mass index for age from the 2005-2006 NHANES they reported 17.0% of children age 6–11 years were overweight. In the present study the rate of overweight is comparable to the national rate among 6-11 year-olds. Ogden and colleagues (2002) reported data from the 1999-2000 National Health and Nutrition Examination Survey (NHANES) and found nationally for those aged 6–11 years, an obesity prevalence of 17.0%. In the present study the rate of obesity (21.7%) is notably higher then the national rate of 17.0%.

The present sample was comprised of Latinos, which may account for the high level of obesity among participants. The most recent NHANES data (2003–2006) showed that among Mexican American boys, age 12–19, the prevalence of obesity was 22.1% and among Mexican American girls the prevalence of obesity was 19.9%; both higher then the national prevalence (Ogden, Carroll, & Flegal, 2008). Ogden and colleagues (2008) also report Latino adolescents have the highest rate of obesity compared to White and African-American populations. Although the US environment
encourages a sedentary lifestyle and excess food intake, the Hispanic population is burdened with additional risk factors for childhood obesity including parental obesity, low socioeconomic status (SES), recent immigration, acculturation to US diet and lifestyle, and limited health insurance coverage. One study designed by Wilson, Adolph, and Butte (2009) identified genetic and environmental factors contributing to childhood obesity in the Hispanic population. They assessed the diet of a large cohort of Hispanic children from low-SES families at high risk for obesity. They found on average, 91% of parents were overweight or obese and parental income and education levels were low. The same risk factors may be present in the present study’s population as they have similar demographics as the Viva la Familia Study.

The present study found evidence to support the hypothesis that those with a higher level of acculturation will have a higher BMI. We found that 66.6% of those with a low level of acculturation had a healthy weight, 22.2% were overweight, and no participants were obese. In the group that had a moderate level of acculturation 28.6% had a healthy weight, 35.7% were overweight, and 35.7% were obese. Of those who had a moderate acculturation level almost three quarters (71.4%) were overweight or obese. There may be many causes to this finding.

Diet may be a contributing factor to this difference, as families become more acculturated they may change their dietary intake. In a study done by Nuehouser (2004) to examine associations of diet with acculturation among Mexican immigrants to Washington the authors found highly acculturated participants ate fewer servings of fruits and vegetables per day compared with those not highly acculturated and had slightly higher fat intake, compared with low-acculturated participants. Ahluwalia and colleagues
(2007) conducted a study to explore the association between acculturation and body weight, self-perceptions of weight, and attempt to lose weight among Mexican Americans. They found those who were lower on the acculturation scale were less likely to have a high BMI (> or =30) (24% vs. 32%). Khan, Sobal, and Martorell (1997) found the relationship between BMI and acculturation weak and conditional, although they did find BMI in Mexican Americans appeared to be more sensitive to the process of acculturation than among Cubans or Puerto Ricans. The effects of acculturation on the Hispanic diet are illustrated in national dietary survey data that show that Latinos who speak Spanish as a primary language eat somewhat more healthful diets than those who speak English. These healthier eating behaviors include lower consumption of fat, saturated fat, and cholesterol (U.S. Department of Agriculture, 1999).

Another contributing factor in the difference between groups is the adoption of a more sedentary lifestyle. Gordon-Larsen, Harris, Ward, and Popkin (2003) analyzed data from the National Longitudinal Study of Adolescent Health and found longer-term Hispanic immigrants (≥15 years) experienced a nearly four-fold greater risk of obesity than did recent immigrants (<5 years). They suggested a higher risk for obesity associated with length of residence may be due to acculturation processes such as the adoption of the unhealthy dietary practices and sedentary lifestyles.

In the present study it was hypothesized that those who had moved to the U.S. from Mexico would share fewer meals with their family now compared to before the relocation. Data supports this hypothesis for breakfast and lunch and shows that dinner remains constant between locations. Results showed that 87.5% of the sample ate breakfast every day with their family in Mexico and now only 48.7% eat breakfast with
their family. Many parents may not have time to sit down with their children in the morning or the children may qualify for a free morning meal at school and may eat with other students in the cafeteria instead of at home. There were no participants who reported that they ate less than 3-4 times a week with their family in Mexico. After their move to the United States, 43.4% of the sample report that they eat breakfast with their family less than 3-4 times a week.

Lunch had similar findings; those who ate lunch everyday with their family in Mexico decreased from 62.5% to 21.7% in the United States. This could be due to attending a half-day school program in Mexico in which they returned home for lunch or left for school after lunch. Another factor that may have impacted this finding is that the participants may have lived in Mexico before they were of school age and therefore are reporting frequencies that correspond to being at home during the day with a parent.

Dinner was the only meal that remained consistent over the two locations. About three quarters of the sample reported eating dinner with their family every day in Mexico and the United States. This may be due to the meal being later in the day so more family members may be in the home.

A discussion of the present study’s weaknesses is necessary when interpreting the findings. Including a wider range of ages or targeting several schools in the district could have expanded the sample size. An earlier start in the collection of data would have increased the time needed to arrange to survey more participants. Including multiple schools would have diversified the level of SES and geographic location represented in the sample.

The acculturation measure used (SASH-Y) has been normed and used with youth
between the ages of 10 to 16 years old. Due to the nonexistence of an acculturation scale for those younger than ten, the SASH-Y was used in the present study with one adaptation. Each participant was individually read the questions and answers and was allowed to ask question about terms used in the questionnaire such as non-Hispanic or the concept of more than or less than. Although the psychometrics of this scale is strong they have not been normed on this age group and therefore may not be as accurate in identifying acculturation level.

