

THE INFLUENCE OF PARENTING AND ACCULTURATIVE STRESS ON PARENTAL  
FEEDING STYLE AND PEDIATRIC OBESITY FOR LATINO FAMILIES

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by  
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ABSTRACT

Pediatric obesity has become an epidemic in the United States. Previous research has shown that parenting factors related to stress and parental feeding style impact child BMI, and that Latino families are especially at risk for pediatric obesity and stress. The goal of the current study was to evaluate the effects of parenting and acculturative stress on the parental feeding styles of Latino parents. Parental feeding styles were then examined in relation to child BMI. Latino parents of children between the ages of 2 and 8 ( $N = 124$ ) completed a survey on parenting stress, parental feeding styles, parent BMI, and demographics. Child BMI scores were collected as outcome variables. Children were predominantly male (52.4%), about 6 years old ( $M$  age in months = 59.02,  $SD = 23.82$ ), and had an average BMI z-score of 0.77 ( $SD = 1.14$ ). There were several important significant results found by the current study. A demanding parental feeding style was associated with lower child BMI z-scores,  $r = -.179$ ,  $p < .05$ . There was a trend finding that parents with an authoritative feeding style endorsed less parenting stress than parents who endorsed other feeding styles,  $F(3, 120) = 2.21$ ,  $p = .09$ . Parents with uninvolved feeding style had significantly higher BMIs than parents with authoritarian feeding style,  $F(3, 69) = 3.38$ ,  $p < .05$ . Parent BMI was positively associated with child BMI z-score,  $r = .273$ ,  $p < .05$ . Finally, parents who did not think weight was a health concern for their children actually had children who were more overweight,  $F(2, 111) = 3.18$ ,  $p < .05$ . Findings from the current study can be used to inform

healthcare practitioners of the need to use culturally sensitive interventions that consider parents' stress and health experiences. Future research is warranted in the area of ethnic variations and cultural misperceptions about obesity and how it is a health epidemic.

## APPROVAL PAGE

The faculty listed below, appointed by the Dean of the College of Education, have examined the dissertation titled, “The Influence of Parenting and Acculturative Stress on Parental Feeding Style and Pediatric Obesity for Latino Families,” presented by Genevieve A. Maliszewski, candidate for the Doctor of Philosophy degree, and hereby certify that in their opinion it is worthy of acceptance.

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## CHAPTER 1

### INTRODUCTION

One of the most concerning current health problems faced in the United States is that of obesity. The incidence of obesity in the United States has increased at alarming rates in recent years (Ogden, Carroll, Curtin, McDowell, Tabak, & Flegal, 2006; Ogden, Carroll, Kit, & Flegal, 2012; Strauss & Pollack, 2001). Studies have shown that as of 2004, 66.3% of adults over the age of 20 years were either overweight or obese (Ogden et al., 2006).

Children in the United States are particularly vulnerable to overweight and obesity, with 31.8% of children and adolescents ages two to 19 years classified as overweight (Ogden et al., 2012). In other words, these children had a body mass index (BMI) greater than or equal to the 85<sup>th</sup> percentile for each child's age and gender. Furthermore, 16.9% of youth are classified as obese with a BMI greater than or equal to the 95<sup>th</sup> percentile for age and gender (Ogden et al., 2012). BMI z-score is calculated based on norms from the year 2000. Thus, children are being compared to their counterparts from that year. As the incidence of obesity has increased over the years, the percentage of children who classify as obese today is greater than those classified as obese in 2000. This explains why 16.9% of children in 2012 encompassed what in the year 2000 was only 5% of children. As the prevalence of pediatric obesity has increased, so have the unfortunate medical and psychological comorbidities that arise as a result of this health problem.

The consequences of pediatric obesity are staggering, as the long-term implications of this health concern have been shown to affect both medical and psychological health throughout childhood and into adulthood (Acosta, Manubay, & Levin, 2008). For example, obese youth are at risk for a myriad of health problems including metabolic syndromes such

as insulin resistance, type 2 diabetes mellitus, polycystic ovarian syndrome, dyslipidemia, and hypertension in addition to other serious conditions such as fatty liver disease, obstructive sleep apnea, joint pain, impaired mobility, and fractures (Acosta et al., 2008; Wang, Gortmaker, & Taveras, 2011). In addition to medical problems, obese youth are at risk for a range of psychological and social concerns including eating disorders, self-esteem problems, depression, and bullying (Acosta et al., 2008; Anderson, Murray, Johnson, Elder, Lytle, Jobe, Saksvig, & Stevens, 2011).

Of particular concern for health professionals is the dramatic increase in overweight and obesity among racial and ethnic minority groups. From 1986-1998, the prevalence of being overweight significantly increased among Latinos, African Americans, and non-Latino Whites. During that time period, however, this increase was more than 120% for African Americans and Latinos (Strauss & Pollack, 2001), and in recent years, the risk for obesity among minority groups has continued to be shown (Ogden et al., 2012). Ogden and colleagues (2012) showed that between 2009 and 2010, there were significant racial and ethnic differences among increases in overweight prevalence, with African American and Latino youth being at particular risk compared to non-Latino Whites. In particular, 21.2% of Latino children and adolescents were obese compared with 14.0% of non-Latino White children and adolescents (Ogden et al., 2012). Because of these unfortunate data, a thorough examination of pediatric obesity among Latino youth and accompanying risk factors is necessary.

### **Latinos and Obesity**

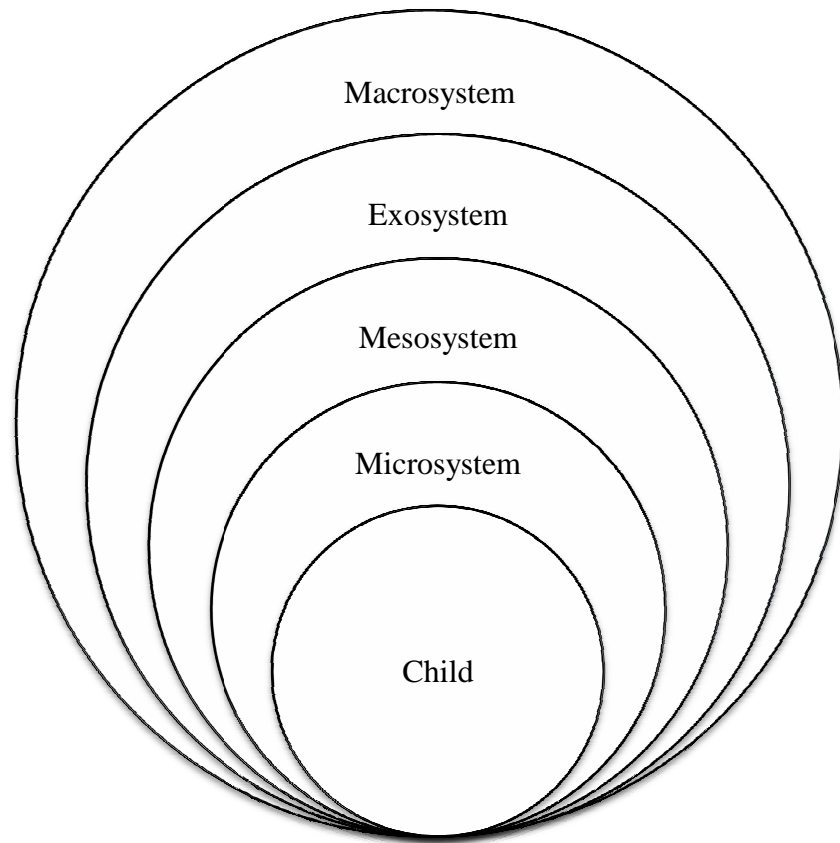
While the aforementioned research indicates that all minority groups are at risk for obesity, Latinos are particularly vulnerable (Bates, Acevedo-Garcia, Alegría, & Krieger,

2008; Centrella-Nigro, 2009; Ward-Begnoche, Gance-Cleveland, & Portilla, 2009). It is important to note that the term *Latino*, used interchangeably with *Hispanic*, refers to individuals from at least 25 different Spanish-speaking countries. While almost two-thirds of Latino families in the United States are from Mexico, other ethnicities in the United States include Central and South Americans, Puerto Ricans, and Cubans (Centrella-Nigro, 2009). There are a multitude of reasons why Latino families are particularly vulnerable to obesity. Notably, an abundance of research has shown that being overweight in the general population is positively correlated with lower socioeconomic status (Centrella-Nigro, 2009). Indeed, lower family income, lower parental education, and lack of health insurance are all high-risk factors for overweight seen in Latino populations. In addition to these, there are a multitude of other environmental variables that influence childhood obesity among all ethnicities, but in particular Latinos.

### **Ecological Systems Theory**

Of particular relevance to the environment's effect on pediatric obesity is Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1986). Through his model, Bronfenbrenner suggested that there are a multitude of interacting environmental factors, or systems, that affect children's psychological, social, and physical development. He posited that these systems make up an ecological structure, which starts with the individual child and expands outward, encompassing everything that has influence on the child's development (see Figure 1). The first system, coined the microsystem, is made up of aspects of a child's environment that he or she directly experiences (i.e., local community, school, neighborhood, peer group, family). Furthermore, each individual is part of a larger system, termed the mesosystem, which is made up of interacting elements of the microsystem (e.g., the

relationship between a child's school, neighborhood, and family). Moving further away from the child, Ecological Systems Theory dictates that the child is part of an exosystem, a term Bronfenbrenner used to describe settings in which the child is not physically present but are still influential to the child's development (e.g., parents' places of work, parents' social groups). Finally, there are broader societal and cultural factors that influence the child and aspects of his or her micro-, meso-, and exosystems. This broader social context is called the macrosystem, and it encompasses all of the above-mentioned systems. Aspects of the child's microsystem, in particular his or her family (e.g., parenting behaviors, parent weight, eating and exercise routines, number of children in the home) are vital contributors to his or her risk for obesity. However, a child of ethnic minority status may be more at risk for obesity because of the microsystem's interaction with more macro-level issues such as being of low SES and the cultural misperceptions about what defines obesity (Singh, Kogan, Van Dyck, & Siahpush, 2008). The current study focused on ways in which the macrosystem influences a key component of the child's microsystem, his or her parents, and how these influences indirectly go on to affect the child's BMI. In particular, society and culture inflict stress onto parents in a variety of ways (e.g., SES, discrimination, gender role and parenting expectations, etc.), which indirectly go on to affect the child. As such, the current study proposed to investigate the influence of macro-level factors (i.e., stress related to parenting and acculturation) on parental feeding style, a component of the microsystem.



*Figure 1: Ecological Systems Model*

### **Stress and Pediatric Obesity**

It is well known that exposure to stress plays an important role in obesity in both childhood and adulthood (Garasky, Stewart, Gundersen, Lohman, & Eisenmann, 2009). Ecological Systems Theory posits that environmental factors interplay to affect child development. Consequently, stress that parents experience has a significant impact on their parenting abilities and parenting style. Parenting style, which will be discussed later in this paper, has been documented to have an effect on childhood obesity. Therefore, the current study sought to examine how parents' experience of stress influences their parental feeding style and how these influences relate to child BMI. More specifically, it is possible that parenting stress and acculturative stress in Latino parents play a large role in childhood obesity because of their effects on parenting behaviors and styles.



**Parenting stress.** There is an abundance of research demonstrating that parenting stress affects the ways in which parents behave towards their children (Barrera et al., 2002; Conger, Ge, Elder, Lorenz, & Simons, 1994; Park & Walton-Moss, 2002). Parenting stressors as operationalized by time demands, lack of family rules, and difficulty enforcing rules have also been found to affect child BMI for families in which at least one adult is overweight (Lytle et al., 2011). However, the influence of parenting stress on child BMI is not limited to families in which a parent is overweight. For example, Moens, Braet, Bosmans, and Rosseel (2009) demonstrated that parenting stress is positively associated with child BMI. These studies provide a rationale for continued investigation into family and parenting stressors that contribute to parenting style, and thus, childhood overweight and obesity. As such, the current study a) assessed the relationship between parenting stress, parental feeding style, and child BMI, and b) examined acculturative stress, a unique stressor that has been documented to influence Latino parenting, and how it relates to parental feeding style and child BMI.

**Acculturation and acculturative stress.** Another important component in the development of pediatric obesity for Latino families is acculturation. Acculturation is known as the process through which individuals move as they assimilate or adjust to a new cultural environment. Acculturation affects different ethnic groups in a variety of ways and is highly important when studying individuals of Latino background because of the large growth of this population in recent years.

It is well known that the process of acculturating to a new environment is a highly stressful experience. Acculturating families often experience financial stressors, language barriers, lack of access to health care, dangerous living environments, discrimination and

racism, and unemployment (Caplan, 2007). Acculturative stress has also been found to be associated with depression (Torres, 2010), anxiety (Revollo, Qureshi, Collazos, Valero, & Casas, 2011), and marital discord (Negy, Hammons, Reig-Ferrer, & Carper, 2010). Although there is overlap between general parenting stressors and acculturative stress (i.e., low SES, dangerous living environments, lack of health care), the latter is a unique component of stress that Latino parents encounter.

Some studies have investigated the effects of parental acculturative stress on parenting behaviors and styles. Leidy, Parke, Cladis, Coltrane, and Duffy (2009) found that high levels of parental acculturative stress were associated with poor child outcomes in the areas of internalizing (e.g., concentration, self-esteem) and externalizing (e.g., impulsivity, aggression) symptoms as assessed on the Child Behavior Checklist (Achenbach & Edelbrock, 1983). Other research has shown that contextual stressors as operationalized by pressure to learn English, sense of neighborhood danger, and economic hardship (all stressors associated with acculturative stress) are linked with decreased levels of parental warmth and consistent discipline (White, Roosa, Weaver, & Nair, 2009). Although there is some research indicating that parental acculturative stress has negative effects on parenting style and child behaviors (Leidy et al., 2009), there is no research assessing the unique effects of acculturative stress on parental feeding style and child BMI. For this reason, the current study proposed to examine acculturative stress in addition to parenting stress to determine the extent to which these stressors affect parental feeding style and child BMI. Given that acculturative stress occurs at any point during the acculturation process, the current study controlled for level of acculturation.

### **Parenting and Pediatric Obesity**

The influence of family on child development has been extensively studied for decades. The effect of family, and especially that of parenting, on child BMI has also been found to be highly influential (Kitzman & Beech, 2011; Lindsay, Sussner, Kim, & Gortmaker, 2006; Payas, Budd, & Polansky, 2010; Schmeer, 2012). In fact, a review of the literature conducted by Kitzman and Beech (2011) indicated that the most important component of obesity intervention programs is not necessarily treating the child, but rather, it is working with the parent to alter parenting behaviors and parenting style. Indeed, parenting is inarguably the most important familial influence on the healthy lifestyle development of young children and undoubtedly plays a role in the development of childhood obesity.

Parenting style is of particular salience to the current study because it has been found to be highly influential on child development in all domains, including psychological, social, and behavioral (Steinberg, Mounts, Lamborn, & Dornbusch, 1991). Contrary to parenting behaviors, which may change depending on contextual factors, parenting styles have been shown to remain stagnant across time and contexts (Darling & Steinberg, 1993). Parenting styles are defined according to parents' degree of responsiveness (i.e., warmth and support directed towards children) and demandingness (i.e., control exerted on a child). Four main styles of parenting have been identified: (a) authoritarian parenting, which is marked by extremely restrictive and controlling parenting with minimal nurturing behaviors toward children; (b) permissive parenting, which is highlighted by setting few limits for children while remaining highly nurturing; (c) authoritative parenting, which includes parents with both high control and high nurturance behaviors towards their children; and finally, (d) uninvolved or neglectful parenting, in which parents demonstrate low control and low nurturing behaviors (Baumrind, 1971). The effects of parenting style on child development

are seen in a broad range of areas. Children from authoritarian parents are associated with poor adolescent adjustment in the areas of depression, self-esteem, and anxiety (McKinney, Milone, & Renk, 2011). Additionally, children of authoritative parents report more frequent family meals, which is related to better health outcomes (Berge, Wall, Neumark-Sztainer, Larson, & Story, 2010).

Because of the effects of parenting style on child and adolescent adjustment, research has considered the role of parenting style on childhood obesity (Park & Walton-Moss, 2012; Rhee, Lumeng, Appugliese, Kaciroti, & Bradley, 2006; Savage, Fisher, & Birch, 2007; Sleddens, Gerards, Thijs, de Vries, & Kremers, 2011). These studies have found that, generally, children from authoritative parents, including those who use less psychological control (a common component of authoritarian parenting) and more appropriate limit setting, demonstrate more healthy nutrition and activity behaviors (Johnson, Welk, Saint-Maurice, & Ihmels, 2012; Sleddens et al., 2011), consume more fruit and vegetables (Park & Walton-Moss, 2012; Patrick, Nicklas, Hughes, & Morales, 2005), and are less likely to be overweight than youth from non-authoritative parents (Kitzmann, Dalton, & Buscemi, 2008; Rhee et al., 2006).

Although general parenting style is an important contributor to child health outcomes, parental feeding style is one construct that is more relevant to pediatric obesity. Parental feeding style typically mirrors general parenting style in that parents have a particular way in which they engage in feeding activities. While most parents engage in feeding styles that parallel their parenting styles, this is not always the case (Blissett, 2011; Vereecken, Legiest, de Bourdeaudhuij, & Maes, 2009). With this in mind, parental feeding style *is* related to parental feeding behaviors (Blissett, 2011), making it necessary to focus on feeding style as

opposed to general parenting style in order to research parental influences on child BMI. As mentioned above, non-authoritative methods of parenting are associated with increased risk for an array of unhealthy behaviors (Alia, Wilson, St. George, Schneider, & Kitzman-Ulrich, 2012; Johnson et al., 2012; Kitzmann et al., 2008; Kremers, Brug, de Vries, & Engels, 2003; Park & Walton-Moss, 2012; Patrick et al., 2005; Rhee et al., 2006; Rodenburg, Kremers, Oenema, & Van de Mheen, 2011; Sleddens et al., 2011; Wake, Nicholson, Hardy, & Smith, 2007). The current study examined the relationship between parental feeding style and childhood obesity. In addition to parental feeding style, other influential factors related to obesity in Latino populations have been suggested. For example, parental stress, acculturation, and parental acculturative stress have been shown to be influential in child BMI (Gordon-Larson, Harris, Ward, & Popkin, 2003; Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005; Morello, Madanat, Crespo, Lemus, & Elder, 2012; Shi, van Meijgaard, & Simon, 2011; Van Hook & Baker, 2010; Wojcicki, Schwartz, Jiménez-Cruz, Bacardi-Gascon, & Heyman, 2012).

### **Study Purpose**

Given the unfortunate increase in pediatric obesity for Latino youth (Ogden et al., 2012), as well as the significant influence of parenting on childhood obesity, the first purpose of the proposed study was to explore how parenting and acculturative stress influence parental feeding style. The second purpose of the current study was to investigate the influence of parental feeding style on child BMI.

## CHAPTER 2

### REVIEW OF THE LITERATURE

The incidence of obesity has become a serious health concern in the United States (Ogden et al., 2006; Ogden et al., 2012; Strauss & Pollack, 2001). A 2006 study by Ogden and colleagues demonstrated that 66.3% of adults over the age of 20 were either overweight or obese as of 2004. Children in the United States are particularly vulnerable to overweight and obesity, with 21.9% of Latino children, 21.5% of African American children, and 12.3% of White children being overweight by 1998 (Strauss & Pollack, 2001). These trends have continued over the past 15 years, with 31.8% of all children and adolescents being classified as overweight (Ogden et al., 2012). In other words, these children had a body mass index (BMI) greater than or equal to the 85<sup>th</sup> percentile for each child's age and gender. Furthermore, in 2010, 16.9% of youth ages 2-19 were classified as obese with a BMI greater than or equal to the 95<sup>th</sup> percentile for age and gender (Ogden et al., 2012). In addition to the large prevalence of childhood obesity in recent years, Ogden et al. (2006; 2012) showed that there was a trend for significant increases over 1999-2000, 2001-2002, 2003-2004, and 2009-2010, especially among males. These trends suggest that children and adolescent are becoming overweight or obese at alarmingly fast rates. As the prevalence of pediatric obesity has increased, so have the unfortunate medical and psychological comorbidities that arise as a result of this health problem.

Acosta and colleagues (2008) provided an in-depth review of the medical problems associated with overweight and obesity among children and adolescents. In particular, they noted that obese youth are at risk for metabolic syndromes such as insulin resistance, type 2 diabetes mellitus, polycystic ovarian syndrome, dyslipidemia, and hypertension.

Unfortunately, without appropriate intervention, these syndromes can follow a child well into adulthood and put him or her at severe risk for developing cardiovascular disease and other serious health concerns (Acosta et al., 2008). Acosta and colleagues also reported findings that overweight youth are 2 to 3.7 times more likely than their peers to develop hypertension and that increased BMI was associated with heightened blood pressure regardless of age (p. 81). In addition to these health problems, youth with severe weight problems often report struggling with sleep apnea, and the efficacy of treatment for sleep apnea is less for overweight youth than non-overweight youth (Acosta et al., 2008).

Of particular relevance to psychologists working with youth are the behavioral and emotional comorbidities that arise from childhood obesity. Recently, Anderson et al. (2011) sought to investigate the emotional side effects of obesity in a sample of 918 adolescent girls. Researchers measured the participants on their depressive symptoms and weight status while also considering their racial/ethnic identities. Data were collected while the participants were in sixth grade and again in eighth grade. Results of this study showed that most girls who reported being obese in sixth grade remained obese in eighth grade. Additionally, White sixth graders who were obese also reported being depressed 3.2 times more than White girls who were not obese. This trend was also found to be a case for Black and Latino girls, who were 0.6 and 1.6 times more likely, respectively, to be obese when depressed. While the relationship between depression and obesity was not as large for Black and Latino girls, these findings suggest that obesity predicted higher odds for depressed mood among a large proportion of the study's participants. This study is limited because it did not investigate the cultural factors that may have provided reasons for the ethnic differences it found, nor did it examine other constructs such as social isolation or bullying that may have played a role in

depression among the overweight youth in the sample. However, its findings are important for providers working with obese youth and suggest that depression and related emotional problems are common among overweight and obese adolescents.

In order to expand on the research regarding emotional problems and obesity in childhood, Pastor and Reuben (2011) conducted a study assessing four types of emotional and behavioral difficulties with a sample of male and female adolescents. The authors analyzed data from the National Health Interview Survey (NHIS), in which parents were interviewed on a variety of topics related to adolescent health. Data included adolescent BMI as well as a measure of emotional and behavioral difficulties. Results indicated that for both genders, obesity was more common among non-Latino Black and Latino adolescents than non-Latino White adolescents. Furthermore, the relationship between emotional and behavioral difficulties and obesity varied. For non-Latino White and Latino girls, having emotional difficulties was positively associated with obesity. Parents also reported that behavioral difficulties were positively associated with obesity for all Latino adolescents and non-Latino White adolescents. This finding is interesting because of the ethnic differences in emotional and behavioral outcomes for obese youth. However, this study indicates that for Latino youth especially, health care providers should remain cognizant of the significant emotional and behavioral problems that can arise from overweight and obesity.

One can see from the above study that obesity was more common among ethnic minority groups in the sample utilized (Pastor & Reuben, 2011). These trends were also shown by Ogden and colleagues (2012), and warrant a thorough examination into the ethnic differences in obesity. Recent research has indicated that Latinos living in the United States are especially at risk for obesity (Bates et al., 2008). Bates and colleagues investigated this



pattern by examining BMI among a sample of first-, second-, and third-generation Latinos and Asian Americans. Results showed that while BMI varied across generations, BMI and proportion of respondents who were obese were significantly higher among Latinos than among Asian Americans (Bates et al., 2008). Furthermore, obesity among Latinos was associated with less education and being a second or third generation Latino living in the United States. The results of this study suggest that obesity among Latino population increases for succeeding generations of immigrants living in the United States. However, this study only assessed obesity among Latino adults, limiting its generalizability to children.