Information gathered may have been more accurate if gathered from their parent or guardian instead of directly from the participant. Due to logistics of surveying parents the research team chose to collect data directly from the children. This presents weaknesses in the present method of data collection. The participants may not have provided reliable answers, due to their understanding of the questionnaire and the lack long-term memory at age their age. They may not have remembered how often they are with their family. They may have exaggerated the frequency of family mealtimes or may have been embarrassed to disclose information about themselves or their family.

The present study would have benefited from a question regarding SES, which was not included on the questionnaires due to method of data collection (directly from the participants). This is an important factor to consider in future studies examining frequency of family mealtime and BMI percentile. SES has been show to be related to weight issues and family mealtime (Neumark-Sztainer, Hannan, Story, Croll, & Perry, 2003; Ogden, et al., 2006). Future research should include studies that assess the impact of SES on weight management in Latinos. Studies are needed explore cost issues in preparing healthy yet economical Latino foods and issues of cost as they may affect
physical activities is warranted.

Questions regarding dietary intake may have strengthened the present study. Neumark-Sztainer, Hannan, Story, Croll, and Perry (2003) concluded that family meals appear to play an important role in promoting positive dietary intake among adolescents and are positively associated with intakes of fruits, vegetables, grains, and calcium-rich foods and are negatively associated with soft drink consumption. These studies suggest that family meals have a strong influence on dietary intake of children and that family meals are positively associated with more healthful eating patterns. If dietary intake had been included in the present study it would have been interesting to examine if this sample is consistent with Neumark-Sztainer’s findings. Another factor to be aware of is that as families become more acculturated they may change their dietary intake. In a study done by Nuehouser (2004) to examine associations of diet with acculturation among Mexican immigrants to Washington the authors found highly acculturated participants ate fewer servings of fruits and vegetables per day compared with those not highly acculturated and had slightly higher fat intake, compared with low-acculturated participants. In suture research it would be valuable look at dietary intake and level of acculturation to understand if Nuehouser’s findings are consistent within this population.

There are many directions for future research that would allow a greater depth of understanding of the association with family meals, acculturation, and weight. More research is needed to uncover the impact of immigration, social and environmental inequities, and cultural experiences on behaviors contributing to obesity. Future research must investigate the most effective means to prevent overweight among Latino youth and effective intervention approaches that encompass not only the family unit but also the
physical environment. Snethen, Hewitt, and Petering, (2007) suggest that, “interventions must address the multiplicity of factors contributing to childhood obesity at the family and community levels” (p. 371). In a commentary published in the Journal of the American Dietetic Association, Rafael Pérez-Escamilla suggests that although we know more about the relationship between acculturation and obesity then we did 10 years ago, "We still need to elucidate the mechanisms and the extent to which acculturation to the USA 'mainstream' culture per se explain deterioration in dietary quality, and increased risks for obesity and associated chronic diseases among Latinos. Filling in this gap in knowledge is essential for developing culturally appropriate and behavioral change based interventions targeting Latinos with different levels of acculturation" (Wilson, Adolph, & Butte, 2009, p. 1012).

Overall, data suggests that a higher level of acculturation may be associated with an unhealthy lifestyle. This is can be expected as those acculturating to the U.S. culture acquire a more sedentary lifestyle in which one is exposed to high fat high calorie foods. This suggest that more states should follow the California Nutrition Council’s lead, which has published guidelines for Hispanic consumers in an effort to encourage good nutrition amongst this population. They are encouraging the population to make simple changes to traditional recipes to significantly improve the nutrition content of the dishes (California Nutrition Council, 2002). Nutrition education programs aimed at improving the quality of the Hispanic diet are currently based on a combination of preserving some elements of the traditional Hispanic diet—including a reliance on beans, rice, and tortillas—and a change in others—such as reduced consumption of high-fat dairy products and less use of fat in cooking. The Latino Nutrition Coalition, recognized the
need for separate guidelines for this group as early as 1996, when it established a dietary pyramid for Latinos (Latino Nutrition Coalition, 2007).

Families, schools, communities, health professionals and policymakers throughout the United States need to become engaged in efforts to change the conditions that foster unhealthy eating and inactivity. Latino children especially need to be involved as peer educators, thought leaders and advocates for practices, programs and policies that promote healthy eating and regular physical activity. Policy solutions to the obesity epidemic must be considerate of the unique social, cultural and environmental circumstances that face Latinos. Low-cost community resources such as church youth programs, recreation centers, and parks that offer affordable and accessible opportunities for physical activities must be created. In addition, environmental health and public safety efforts are needed to improve safety in play areas and walkability of communities. Community safety issues such as gangs, shootings, mistreatment, drugs, alcohol, and speeding cars would need to be addressed to encourage the use of parks and walking to and from school.

Small changes need to made in schools, homes and communities. The UCLA Center for Health Policy Research and the Latino Coalition for a Healthy California (2005) suggest changes such as replacing sugary snacks and sodas in vending machines at schools with more nutritious snacks and healthier drinks. Schools must ensure that children are receiving physical education programs. Communities must encourage the availability of affordable fresh fruits, vegetables and healthy food choices by locating grocery stores rather than liquor stores in all neighborhoods, and addressing the large presence of fast food restaurants in communities of color and low-income neighborhoods.
Approaches for improving the health of Hispanics need to be broad-based and to consider the complexities of a variety of lifestyle factors.
References


University of Minnesota School of Public Health, Project Eating Among Teens (Project EAT), January 9, 2008. Project EAT.