Fortunately, there have been an abundance of studies examining the racial and ethnic differences in obesity incidence for youth. Freedman, Khan, Serdula, Ogden, and Dietz (2006) sought to examine gender and ethnic differences in child obesity trends. The researchers analyzed data that were collected in four nationally representative studies conducted from 1971-1974 to 1999-2002. The analyses used data from youth ages 2 to 17 years old who were classified as non-Latino White, non-Latino Black, and Mexican American. Results showed that White children experienced significantly smaller weight increases than minority children in the samples from 1971-1974 to 1999-2002. Furthermore, weight increases for boys were significantly greater among Mexican Americans, while for girls the largest weight increases were among non-Latino Blacks. The authors concluded that while in the 1970's and 1980's, overweight incidence increased more for Black youth than White, Mexican American youth in 1999-2002 had similar mean BMI levels to those of Black children. This study highlights the unfortunate increases in obesity among all ethnic groups, but in particular for youth of Latino backgrounds.

Wang and colleagues (2011) conducted a similar study examining the trends for

severe obesity among children and adolescents from 1976-2006. Data from the same national study as that utilized by Freedman et al. (2006) was analyzed, although this study included data through 2006. The authors found similar trends to those reported by Freedman et al., in that Latino boys and non-Latino Black girls had the highest rates of severe obesity in 2006. In particular, Latino boys aged 6-11 years were observed to have particularly high prevalence compared to non-Latino White boys (9%, compared to 3.3%) (Wang et al., 2011). Furthermore, Latino boys and girls were both more likely to be severely obese for age than non-Latino White youth of both genders. These data show the continued trend of increases in obesity prevalence over the last decade and highlight the disproportionate incidence for minority children specifically. For this reason, the current study proposed to examine obesity and related factors with particular focus on minority youth, specifically Latino youth under the age of eight.

### **Obesity Risk Factors**

As noted above, the incidence of obesity among Latino youth is disproportionately greater than that of non-Latino White youth in the United States. This finding warrants consideration of what the reasons could be behind this unfortunate trend. Centrella-Nigro (2009) aimed to investigate these reasons by reviewing the available literature on childhood obesity with the purpose of providing pediatric nurses with the information necessary to work towards limiting continued increases in obesity. Centrella-Nigro's review indicated that obesity in Latino youth is positively associated with being of a lower socioeconomic status. Latino children have been found to be twice as at risk for being overweight than children from other racial groups enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (Nelson, Chiasson, & Ford, 2004). It seems as though low-

income families are forced to spend significantly less money on fruits and vegetables, resulting in poorer diet compared to higher-income families (Centrella-Nigro, 2009). Lack of health insurance is particularly problematic, as almost one-third of the over 47 million uninsured Americans are Latinos who have difficulty seeking out health care and resources necessary to decrease the risk of their children becoming obese (National Coalition of Healthcare, 2009).

In addition to lack of health insurance, there appears to be a strong misperception among individuals from Latino backgrounds with regard to what defines obesity and how it is a health concern. Numerous studies have indicated that Latino parents vastly underestimate the overweight status of their young children, with most parents indicating that children who would be deemed overweight by the CDC are actually in a healthy weight range (Bayles, 2010; Chaparro, Langellier, Kim, & Whaley, 2010; Reifsnider et al., 2006). Furthermore, these studies have shown that parents from Latino backgrounds tend to report that children with a healthy weight status are actually underweight and thus unhealthy (Evans et al., 2011). This cultural discrepancy about weight perception is problematic and necessitates continued research into childhood obesity among Latino families. However, weight perception is still only a small part of the problem. There are a multitude of environmental variables that influence childhood obesity among all ethnicities, but in particular Latinos.

Singh and colleagues (2008) conducted a study investigating the environmental risk factors for childhood obesity in the United States. These researchers analyzed data from the National Survey of Children's Health (NSCH), which was a telephone survey conducted in 2003 and 2004 with parents of over 100,000 children and adolescents in the United States. Results of this study provided a plethora of information related to risk factors for childhood

obesity. Notably, researchers found that being of Black or Latino ethnicity, living in a non-metropolitan residence and poorer neighborhoods, having lower parental education, higher poverty levels, and increased levels of television viewing and physical inactivity were associated with overweight and obesity among the child and adolescent sample. One can see that the problem of obesity is complicated due to the range of epidemiological factors that contribute to it. As such, research is needed to determine more specifically what factors play a strong role in the development of obesity.

In order to explore risk factors for higher BMI among overweight 9- to 11-year-old children, Keihner, Mitchell, Kitzmann, Sugerman, and Foerster (2009) conducted a study with a total of 741 children. The aim of Keihner and colleagues' study was to identify the primary socioeconomic, psychosocial, behavioral, and environmental risk factors for obesity. Utilizing data from the 2007 California Children's Healthy Eating and Exercise Practices Survey (CalCHEEPS), the authors found that parent education level was among the strongest risk factors for child BMI and overweight. While this study did not find ethnicity and poverty status to be predictors of obesity after controlling for parental education level, the authors noted that other studies have found strong relationships between poverty and obesity, leading to a conclusion that the relationship between poverty and obesity is extremely complex (Keihner et al., 2009). However, it is important to note that the racial/ethnic findings of this study are limited due to the fact that the Latino families participating in the study were English-speaking. Failure to include Spanish-speaking Latino families is problematic and may be the reason for the lack of significant ethnicity findings. In other words, the study's sample may have lacked variability due to potential similarities between English-speaking Latinos and the White participants. Including Spanish-speaking Latinos would allow for

acculturation and other cultural differences that exist among Latinos in the United States. Because of the diverse levels of English-language competency among Latino individuals in the United States, it is important for research examining this population to incorporate Spanish-language measures into its design and implementation, in order for such studies to be externally valid.

Another commonly cited predictor of pediatric obesity is physical inactivity, and in particular ethnic disparities of inactivity among American youth (Byrd-Williams, Kelly, Davis, Spruijt-Metz, & Goran, 2007; Liu, Probst, Harun, Bennett, & Torres, 2009; Richmond, Field, & Rich, 2007). Richmond and colleagues sought to examine reasons for this ethnic difference by considering neighborhood safety as one potential reason for decreased physical activity among minority groups. The authors utilized data from the National Longitudinal Study of Adolescent Health (Add Health), and found that Black and Latino youth reported less physical activity than Whites. Furthermore, data showed that these minority groups had lower average socioeconomic status compared to Whites and were more likely to reside in segregated neighborhoods in which they reported not feeling safe. The variable of neighborhood safety was found to be particularly salient for Latino females, as neighborhood of residence explained a higher rate of inactivity among this demographic. The lack of safe places to engage in physical activity among families from low socioeconomic backgrounds may be a particular risk factor for obesity among minority groups. However, this study did not indicate differences in physical activity between different ethnic groups, suggesting that physical inactivity may not be the sole reason for the higher obesity prevalence seen among Latino youth. One can see based on the above-mentioned research that the causes of obesity among Latino children are not only widespread, but also complex

in nature. Therefore, it is important to consider broad and specific environmental factors that play a role in its development. Ecological Systems Theory is one perspective used to examine childhood obesity.

### **Ecological Systems Theory**

The current study assessed childhood obesity from the theoretical standpoint of Ecological Systems Theory (Bronfenbrenner, 1979). Bronfenbrenner's theory was originally developed in order to describe the significant influences various ecological factors have on a child's social and cognitive development. However, these influences have recently been expanded to include physical and psychological development. With his theory, Bronfenbrenner posited that children are exposed to several different levels of influence. These include the direct settings, or microsystems, in which they live (i.e., family, home, and school) and the interrelationships between these settings (i.e., mesosystem). Further, the child lives as part of a larger social context, or exosystem. The exosystem was described by Bronfenbrenner as the settings in which the child is not physically present but that nonetheless affect the child (i.e., parents' employment, parents' network of friends). Finally, the societal and cultural contexts (i.e., macrosystem) in which the child lives are influential and unique from other cultures and societies in which the child is not living. All of these ecological levels interrelate and affect the child's development. For example, a child's parents are influenced by the societal and cultural context in which they live. These parental influences then go on to impact the child. With his theory, Bronfenbrenner provided a foundation for a whole area of research related to child and adolescent development, and highlighted the importance of a thorough examination of not just the child him- or herself, but of other levels of his or her existence as well. The current study sought to examine the

ways in which a child's parents, who are a key component of his or her microsystem, are influenced by the stressors caused by macrosystem factors, including parenting and acculturative stress.

### **Stress and Pediatric Obesity**

Perhaps one of the most significant influences on obesity in the United States is stress. Stress arises in numerous forms and for any single person may have a variety of causes and consequences on physical and psychological health. Regarding obesity, research has indicated that both psychosocial and physical stress may perpetuate this medical concern (Dockray et al., 2009; Garasky et al., 2009). Stress is a highly complicated construct in that it is often a psychological phenomenon with significant biological implications. Dockray and colleagues (2009) sought to study the biological impact of stress in a pre-adolescent sample by measuring children and adolescents ( $N = 111$ ) and their parents on youth's degree of depression, cortisol reactivity (i.e., stress response), physical activity, and BMI. Results indicated that there were significant positive relationships between depression and cortisol reactivity. Furthermore, the researchers reported that cortisol reactivity served as a mediator between depression and BMI. These findings are important because not only do they connect childhood depression with stress responses, but they also indicate that BMI is heavily affected by this relationship. Although the biological implications of stress on childhood obesity are imperative in our ability to prevent and treat it, the psychosocial implications of stress are equally important. Ecological System Theory posits that child development is not just affected by biological conditions. There are also environmental influences that play a strong role. In particular, stress that families and parents undergo is highly influential on parenting behaviors and thus, impacts children significantly (Garasky et al., 2009; Rodgers,

1998).

Garasky et al. (2009) conducted a study in order to examine various family stressors that play a role in the development of obesity. The authors measured children between the ages of five and 17 years on their weight and family stress as operationalized by family disruption and conflict, mental and physical health problems, health care struggles, financial strain, and lack of cognitive stimulation and emotional support. Results showed that there were multiple relationships between stressors and child weight. For younger children, lack of cognitive stimulation and emotional support were positively related to BMI, while for older children, financial strain and mental and physical health problems were associated with obesity. It is important to note that these stressors likely arise from and impact various levels of a child's environmental system. Furthermore, one should remain aware that these stressors not only affect children, but they perhaps have an even larger influence on parents and their ability to effectively manage child behavior and engage in positive parenting behaviors. As parents are a key aspect of children's healthy development, the current study specifically examined parent-level stress and how it influences parental feeding style, a construct that will be discussed later in this paper, and child BMI.

**Parenting stress.** Research has shown that parenting behaviors are influenced by multiple sources of stress (Rodgers, 1998). Rodgers (1998) conducted a study investigating the impact of various aspects of parental stress. In particular, she based her study on the theoretical notion that there is a relationship between parenting stress, parental symptomatology, parenting behavior, and social support. Rodgers recruited a sample of 85 caregivers of kindergarten-aged youth from Head Start and measured them on parenting stress, multiple role-related stress, and social support. Results indicated that respondents



experienced moderate amounts of distress that impacted their parenting behaviors.

Specifically, Rodgers reported that parenting stress both directly and indirectly (through parental symptomatology) affected parenting behavior. However, multiple role-related stress (e.g., being a student, being a caregiver for elderly family members, being employed, and being a spouse) only indirectly affected parenting behavior. The author concluded based on this finding that studies of stress and parenting should investigate stress specifically related to the parenting role. Therefore, the current study assessed parenting stress in its examination of stress and parenting.

In order to investigate the unique impact of parenting stress on child BMI, Moens and colleagues (2009) provided a sound rationale for an investigation into the influence of parenting stress on child weight outcomes, pointing to the strong connection between family factors and childhood obesity. Specifically, they noted previous research that found strong effects of parenting stress and negative family factors on family functioning and child outcomes. Moens and colleagues sought to explore the cross-sectional associations between family factors and pediatric obesity. Specifically, they hypothesized that families with overweight children undergo more parenting stress. In particular, they investigated the influence of maternal BMI, family structure, number of children, maternal psychopathology, and negative life events. The authors recruited 197 families, around half of which had youth in a normal weight range, the other half with at least one child who was at risk for or already was overweight. Parents were assessed on the aforementioned family characteristics as well as SES and parenting stress. Results indicated that the familial factors contributed to 26.5% of the variance in child BMI. Although maternal BMI was found to be more strongly related to child weight status than other variables, it was also found that parents of overweight youth

experience more parenting stress. The authors noted that parenting stress was evoked by not only parenting behaviors but parental health status. It is important to note that because of the non-experimental nature of this study, it is difficult to make causal statements about these findings (i.e., did the parenting stress cause the childhood overweight, or vice versa?). However, the results of this study provide rationale for further investigation into the relationship between parenting stress and childhood obesity.

Another study was conducted by Stenhammar et al. (2010), who sought to investigate the influence of parenting stress and parental attachment style on child BMI. These authors recruited parents of 873 children and assessed their parenting stress, parental attachment style, and their child's BMI. Results indicated that maternal stress was significantly associated with child BMI. The authors concluded that mothers who were undergoing high levels of family-related stress may have had less time and resources to interact with their children, allowing them to remain more sedentary throughout the day and monitor their food intake less. Although paternal stress was found to have less of a relationship with child BMI than maternal stress, the authors noted that this might be due to the fact that mothers in the sample may have contributed more to childrearing than fathers did.

Similarly, Lytle and colleagues (2011) attempted to measure the relationship between family meal practices, familial stressors, and weight of youth in the family. In particular, the researchers aimed to investigate whether family meal practices mediate the relationship between family stressors (as operationalized by real and perceived time demands, family rules around meal times, and difficulty with enforcing those rules) and youth weight. Participants included 374 parent/child dyads who were asked to complete a survey measuring demographic variables, family meal practices, family stressors, and parental depression and

stress. Results suggested that there were positive relationships between child BMI and stress and child BMI and time demands as well as a positive relationship between child BMI and difficulty with enforcing rules. In addition, results indicated that positive family meals occurred more in households where there were family rules that were enforced without difficulty. Finally, the findings suggested that family stressors influence child BMI both directly and through their effect on family meals. These findings indicate that adequate and consistent parental rule enforcement may be associated with healthier meal activities and thus child BMI. As consistent discipline and rule enforcement are behaviors associated with authoritative parenting (Baumrind, 1971), it is possible that these findings could be generalized to parental feeding style. Authoritative parenting is one of four documented parenting styles (i.e., authoritative, authoritarian, permissive, and neglectful) that will be discussed later in this paper. The data reported by Lytle and colleagues provide further evidence for the strong influence of parenting stress on parenting behaviors and child BMI.

The above studies point to the significant impact of parental stress on parenting behaviors and child BMI. However, parents of Latino background undergo an array of other stressors, many of which are unique from the stress non-Latino White parents experience. In particular, families of Latino background must undergo significant stressors related to cultural differences and experiences. Notably, acculturation and acculturative stress have the potential to significantly impact parenting in Latino populations living in the United States.

**Acculturation and Acculturative stress.** Acculturation is one construct that has undergone significant study in relation to Latino health in the United States. Acculturation is defined by Lara and colleagues (2005) as “the acquisition of the cultural elements of the dominant society – language, food choice, dress, music, sports, etc.” (p. 369). Acculturation

is known as the process through which individuals go as they assimilate or adjust to a new cultural environment. While there are a number of ways to view the acculturation process, the unidimensional and bidimensional models of acculturation are the most common.

Unidimensional acculturation assumes that the acculturation experience occurs along a continuum ranging from not acculturated (i.e., totally immersed in one's original culture) to completely acculturated (i.e., total immersion into the new, dominant culture) (Lara et al., 2005). According to a unidimensional model of acculturation, one loses his or her original cultural paradigms as he or she becomes more assimilated to the new, dominant culture. Therefore, this model suggests that over time, individuals become more like the dominant culture while losing elements of their previous culture.

While unidimensional acculturation suggests that gaining one culture means losing another, the bidimensional acculturation model describes the new and old cultures as being independent of each other (Lara et al., 2005). That is, as one acquires a new culture, it is still possible to "maintain" elements of the culture of origin. In this way, it is possible to continue adhering to one's culture of origin while still assimilating to new and dominant cultural norms. One is able to either completely accept or completely reject either culture. Perhaps more frequently, one is able to integrate oneself into both cultures to the point where he or she feels equally comfortable in both. Lara and colleagues discussed a number of possible subcategories within the bidimensional acculturation model. These include assimilation, separation, integration, and marginalization. Assimilation is defined as complete acquisition of the new culture, whether this is due to not wanting to maintain the original culture or for an array of other reasons. Separation occurs when one avoids the new culture while maintaining the culture of origin, while integration occurs when one is able to embrace both

cultures equally. Finally, marginalization occurs when one is excluded by both cultures. While it may seem as though individuals have control over these various acculturation stages, it is important to note that there are a number of other environmental factors that come into play to affect the way in which one acculturates (e.g., family support, language abilities, discrimination, SES), thus dictating which of these subcategories a person might experience. Furthermore, the process of acculturating has varying effects on the stress level of minority persons.

Acculturation is a particularly salient construct in relation to Latinos living in the United States due to the recent influx of Latino immigrants into all areas of the country. It is well known that the process of acculturation is a highly stressful time for families of diverse ethnic backgrounds. For this reason, the construct of acculturative stress has gained popularity in the literature over the past few decades. Acculturating families often experience financial stressors, language barriers, lack of access to health care, dangerous living environments, discrimination and racism, and unemployment (Caplan, 2007). In addition to these added stressors, individuals in the acculturation process must undergo losses during the adjustment. These losses include not only family and friends who remain in the individual's home country, but also the loss of cultural beliefs and traditions one might experience while gaining new cultural beliefs and values (Caplan, 2007). Although acculturative stress is inherently related to acculturation, the two are distinct constructs (Caplan, 2007). To add even more complexity to the construct of acculturative stress, one must consider what is known as the "immigrant paradox" (Burnam, Hough, Karno, & Escobar, 1987), which describes the notion that more recent Latino immigrants who are low-acculturated actually have better health outcomes in a number of different areas (e.g., nutrition, mood disorders,

substance abuse, etc.) than individuals who are more acculturated. This is an interesting finding in the literature because one would assume that the initial stages of acculturation would be associated with more stress and poorer health outcomes. However, the reality is that acculturative stress can occur at any point during the acculturation process and that there is no consistent pattern between ethnic groups (Caplan, 2007). Therefore, when studying acculturative stress, it is necessary to control for level of acculturation. Because of the many factors that contribute to acculturative stress, a thorough understanding of how this construct is operationalized is important for individuals engaged in studying it.

Caplan (2007) conducted a detailed concept analysis of acculturative stress by reviewing 19 articles through purposive sampling. She identified several dimensions of acculturative stress found in the literature, including instrumental or environmental stressors, social or interpersonal stressors, and societal stressors. These dimensions were divided into subcategories. Instrumental and environmental stressors include financial stressors and poverty, language barriers and difficulties with communication, lack of access to health care, unsafe neighborhoods, lack of employment, and dangerous working conditions. Societal stressors include discrimination, racism, stigma, and political or historical events one experiences before, during, or after immigrating. Social or interpersonal stressors mainly have to do with changes one undergoes related to his or her relationships and the cultural norms of social roles. For example, many Latino families lose social networks while acculturating, which can be highly stressful for this ethnic group in particular because of its value on collectivism (Caplan, 2007). In addition to losing social support, acculturating people often undergo changes in gender roles that cause interpersonal stress. Finally, one of the most significant stressors related to interpersonal relationships is the loss of family

support. The Latino value of *familism* is central across almost all ethnicities, so the loss of family support due to financial struggles, geographical distance, or intergenerational conflict results in high levels of stress.

Acculturative stress has been found to result in poor psychological and physical outcomes for Latino immigrants (Dillon, de la Rosa, & Ibañez, 2013; Leidy et al., 2009; Negy et al., 2010; Revollo et al., 2011; Torres, 2010). Revollo and colleagues (2011) conducted a study investigating the negative effects of acculturative stress on Latin American immigrant well-being in Spain. The researchers recruited 414 Latino immigrants in Barcelona, Spain, and assessed them on acculturative stress and depressive and anxiety symptoms and disorders. Results indicated that psychosocial and intercultural contact stressors were both associated with psychopathology in the sample. However, perceived discrimination and homesickness were not associated with psychopathology. This finding is interesting because it supports the notion that discrimination is only one small factor of acculturative stress, and that it may only play a small role in the development of psychopathology among immigrant populations. One may also note that acculturation level was not considered in this study, which does not allow readers to consider the *immigrant paradox* of acculturation on mental health outcomes.

As noted above, the term *immigrant paradox* suggests that for Latinos, more time spent in the United States is associated with more mental health problems (Vega, Stribney, Aguilar-Gaxiola, & Kolody, 2004). In order to help researchers and clinicians understand this paradox, Torres (2010) sought to identify factors of acculturative stress that serve as risk and protective factors to Latino mental health. He hypothesized that for Latino immigrants, cultural factors such as acculturation, acculturative stress, and coping would differentiate low

depression from medium and high depression. Furthermore, Torres hypothesized that having an Anglo orientation and the acculturative stressors that come with it will serve as a risk factor and that a Latino orientation will have a protective effect on mental health outcomes. Finally, he hypothesized that active coping would serve as a protective factor. The researcher recruited a sample of 148 Latino participants and assessed them on their acculturation level, acculturative stress, coping behaviors, and depressive symptoms. Results indicated that acculturative stress was positively related to depression, in that more acculturative stress was associated with higher levels of depression. However, acculturation level was not associated with depression, indicating that it is not acculturation but rather the stress that comes with it that is associated with poor mental health outcomes. Although economic stress is a contributor to acculturative stress, income was not associated with depressive symptoms in this study. The study also found that maintaining a strong tie to Latino culture was a buffer for individuals experiencing acculturative stress, whereas adherence to Anglo culture was a risk factor for depression. Overall, these findings support the notion that Latino immigrants who are undergoing acculturative stress may be at risk for depression as well. Because depression has been found to affect a number of behaviors including parenting (Leidy et al., 2009), this is an important finding to take into consideration for clinicians working with Latino families. In addition, the maladaptive effects of acculturative stress on parenting and child development are a vital area of continued research due to Ecological Systems Theory's conceptual framework that macrosystem factors (i.e., culture and society) interact with parenting to affect child development.

Of particular importance to the current research study, Halgunseth, Ispa, and Rudy (2006) provided a thorough discussion of the influences of acculturative stress on Latino



parenting. Specifically, the authors noted that during times of increased acculturative stress as evidenced by financial strain, language barriers, unsafe work and home conditions, and assuming a minority position in society, parents tend to use more discipline and assess child behavior in a more negative way than when not encumbered by these significant stressors. The authors also pointed out that Latino parents reported more authoritarian parenting (i.e., parenting characterized by low parental warmth but strict and harsh discipline) than non-Latino White parents. However, this difference was also seen when comparing recently immigrated Mexican-American parents with parents who were residing in Mexico. This suggests that acculturative stress may influence the use of punitive control by Latino parents living in the United States.

The effects of acculturative stress on family functioning and thus child development are profound (Leidy et al., 2009). In particular, Leidy et al. (2009) investigated the influence of marital quality on child development through the effect of acculturative stress. Researchers measured 134 Mexican American couples and their children on marital quality, parent acculturative stress, time in the United States, family income, and child outcomes in the areas of internalizing (e.g., concentration, loneliness) and externalizing (e.g., aggression) symptoms as measured by the Child Behavior Checklist (Achenbach & Edelbrock, 1983). Results indicated that higher parental acculturative stress mediated the relationship between low marital quality and high child internalizing behaviors. Furthermore, parents who endorsed lower acculturative stress also reported higher marital quality and lower child internalizing behaviors. These results suggest that there is a relationship between acculturative distress, marital quality, and child outcomes. This research provides a rationale

for an examination of studies related to acculturative stress, parenting, and family functioning.

White and colleagues (2009) also conducted a study on the relationship between acculturative and other related stressors on parenting in Mexican American families. This study incorporated family stress theory, which proposes that contextual stressors and poor parenting are mediated by psychological distress of the caregiver. The authors extended contextual stressors to include acculturative stress because of its potential effects on parental depression and parenting behaviors. The study also included the influence of pressure to use English, financial stress, and neighborhood danger in addition to acculturation. Researchers hypothesized that neighborhood danger, English competency pressures, and economic hardship would contribute to parental distress, which would in turn have a negative impact on parental warmth and consistent discipline. Data were collected as part of a larger longitudinal study in which 570 sets of parents were interviewed and surveyed on neighborhood danger, economic hardship, English competency pressure, depression, and parenting behavior. Results indicated that for mothers, depressive symptoms mediated the relationship between acculturative stress and parenting behavior, including both warmth and consistent discipline. In other words, for mothers, acculturative stress was positively associated with depressive symptoms, which in turn was negatively associated with both parental warmth and consistent discipline. In addition, financial hardship was found to negatively impact parental warmth and discipline through increases in depressive symptoms. This indicates that contextual factors related to acculturation and acculturative stress impact parenting behaviors. Research is needed to determine whether or not these parenting behaviors translate to child well-being in the area of pediatric obesity, as poor parenting

behaviors related to food limiting and psychological control have been found to be associated with the development of childhood obesity (Rodenburg et al., 2011). Overall, this study provides a rationale for continued investigation of acculturative stress and parenting among Latino families and how these factors might influence child outcomes. Therefore, the current study included acculturative stress along with parenting stress in its investigation of how these stressors influence parental feeding style and child BMI.

### **Parenting and Pediatric Obesity**

It is well known that parents play a large role on child development (Baumrind, 1971; Bronfenbrenner, 1979). In addition, parenting occurs within one of the most influential contexts for the child. Thus, there is a plethora of research related to the effects of parenting and family on child development. The current study sought to expand on this literature base by examining the influence of parenting on child physical health, and specifically on child BMI in Latino populations. One aspect of family that is highly important in Latino culture is that of familism. Familism, or *familismo*, is a Latin-American term used to describe how much one prioritizes and honors one's family (Schwartz et al., 2010; Steidel & Contreras, 2003). Because of the strong influence of familism on the health and well-being of Latinos in the United States, McArthur, Anguiano, and Gross (2004) sought to examine the relationship between family and childhood obesity. In particular, the researchers examined risk factors for childhood obesity, which included family demographics, parental beliefs about childhood overweight, family engagement in physical activity, and the household availability of high-calorie foods. Researchers recruited 128 Latino parents and conducted interviews assessing the above-mentioned family factors. Parents were also asked to respond to quantitative measures. Results showed that less than half of the parents reported that overweight children

are unhealthy. However, the majority reported that overweight children should be advised to lose weight. Furthermore, children in the sample were more likely to engage in sedentary activity with their families, putting them at risk for obesity. In addition, most parents reported that there were high-fat or high-sugar foods available at home most or all of the time, and that restricting these foods would be problematic. Although this study is limited because it did not assess child BMI, one of its strengths is that it examined several different Latino ethnicities. The authors concluded that family-based interventions are important for Latino families and that parents play a large role in the diet and physical activity involvement of their children.

In keeping with the above research on the importance of environmental factors to child development, Schmeer (2012) conducted a study incorporating Bronfenbrenner's ecological model (Bronfenbrenner, 1986) into the relationship between family structure and young children's BMI. In doing so, the author sought to investigate the relationship between a child's family context and his or her development of obesity. Notably, the researcher considered marital union status, significant union transitions, and child BMI change between the ages of three and five. She obtained a sample of 1,538 children, a large percentage of whom were either African American or Latino, and assessed mothers on their marital union status and whether or not they experienced a marital union transition during the two-year time span. The dependent variables for this study were child BMI and change in overweight/obesity status for children between the ages of three and five years. Results indicated that children whose parents dissolved a union or were single between ages three and five had higher BMI gains than children with stable married mothers. This study provides support for the notion that family context is highly influential on childhood obesity,

with single-parent families being more at risk for increased child BMI than stable two-parent households. These findings indicate that family-based treatment for obesity is paramount in decreasing its incidence.

Kitzmann and Beech (2011) sought to review the research on family-based interventions for weight-gain prevention in overweight or obese children and adolescents. Specifically, the authors reviewed research in which parents were an integral component of the intervention. A total of thirty-one programs were reviewed and placed into one of four distinct categories. The interventions were determined to either have a narrow or broad family focus with regard to their outcome measures. Of these interventions, they were found to have either a narrow or broad family focus on *intervention goals*. The authors also noted that the effectiveness of parenting behaviors intended to affect children's eating and exercise habits varies according to whether or not these behaviors occur within the context of authoritative parenting style (i.e., parenting characterized by parental warmth, responsiveness, and consistent yet fair discipline). This indicates that regardless of the strategies taught to parents in family-based interventions, parenting style is a significant factor in the efficacy of the newly learned parenting behaviors. These findings suggest that there is a significant gap in the literature surrounding parenting style and how it contributes not only to the development of childhood obesity but also to the effectiveness of obesity treatment programs. However, one can see based on these results that interventions for childhood overweight and obesity should not work with the child directly, but rather target the parent to alter parenting behaviors and parenting style. Indeed, parenting is inarguably the most important familial influence on the healthy lifestyle development of young children and undoubtedly plays a role in the development of childhood obesity.

One example of an intervention for childhood obesity which sought to target parents and parenting behaviors was conducted by Ayala, Elder, Campbell, Arredondo, Baquero, Crespo, and Slymen (2010). The researchers examined four dimensions of parenting, including parenting strategies, parental support, parent-mediated family behaviors, and cognitive factors. Approximately 800 families, 71% of which were Latino and spoke Spanish, enrolled in the longitudinal study and participated in seven months of the home-based intervention. Following the intervention, parents received follow-up phone calls over a 2-year period to assess parents on their experiences with goal attainment and to review what they learned during the intervention. Parents were assessed at four different time points including baseline, immediately after the intervention, at 1-year follow-up, and again at 2-year follow-up. At these time points, parents were measured on their parenting strategies for eating and activity, parental support for physical activity, away-from-home eating, how frequently the families ate together, and parent-perceived barriers and self-efficacy. Results indicated that parents who received the intervention reported more frequently monitoring their child's diet and physical activity, used more positive reinforcement, and provided more support for physical activity. Furthermore, parents used less controlling strategies. These results provide support for the utilization of family-based interventions for childhood obesity and suggest that targeting parenting behaviors and styles is efficacious when working to decrease or prevent pediatric obesity.

In addition to playing a large role in the treatment of childhood obesity, parents are highly influential to its development (Lindsay et al., 2006). Lindsay and colleagues (2006) provided an in-depth review of the effects parents have on child weight from infancy through adolescence. Although children have biological predispositions for eating, parents contribute

to eating behaviors of children as they age through the parent-child interaction and other social behaviors (i.e., modeling, controlling food intake, restriction, etc.). Although parents use restriction or controlling behaviors to determine what their children eat with the intention of promoting healthy eating, this often backfires and children end up eating more unhealthy foods and less healthy foods (Lindsay et al., 2006). In addition, parents' own eating habits are modeled for children such that if parents overeat, it is likely that their children will too (Lindsay et al., 2006). Parental influence on obesity is not just related to eating. Indeed, parents have the ability to encourage or hinder the development of physical activity habits in their children. There is research indicating that when parents are physically active, children are more likely to be active than children with sedentary parents (Lindsay et al., 2006). In addition to parental behaviors, other research has found that parental beliefs and attitudes play a large role in childhood obesity.

Gable and Lutz (2000) investigated parents' beliefs about children's nutritional needs as well as the use of parental control of child eating, noting that previous research has indicated that parental control puts youth at increased risk for being overweight. Specifically, the authors sought to examine interrelationships between family income, parenting beliefs, child television viewing, and risk for childhood obesity. Obese and non-obese children were compared on household demographic measures, food intake and availability, and parenting beliefs and attitudes. Data were collected from a sample of 65 parent-child dyads, the children being between the ages of six and ten years old. Results showed that obese children spent more time watching television, engaged in less physical activity, lived with an unmarried parent with limited income, and experienced less appropriate parental expectations regarding their nutritional needs. Furthermore, there was a positive relationship found

between parents' endorsement of authoritarian beliefs (as operationalized by the use of controlling, prohibitive, and anxiety-inducing strategies of parenting) and the availability of sweets in the home. Finally, there was a positive relationship between having sweets in the home and child consumption of more fats, sugars, and junk foods. These results indicate that parents of obese children are not aware of the significant role they have in the development of healthy lifestyle behaviors in their children. Additionally, this study provides a rationale for continued investigation into the effects of parenting on childhood obesity.

In a similar study of parental contributions to childhood obesity, Alia et al. (2012) sought to examine the interaction between parental limit setting of sedentary behaviors and health factors related to parental weight status, physical activity, and fruit and vegetable intake, on adolescent BMI with a sample of African Americans. It was hypothesized that parent limit setting (i.e., limiting the amount of time a child watches television) and parent weight status and health behaviors (e.g., parent fruit and vegetable intake, parent physical activity) would predict adolescent BMI. In addition, researchers hypothesized that there would be a main effect of parent BMI, limit setting, and parent diet and activity on adolescent BMI. Researchers recruited 70 parent and adolescent pairs and quantitatively assessed them on parent limit setting of sedentary behaviors, parent fruit and vegetable intake, parent level of physical activity, and adolescent BMI. Results indicated that the hypotheses were supported. Notably, higher levels of parental fruit and vegetable intake were associated with lower adolescent BMI. Additionally, adolescent BMI was positively associated with parental weight status but was inversely associated with parental limit setting. This indicates that appropriate limit setting of sedentary behaviors is an important contributor to the prevention of obesity in adolescence. This study is somewhat limited



because it only examined this relationship for African American families, making generalizability to Latino parents difficult. However, this study is important because it highlights the key influence parents have on childhood obesity, with regard to both parenting behaviors as well as the modeling of healthy eating. Because parenting behaviors often change depending on the situation and context, the current study sought to examine parenting style, a similar but distinct construct from parenting behavior, on childhood obesity.

**Parenting style.** Parenting style is of particular salience to the current study because it has been found to be highly influential on children in all domains, including psychological, social, and behavioral development (Steinberg et al., 1991). Contrary to parenting behaviors, which may change depending on contextual factors, parenting styles have been shown to remain stagnant across time and contexts (Darling & Steinberg, 1993). Parenting style categories are based on the amount of demandingness (i.e., behavioral control over the child) and responsiveness (i.e., warmth and support for the child) a parent exhibits. Four main styles of parenting have been identified: (a) authoritarian, which is marked by extremely restrictive and controlling parenting with minimal nurturing behaviors toward children; (b) permissive parenting, which is highlighted by setting few limits for children while remaining highly nurturing; (c) authoritative parenting, which includes parents with both high control and high nurturance behaviors towards their children; and finally, (d) uninvolved or neglectful parenting, in which parents demonstrate low control and low nurturing behaviors (Baumrind, 1971).

Baumrind (2012) described important ways to differentiate between the various parenting styles, in particular authoritarian and authoritative. Specifically, she reported that the difference between these two forms of parenting has to do with the kind of power

assertion parents apply on children. Baumrind defined power assertion as any force, within a disciplinary context, that is “applied by a parent in a conflict of wills with a child” (p. 35). As noted above, permissive and neglectful parenting do not typically involve any kind of power assertion. For this reason, the construct of power assertion is more relevant to authoritarian and authoritative styles of parenting. In order to differentiate between authoritarian and authoritative styles, Baumrind noted that authoritative parents engage in confrontive power (i.e., power that is reasoned, negotiable, outcome-oriented, and concerned with regulating a child’s behavior), whereas authoritarian parents engage in coercive power (i.e., power that is arbitrary, overbearing, unreasonable, and concerned more with maintaining a hierarchical status between parent and child). Baumrind (2012) continued to operationally define confrontive power as “confronting a child when he or she disobeys, not being able to be coerced by a child, successfully exerting influence, enforcing rules after initial noncompliance, and discouraging defiance” (p. 38). Coercive power, on the other hand, is operationalized to describe parents who engage in “verbal hostility, arbitrary discipline, psychological control, and severe physical punishment” (p. 38). While confrontive power is efficacious in maintaining a positive parent-child relationship and changing maladaptive child behaviors, coercive parenting often backfires, resulting in worsening of child behavior (Baumrind, 2012).

It is important to note that the literature on effects of parenting style on child outcomes has included a number of inconsistencies due to misconceptualizations of what it means to engage in parental control and power assertion. Notably, power assertion (i.e., parental control) does not necessarily mean parents do not have reason, are harsh, or are arbitrary in their discipline methods. Rather, there are different ways of engaging in parental

control and power assertion. While some of the studies that follow will describe beneficial effects of parental control and power assertion, others report negative outcomes from these forms of parenting. Therefore, it is important to remain cognizant of the fact that not all researchers define parental control/power assertion in the same way, and that the effects of its use in parenting depend on whether or not it is implemented in a coercive or confrontive manner. This being said, there is an abundance of research indicating that authoritative parenting results in more positive outcomes in an array of different psychological, behavioral, and health outcomes for children and adolescents, while non-authoritative parenting results in negative outcomes in these areas (Johnson et al., 2012; Kremers et al., 2003; Park & Walton-Moss, 2012; Patrick et al., 2005; Rhee et al., 2006; Rodenburg et al., 2011; Savage et al., 2007; Sleddens et al., 2011; Steinberg et al., 1991; Wake et al., 2007).

As noted above, authoritative parenting has been found to result in an array of positive outcomes for children and adolescents. Steinberg and colleagues (1991) demonstrated this while also taking into consideration parent and child ethnicity. The authors sought to examine the relation between authoritative parenting and adolescent adjustment in four areas: school performance, psychosocial maturity, psychological distress, and behavior problems. However, they hypothesized that there would be differences in the strength of this relationship, depending on one's ethnic background. Students were assessed on demographic variables related to their family of origin, family structure, ethnicity, parents' use of authoritative practices, and adolescent adjustment. Researchers found that generally, adolescents from authoritative homes did better in school, reported being more self-reliant, reported less psychological distress, and engaged in less delinquent behaviors. With regard to ethnic differences, Steinberg and colleagues reported that the relationship between

authoritative parenting and school outcomes was stronger among youth from White or Latino families, and less so for adolescents from African-American and Asian-American households. This distinction is important, but indicates that for Latino youth in particular, authoritative parenting is beneficial to the promotion of a number of positive outcomes. As such, this study provides a rationale for the investigation of parenting style in relation to outcomes for Latino youth.

Steinberg et al. (1991) provided substantial evidence that authoritative parenting is associated with better outcomes in a range of areas for children and adolescents. Further, these findings have been supported by other research showing that non-authoritative parenting is associated with negative outcomes (Dornbusch et al., 1987; Maccoby & Martin, 1983; McKinney et al., 2011). Dornbusch and colleagues (1987) sought to demonstrate the relationship between negative adolescent outcomes and authoritarian parenting by examining a sample of 3,789 adolescent students, paying particular attention to youth's perceived parenting styles and grade point average. Researchers found that youth who endorsed higher levels of authoritarian parenting, higher levels of permissive parenting, and lower levels of authoritative parenting reported lower grades than their counterparts who endorsed parenting styles on the opposite end of the spectrum (i.e., lower authoritarian, lower permissive, and higher authoritative parenting). This study is one of many providing evidence for the negative impact authoritarian and permissive parenting can have on child outcomes in the area of academic achievement.

Authoritarian parenting is not just associated with poor academic outcomes. McKinney et al. (2011) sought to investigate authoritarian parenting as associated with the emotional well-being of individuals in late-adolescence. These authors recruited

approximately 500 college students with an average age of 19 and assessed them on their perceived parental behaviors and attitudes, parental authority, parent/child conflict, self-esteem, depression, and anxiety. Results of this study demonstrated that emerging adults who endorsed being raised by authoritative parents also reported better adult adjustment in the outcomes assessed. In addition, authoritarian parenting and harsh discipline were both found to relate to poorer emerging adult adjustment.

In addition to outcomes in the area of behavioral, emotional, and psychological well-being of children, there is some research indicating that parenting style is associated with the health behaviors of children (Savage et al., 2007). Savage et al. provided a review of recent studies on the influence of parenting on child eating behavior in a range of contexts. In addition to the influence of genetic predispositions, caregivers are uniquely able to affect eating behavior in children through their own behaviors and modeling. Parents are the key providers of food. As such, Savage and colleagues noted that the amount of healthy foods present in a home correlate positively with the amount of these foods children consume. Of particular relevance to the current study is Savage et al.'s discussion of parenting styles and children's eating behavior. The authors noted that often when children are young, parents engage in the use of coercion and force feeding in order to encourage the children to eat as much as possible. Furthermore, parents often serve only preferred foods at this age in an attempt to ensure the child eats enough. While parents engage in these behaviors in order to promote healthier eating for children, often the effort fails, such that attempts at food restriction and control of eating behaviors have negative effects on children's food intake and preferences. Indeed, research has generally shown that authoritative parenting results in more consumption of healthy foods and reduced risk of obesity (Patrick et al., 2005; Rhee et al.,

2006).

There have been a few studies examining the relationship between parenting style and childhood obesity. Notably, Rhee et al. (2006) sought to examine this association at age 54 months and again two years later in first grade. The authors hypothesized that youth living in households with authoritative parents would have decreased risk for being overweight in first grade, compared to youth living in homes with other parenting styles. Children were recruited at birth, and by first grade, data was available for 872 participants. Parenting style was assessed qualitatively by coding from videotapes of a standardized interaction task. Parenting styles were also measured quantitatively. Results indicated that children with authoritarian parents were almost 5 times more likely to be overweight by first grade when compared to children with authoritative parents. When examining other parenting styles, youth with permissive or neglectful parents were twice as likely to be overweight than youth with authoritative parents. The authors concluded that strict environments without strong emotional responsiveness from parents are associated with increased risk for childhood overweight, regardless of other potential factors. The findings with regard to authoritarian parenting are astounding, and further research into the effects of parenting style on childhood obesity is necessary. Furthermore, it is important to assess factors that may lead to more authoritarian styles of parenting. This study provides a strong rationale for an investigation into parent factors, parenting style, and child BMI.

Similarly, Kremers et al. (2003) sought to investigate the effects parents have on their children's dietary behavior through parenting practice related to feeding. Moreover, the authors noted that the influence of parenting style on child eating behavior may be indirect and contextual, as opposed to direct. Therefore, Kremers and colleagues (2003) aimed to

examine contextual effects of parenting style on adolescent fruit consumption. They hypothesized that children of authoritative parents would consume more fruit than other children, and that the children of authoritative parents would have more positive cognitions surrounding eating fruit. The sample, which included 1,771 Dutch adolescents, was measured on fruit intake behavior, fruit-specific cognitions, and parenting style. Results indicated that adolescents who reported being raised in an authoritative home consumed significantly more fruits than adolescents who were not raised in such an environment. Furthermore, data suggested that these adolescents perceived more social support towards eating fruit. It was found that children from authoritarian homes consumed the least amount of fruit. This study was limited in that it measured parenting style by adolescent-report. However, it provides a rationale for continued study into parenting style and child eating behaviors. In particular, it is important to move beyond just fruit consumption by assessing the relationship between parenting and child BMI, as child BMI is highly influential to child and adolescent healthy development.

Another study, conducted by Wake et al. (2007), was designed to explore the relationship between child BMI and three parenting indicators (i.e., warmth, control, and irritability). In addition, Wake and colleagues sought to explore the association between child BMI and the four parenting styles by proposing that children of non-authoritative parents would be more at risk for having a higher BMI. The study was conducted in Australia, and the sample consisted of 4,983 families who were given face-to-face interviews. Children's BMI was measured and parents completed a parenting measure assessing their level of warmth, control, and irritability. Results were found to be inconsistent with previous research related to parenting style and child BMI, in that maternal authoritarian parenting style was

not related to child BMI. However, youth without authoritative fathers had a larger chance of having a high BMI. This discrepancy was surprising, but these inconsistencies provide reason for continued study of parenting style and child BMI. In particular, the way in which authoritarian style was operationally defined in this study may be problematic, as high control was used to describe both authoritative and authoritarian parents. As noted above, parental control is a complicated construct, and it is possible that coercive and more confrontive styles of control may have been confounded. Additionally, Wake et al. (2007) assessed Australian parents, making generalizability to Latino families in the United States difficult.

Another study examining control, this time in the form of psychological control, was conducted by Rodenburg et al. (2011). Psychological control was operationalized as “regulation of a child’s behavior through psychological means such as love withdrawal and guilt induction” (p. 442). Rodenburg and colleagues examined this construct in relation to child weight. In light of previous research that has associated parenting and child obesity, researchers sought to include the construct of psychological control with the constructs of parental support and behavioral control, as the latter two are both already accepted parenting dimensions. In this study, behavioral control was operationalized as “firm and consistent discipline” (p. 442), which is comparable to confrontive power. Therefore, the authors hypothesized that while support and behavioral control, as well as authoritative parenting, would negatively correlate with child overweight, psychological control and rejecting (i.e., neglectful) parenting style would be positively associated with child overweight. Researchers conducted a cross-sectional study assessing parenting style (i.e., authoritative, permissive, authoritarian, and rejecting) and child BMI among a sample of 1,665 Dutch children and



parents. Researchers found that indeed, psychological control explained a significant portion of the relationship between parenting and child weight. In particular, rejecting parenting style (as characterized by high psychological control) was associated with higher BMI. This study provided evidence that utilizing more psychological control on children is associated with negative outcomes in the area of BMI.

Yet another study examining parenting style in relation to childhood overweight and obesity is one conducted by Sleddens et al. (2011). These authors conducted a review of the literature on the relationship between general parenting, childhood overweight, and obesity-inducing behaviors. For this review, the authors defined general parenting as parenting style (i.e., authoritative, authoritarian, permissive, or neglectful). The review consisted of 36 studies conducted between 1995 and 2010. The authors found that generally, children raised in authoritative homes were found to eat more healthily, be more physically active, and have lower BMI scores when compared to children raised with a different parenting style. While the parenting dimension of “nurturing” was found to be positively related to healthy behaviors in children, the dimension of “control” was found to be inconsistently related to healthy behaviors. The authors proposed that this is due to the many different operational definitions of “control” used in the literature. While psychological control has been found to be negatively related to healthy behaviors, behavioral control (i.e., confrontive power) and consistent discipline behaviors used by authoritative parents was found to be positively related to healthy behaviors. Finally, control as operationalized by parental restrictiveness was found to be positively related to child BMI.

Johnson and colleagues (2012) examined parenting styles in relation to home obesogenic environments (i.e., factors in the environment that support being obese). After

reviewing the literature showing that authoritative parenting styles tend to produce more healthy home environments than other styles of parenting, Johnson et al. (2012) sought to investigate specific home health environments and their relationship to parenting style while controlling for SES and ethnicity. The authors hypothesized that higher scores on authoritative and lower scores on authoritarian parent styles would be associated with better home environments, as measured by the Family Nutrition and Physical Activity screening tool (Ihmels, Welk, Eisenmann, Nusser, & Myers, 2009). Parents from two elementary schools were recruited and assessed on their parenting styles and home health environments. Results showed that parents who endorsed either authoritarian or permissive parenting reported significantly lower FNPA scores (i.e., less healthy home environments). However, no parenting style was found to be predictive of child BMI score, a finding that is inconsistent with previous research (e.g., Ihmels et al., 2009). It is difficult to determine reasons for this discrepant finding; however the finding that parenting style influenced home health behaviors is important and provides rationale for continued investigation into the relationship between parenting style and child BMI.

Schmitz and colleagues (2002) conducted a study examining psychosocial factors that contribute to physical and sedentary activity among young adolescents. These authors examined depression, spirituality, parenting style, and future expectations in relation to adolescent physical and sedentary activity. Seventh and eighth grade students ( $N = 3,798$ ) were assessed on these variables. Results showed that while fathers' parenting style was not a significant predictor of physical and sedentary activity, girls who reported that their mothers were more authoritative engaged in more physical activity and less sedentary activity than girls who reported having nonauthoritative parents. This finding is consistent with other

research in the area of parenting style and adolescent health behaviors.

An additional study examining the relation between parenting style and child weight was conducted by Kim, McIntosh, Anding, Kubena, Reed, and Moon (2008). These authors expanded on previous research by seeking to determine if adolescent-perceived parenting behaviors predicted their body fatness, using a cross-sectional study design. Adolescents from dual-parent households ( $N=106$ ) were recruited and assessed in several areas, including perceived parenting behaviors, a 24-hour diet recall, two days of diet records, and BMI. Results showed that authoritative parents tended to punish the study participants less frequently than non-authoritative parents. Furthermore, maternal authoritative parenting was associated with adolescents who had lower BMI's and were 3.86 times more likely to be in a healthy weight category. Not surprisingly, adolescents who reported more authoritarian, controlling mothers were more at risk for being overweight. This finding is consistent with previous research but was limited because it did not provide information on the cultural backgrounds of the adolescent participants.

In order to examine cultural differences in parenting and child BMI, Hughes, Power, Fisher, Mueller, and Nicklas (2005) investigated the relationship between parenting style and BMI in a large sample of African American ( $N = 101$ ) and Latino ( $N = 130$ ) primary caregivers. In addition to this goal, the authors designed and validated a measure of parental feeding styles. Results of this study showed that there was a significant difference of child BMI between authoritarian and indulgent (i.e., permissive) parents, such that authoritarian parents had children with significantly lower BMI's. However, there was not a significant difference between authoritative and authoritarian parents in child BMI. The results of this study are particularly puzzling because the authoritarian feeding style was related to

parenting characterized by higher levels of physical punishment, inconsistency, and lower levels of reasoning with regard to discipline. As all of these constructs have been found to be associated with higher child BMI, it is difficult to ascertain why Hughes et al. (2005) found inconsistent results related to BMI outcomes. It appears based on these findings that indulgent parenting was associated with negative BMI outcomes for the sample assessed. These findings warrant continued research in the area of parenting style and child BMI outcomes, particularly for parents of racial minority backgrounds.

There is minimal research examining the relationship between parenting style, parental stress, and BMI in children. However, parental style and parenting stress have been studied in relationship to general health-related behaviors in children. Notably, Park and Walton-Moss (2012) conducted a correlational study with 284 South Korean parents. Parents were assessed regarding their level of parental warmth and control, and parenting stress. Parents were also asked to rate the health-related behaviors of their preschool-aged children. The purpose of this research was to examine the nature of the relationship between parenting style, parental stress, and children health behaviors. Data suggested that parental stress was positively related to having a difficult child for authoritarian and neglectful parents. Furthermore, authoritative parents had significantly less stress than parents who endorsed other parenting styles. Data also showed that authoritarian and neglectful parents reported significantly less child fruit and vegetable consumption than authoritative and permissive parents. These findings are consistent with other research investigating parenting style and dietary behavior in children. However, because the sample consisted of parents from South Korea, further research is necessary to generalize these findings to Latino parents living in the United States. That being said, Park and Walton-Moss (2012)'s finding provides an

impetus for continued research in the relationship between parenting style, parenting stress and health-related behaviors in children.

It is apparent from these studies that targeting parenting style is informative towards continued understanding of the mechanisms that promote pediatric weight gain. However, although these studies suggest a relationship between parenting style and weight outcomes in children, there remain inconsistencies and disagreement in the literature with respect to how strong this association is due to methodological concerns. In particular, Hughes et al. (2005) specified that they were assessing parental feeding style, as opposed to general parenting style, in their examination of parenting and child BMI. It seems that studies in the area of parenting and child obesity should focus on measuring feeding style as opposed to general parenting style due to the former's increased relevance to child diet and eating habits (Hennessy, Hughes, Goldberg, Hyatt, & Economos, 2010).

**Parental feeding style.** Although general parenting style is an important contributor to pediatric obesity, parental feeding style is one construct that is similarly important. Parental feeding style has been an interesting topic of research in recent years, particularly due to the inconsistencies noted above in parenting style and childhood obesity (Sleddens et al., 2011). Blissett (2011) reported that while parenting style generally refers to an overarching emotional climate in which a child is raised, feeding style is conceptualized as “a specific subtype of parenting styles, with some characteristic feeding behaviors associated with them” (p. 827). Blissett (2011) also noted that while some parents engage in a certain parenting style that is congruent with their feeding style, this is not always the case. Indeed, an earlier study by Blissett and Haycraft (2008) demonstrated that parenting styles were not related to child BMI. However, specific feeding behaviors by parents were associated with

child BMI (Blissett & Haycraft, 2008). Because parents are the key source of nutrition for children, it is important to focus on parental feeding style, as opposed to general parenting style, when examining how parenting influences childhood obesity.

Parental feeding style is a new construct in the literature with only a few studies examining its relationship to BMI and child eating habits. In order to determine reasons for discrepant findings regarding parenting style and child BMI, Hennessy and colleagues (2010) conducted a study with a sample of low SES rural families. The authors reported that inconsistencies are in part due to the measurement of global parenting style. Therefore, they aimed to investigate the relationship between parenting style, parental feeding style, and general feeding practices of parents with small children. In addition, the authors sought to examine the degree to which parenting style and feeding style parallel each other. Authors measured feeding style by utilizing the Caregiver's Feeding Styles Questionnaire (Hughes et al., 2005), a measure that assesses feeding and categorizes parents into specific feeding styles (e.g., authoritarian, authoritative, indulgent, uninvolved) that reflect general parenting styles. Authors measured parents ( $N = 99$ ) on their feeding styles, feeding behaviors, parenting style, and child BMI. Results indicated that feeding style and general parenting style were related, although only for approximately one-third of the study's participants. However, parenting style was not associated with child BMI, while parental feeding style was (Hennessy et al., 2010). This finding is interesting because it provides evidence for the overlap between feeding style and parenting style, but also indicates the differences these two constructs have in relation to child BMI. Therefore, it is imperative that research on parental feeding behaviors and child BMI focus on parental feeding style as opposed to general parenting style.

Patrick et al. (2005) sought to investigate the relationship between authoritative feeding practices and child food consumption patterns. The author outlined child feeding patterns that relate to three of Baumrind (1971)'s parenting styles: authoritative, authoritarian, and permissive. Authoritarian feeding style was defined as attempts to control a child's eating without regard for the child's preferences and autonomy. Permissive feeding was characterized by allowing the child to eat whatever he or she desires without structure. Finally, authoritative feeding was characterized by an appropriate balance of authoritarian and permissive, in that a parent will decide which foods are offered and children decide which foods to eat (Birch & Fisher, 1995).

Following the operationalization of these specific feeding styles, Patrick et al. (2005) sought to examine how authoritative and authoritarian feeding styles are associated with the availability and child consumption of dairy, fruit, and vegetables for a sample of African American and Latino preschool-aged children. The authors analyzed data that were collected as a part of a larger study of African American and Latino children eating behaviors. Parents ( $N = 231$ ) were assessed on their feeding style, the availability of dairy, fruits, and vegetables in their homes, their attempts at providing these foods to children, and the children's consumption of these foods. Results showed that authoritative feeding was positively related to the availability of fruit and vegetables in the home, whereas authoritarian feeding was negatively associated with the presence of these foods. Furthermore, authoritative parents were more likely to attempt to have their children eat these healthier foods. Finally, children from authoritative parents were more likely to actually consume fruits, vegetables, and dairy foods. This study is important because it specifically examined racial minority populations and provides results that have not been empirically shown: that for African American and

Latino children, authoritative feeding practices are associated with more healthy food availability, more parental attempts to feed these foods, and more child consumption of these foods. This study provides a sound base for continued research into the influence of feeding style in minority parents.

A similar study was implemented by Hughes, Shewchuk, Baskin, Nicklas, and Qu (2008). These authors aimed to examine the relationship between parent affect, child temperament, and feeding style. In addition, authors sought to determine the degree to which feeding styles relate to children's BMI. Researchers measured 718 Head Start caregivers on their feeding style, affect, child temperament, and child BMI. Results showed that indulgent/permissive feeding style was significantly positively related to child BMI, even after controlling for parent affect, child temperament, and other correlates of child BMI. This study is important because a large percentage of its sample was Latino parents, and results showed the detrimental effects of indulgent/permissive parenting on child weight outcomes. As much of the above research has also found authoritarian parenting styles to be associated with negative weight outcomes for youth, this study indicates that an examination of parental feeding style is warranted with Latino families. In particular, it is important to investigate the ways in which stress contributes to non-authoritative feeding styles.

### **Rationale and Purpose**

As noted in the preceding literature review, pediatric obesity has become a serious epidemic in the United States (Ogden et al., 2006; Ogden et al., 2012; Strauss & Pollack, 2001). In particular, ethnic minority youth are at significant risk for being overweight or obese, especially those of Latino background (Strauss & Pollack, 2001). Although the causes of pediatric obesity are complex, research in the area of Ecological Systems Theory has



shown that family and parents are among the most significant contributors to pediatric weight gain (Lindsay et al., 2006; Payas et al., 2010; Schmeer, 2012). As such, intervention and prevention programs developed in recent years have focused on parenting behaviors and parenting style so as to promote healthy lifestyles in youth (Kitzmann & Beech, 2011). Because of the importance of parenting on pediatric obesity, research into various effects of parenting style has shown that children of indulgent and authoritarian parents are at more risk for negative lifestyle behaviors and health outcomes than are children of authoritative parents (Johnson et al., 2012; Kremers et al., 2003; Park & Walton-Moss, 2012; Patrick et al., 2005; Rhee et al., 2006; Rodenburg et al., 2011; Savage et al., 2007; Sleddens et al., 2011). More recently, research has investigated the unique effect parental feeding style has on child BMI. This research has generally found that non-authoritative feeding styles, in particular authoritarian or indulgent styles, are associated with poorer diet and higher risk for obesity and high BMI among children (Blissett & Haycraft, 2008; Hennessy et al., 2010; Hughes et al., 2008; Patrick et al., 2005). Because parental feeding style has been shown to be relevant to obesity and eating in children, the current study proposed to assess the influence of parental feeding style on child BMI.

There are a number of factors that influence parenting in Latino populations. Parenting stress is one such factor that has been shown to affect the style in which parents approach childrearing. In addition to general parental stress, acculturation creates a unique stressor for Latino parents. Acculturative stress has been found to negatively affect psychological and physical outcomes for Latino immigrants (Dillon et al., 2013; Leidy et al., 2009; Negy et al., 2010; Revollo et al., 2011; Torres, 2010). As such, acculturative stress is a significant environmental factor that influences the health and well-being of Latino parents

and families, even after controlling for one's level of acculturation. Furthermore, neither parenting stress nor acculturative stress has been studied in relation to parental feeding style and child BMI for this highly vulnerable population. Therefore, the current study investigated the influence of acculturative and parenting stress on parental feeding style for Latino families. These variables were analyzed in relationship to child BMI for a sample of Latino parents of children under the age of eight (See figure 2). Rather than analyzing the proposed model as a whole, hypotheses and research questions were developed to assess different relationships in the model.

### **Hypotheses and Research Questions**

The following hypotheses were presented to address the study's purposes:

Hypothesis 1: After controlling for acculturation level, parents who endorse high levels of parenting stress will endorse an authoritarian parental feeding style.

Hypothesis 2: After controlling for acculturation level, parents who endorse high levels of parenting stress will endorse an indulgent parental feeding style.

Hypothesis 3: After controlling for acculturation level, parents who endorse low levels of parenting stress will endorse an authoritative parental feeding style.

Hypothesis 4: After controlling for acculturation level, parents who endorse high levels of acculturative stress will endorse an authoritarian parental feeding style.

Hypothesis 5: After controlling for acculturation level, parents who endorse high levels of acculturative stress will endorse an indulgent parental feeding style.

Hypothesis 6: After controlling for acculturation level, parents who endorse low levels of acculturative stress will endorse an authoritative parental feeding style.

Hypothesis 7: There will be differences in child BMI z-score depending on parent's

endorsed parental feeding style.

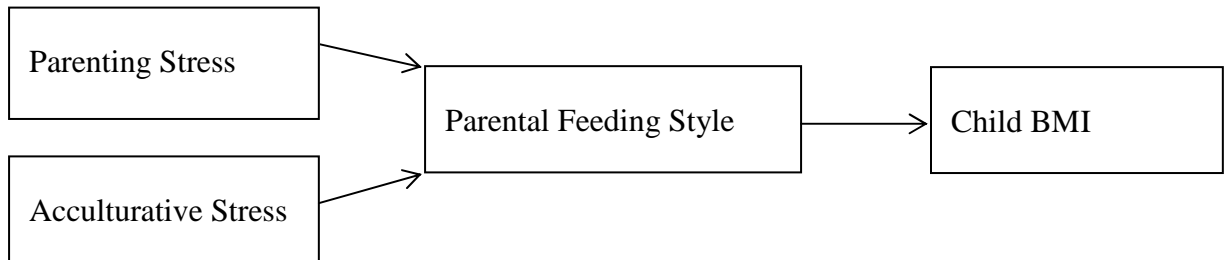
The following research questions were presented to address the study's purpose:

Research question 1: After controlling for acculturation level, what is the effect of parenting stress on uninvolved parental feeding style?

Research question 2: After controlling for acculturation level, what is the effect of acculturative stress on uninvolved parental feeding style?

Research question 3: What is the relationship between uninvolved parental feeding style and child BMI?

Research question 4: After controlling for acculturation level, what is the effect of parenting stress and acculturative stress on parental feeding style?



*Figure 2: Proposed Model*

## CHAPTER 3

### METHODOLOGY

#### **Recruitment and Inclusion Criteria**

Purposive sampling was utilized in the current study. Participants included Latino parents of children between the ages of two and eight years. This age range was targeted because of the influence of parenting on the development of healthy eating habits for young children. Because parenting style tends to remain stagnant throughout a child's upbringing, targeting interventions to alleviate parents' stress is most beneficial for families with young children. One parent from each family was invited to participate. Parents who spoke either Spanish or English were eligible for participation. With regard to recruitment, an eligibility report was utilized to determine eligible children for the study (i.e., Latino children between the ages of two and eight years). A secondary screening procedure was done to confirm that the person filling out the survey (a) was the child's legal guardian and (b) identified as Latino. This information was obtained by asking the adult these questions at recruitment. A power analysis revealed that a sample size of approximately 100 participants would allow for a medium effect size.

#### **Participants**

Participants ( $N = 124$ ) were Latino parents between the ages of 20 and 47 ( $M = 28.92$ ,  $SD = 5.46$ ). The sample included 110 (88.7%) biological mothers, 10 (8.1%) biological fathers, and two (1.6%) adoptive parents. Two participants did not report their sex. The majority of participants (57.3%) identified as Mexican or Mexican-American, with the remainder of parents identifying as non-Mexican Latino (e.g., Guatemalan, Ecuadorian). Of the 124 children included in the study, 65 (52.4%) were male and 59 (47.6%) were female.

Children were an average age of about six years ( $M = 59.02$  months,  $SD = 23.82$  months). Children had an average BMI z-score of  $.77$  ( $SD = 1.14$ ). Based on BMI percentile, 2 children (1.6%) were classified as underweight, 70 (56.4%) were classified as normal weight, 24 (19.4%) were classified as overweight, and 28 (22.6%) were classified as obese. These classifications were assigned according to the Center for Disease Control's Division of Nutrition, Physical Activity, and Obesity (CDC, 2012), which defines healthy weight as having a BMI between the fifth and 85<sup>th</sup> percentile after controlling for age and gender. Overweight is defined as having a BMI between the 85<sup>th</sup> and 95<sup>th</sup> percentile, and obesity is defined as having a BMI above the 95<sup>th</sup> percentile after controlling for age and gender. Seventy-three parents provided height and weight information that could be used to calculate a BMI. From these, parents had an average BMI of  $28.93$  ( $SD = 5.46$ ). Parents were also categorized into weight categories according to BMI. Specifically, of the parents who reported their height and weight, 21 (28.8%) were classified as normal weight with a BMI between 18.5 and 24.9. Twenty-three (31.5%) parents were classified as overweight, with BMIs between 25.0 and 29.9. Finally, 29 (39.7%) parents were classified as obese, with a BMI of greater than or equal to 30.0. These categories were also based on the Center for Disease Control's Division of Nutrition, Physical Activity, and Obesity (CDC, 2012), which dictates that adults with a BMI between 18.5 and 24.9 are deemed normal weight, while overweight is defined as having a BMI between 25.0 and 29.9. Finally, obesity in adults is defined as having a BMI of 30.0 or higher. Parental feeding style varied in the current sample, with 34 (27.4%) endorsing uninvolved feeding style, 47 (37.9%) endorsing indulgent feeding style, 26 (21.0%) endorsing authoritarian feeding style, and 17 (13.7%) endorsing

authoritative feeding style. See Table 1 for a complete summary of the participants' demographic characteristics.

### **Procedure**

The current study was approved by the Institutional Review Board. Parents meeting eligibility criteria by self-report as described above were recruited from the waiting room at a primary care clinic in a children's hospital in a large metropolitan area. Parents were explained the study in either English or Spanish based on their preference and those who were 18 years or older and who had a child between the ages of two and eight years were invited to complete a survey assessing their acculturation level, parenting stress, acculturative stress, parental feeding styles, and demographics. The survey was provided in either English or Spanish, based on their preference. If parents had more than one child in the age range, they were asked to answer the questions in consideration of the child who was present for the clinic appointment that day. If more than one child was seen in the clinic that day, the parent was asked to select the youngest child. In order to control for literacy concerns, parents were given the option of having the survey read out loud to them in a private area to ensure confidentiality. In order to obtain child BMI data, parents were provided a slip of paper to take into their appointment, where their nurse indicated the child's height and weight as measured that day. Parents presented the height and weight information following the appointment in order to complete the study. All parents who agreed to participate in the study were provided with a bilingual cookbook and water bottle. A bilingual researcher obtained verbal consent from participants, administered the survey instruments, and was available to answer questions about the study.

### **Measures**

**Acculturation.** Parents' acculturation level was assessed with the Short Acculturation Scale for Hispanics (SASH; Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987). The SASH is a 12-item scale measuring various aspects of acculturation, including language use (5 items), media (3 items), and ethnic social relations (4 items) that has been validated in both Spanish and English. For the current study, only items from the language use subscale were utilized. Sample items of the 5-item language use subscale include, "In general, what language(s) do you read and speak?" and "In which language(s) do you usually think?" with responses ranging from 1 (*Only Spanish*) to 5 (*Only English*). The scale was scored by summing the items, with higher scores indicating greater acculturation to United States culture. Marin et al. (1987) reported an internal consistency alpha coefficient for the language use subscale that was almost identical to the full scale (.90 and .92, respectively). Furthermore, the authors of the original full scale acculturation measure reported that the language use subscale correlated significantly with other proxy measures of acculturation, including generation status, length of residence, self-evaluation, and age of arrival, indicating strong validity. More recently, Ellison, Jandorf, and Duhamel (2011) found that the scale can be used reliably with a variety of Latino ethnicities. Furthermore, Ellison et al. (2011) found that the language use subscale correlated significantly with the overall SASH scale, providing further evidence that it is an adequate substitution for the entire SASH scale. For the current study's entire sample, Cronbach's alpha for the language use subscale was .91, indicating good internal consistency. For the English- and Spanish-speaking subsample, Cronbach's alpha was .86 and .76, respectively.

**Parenting Stress.** Parenting stress was measured with the Parenting Stress Scale (PSS; Berry & Jones, 1995). The PSS is an 18-item scale that measures level of parenting

stress for both mothers and fathers of children with and without clinical problems. The scale is made up of four factors, including parental rewards (6 items), parental stressors (6 items), lack of control (3 items), and parental satisfaction (3 items). Sample items include, “I am happy in my role as parent” (parental rewards), “Caring for my child(ren) sometimes takes more time and energy than I have to give” (parental stressors), “I feel overwhelmed by the responsibility of being a parent” (lack of control), and “The behavior of my child(ren) is often embarrassing or stressful to me (parental satisfaction). Participants were asked to respond on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores indicating greater levels of parenting stress. Total scores were calculated by summing the scores from all items. Previous research has found the PSS to be a valid measure of parenting stress, as evidenced by its positive correlation with other measures of parenting and general stress (Berry & Jones, 1995). Furthermore, the scale’s authors reported good internal consistency, with an alpha coefficient of .83 for a sample of 233 parents (Berry & Jones, 1995). Recently, Baker, Perilla, and Norris (2001) used the Spanish version of the scale in a sample of Latino adults. These researchers found that two of the scale’s items produced small variability due to extreme positive answering. The authors concluded that these two items were not culturally relevant to Latino parents and those items were dropped from the Spanish version of the scale. However, Baker and colleagues (2001) showed that the scale is valid when used with Latino adults, and reported an internal consistency alpha coefficient of .72. For the current study, the 16-item version by Baker and colleagues was used. The reliability coefficient for this scale in the current study was .77, indicating good internal consistency. For the English- and Spanish-speaking subsample, Cronbach’s alpha was .78 and .77, respectively.



**Acculturative Stress.** Acculturative stress was measured using two subscales from the Multidimensional Acculturative Stress Inventory (MASI; Rodriguez, Myers, Mira, Flores, & Garcia-Hernandez, 2002). The MASI is a 25-item measure with four subscales. Subscales measure different aspects of acculturation, including Spanish competency pressures (7 items), English competency pressures (7 items), pressure to acculturate (7 items) and pressure against acculturation (4 items). The current study utilized the pressure to acculturate and English competency pressures subscales. Sample items from the 7-item pressure to acculturate subscale include, “It bothers me when people pressure me to assimilate to the American ways of doing things” and “I don’t feel accepted by Whites.” Sample items from the 7-item English competency pressures subscale include, “It bothers me that I speak English with an accent” and “I have been discriminated against because I have difficulty speaking English.” The scale has been validated with both English and Spanish speaking Latino populations. Respondents were asked to indicate whether or not they have experienced the particular situation over the last three months. If they respond *yes*, participants were asked to indicate the degree of their stress on a 5-point Likert-type scale ranging from 1 (*not at all stressful*) to 5 (*extremely stressful*). Scores on the subscales were computed by summing responses to the Likert-type scale, with “*no*” responses being coded as “0”. Rodriguez and colleagues reported an alpha coefficient for the entire scale to be .90. For the English and Spanish subsamples, alpha coefficients for the total scale were reported to be .84 and .83, respectively (Rodriguez et al., 2002). For the pressure to acculturate subscale, the internal consistency alpha coefficient was shown to be .84, while for the English Competency Pressures subscale, the alpha coefficient was .91. These coefficients indicate high internal consistency. Rodriguez and colleagues also reported that the pressure

to acculturate subscale was significantly associated with psychological distress, providing evidence for convergent validity with poor psychological adjustment even after controlling for acculturation level. A factor analysis of the items used in the current study indicated that the items administered loaded bidimensionally according to the two subscales described above. Thus, each subscale was separately retained and included in the analyses in place of the total scale as the acculturative stress variable. The reliability coefficients for the Pressure to Acculturate and the English Competency subscales for the current sample were .83 and .87, respectively. For the English-speaking subsample, Cronbach's alpha for the Pressure to Acculturate and English Competency subscales were .80 and .83, respectively. For the Spanish-speaking subsample, the internal consistencies for these subscales were .84 and .85.

**Parental Feeding Style.** Parental feeding style was measured using the Caregiver's Feeding Style Questionnaire (CFSQ; Hughes et al., 2005). The CFSQ is a 19-item scale that measures parents on their feeding styles along two dimensions (i.e., parental demandingness/parent-centered and parental responsiveness/child-centered regarding their child's eating). It has been validated with both English and Spanish speaking populations. Sample items include, "How often during the dinner meal do you compliment the child for eating food" (parental responsiveness/child-centered) and "How often during the dinner meal do you say something to show your disapproval of the child for not eating dinner" (parental demandingness/parent-centered). Parents were asked to respond on a Likert-type scale ranging from 1 (*never*) to 5 (*always*), with higher scores indicating greater levels of parental demandingness or parental responsiveness. Parents' responses were scored on the CFSQ according to a typological approach. Specifically, parents were placed into one of four feeding style categories (i.e., authoritative, authoritarian, indulgent, and uninvolved).

Placements were based on parents' responses on two dimensions of demandingness and responsiveness. Parents were assigned into either low or high categories of each dimension. Recently, Hughes and Colleagues (2012) established cutoff points of 2.80 for the demandingness scale and 1.16 for the responsiveness scale for samples similar to those of the current study. Thus, these cutoff points were used in categorizing parental responses into one of the four feeding styles. Parents with high demandingness and high responsiveness (i.e., scores that were above the cutoff points of 2.80 and 1.16, respectively) were categorized as authoritative, while parents with high demandingness (i.e., above 2.80) and low responsiveness (i.e., below 1.16) were categorized as authoritarian. Indulgent feeding style was indicated by low demandingness (i.e., below 2.80) and high responsiveness (i.e., above 1.16). Finally, uninvolved feeding style was characterized by low demandingness and low responsiveness (i.e., below 2.80 and below 1.16, respectively). The CFSQ has been found to correlate strongly with the Parenting Dimensions Inventory (PDI) and the Child Feeding Questionnaire (CFQ), indicating its convergent validity. Furthermore, internal consistency and reliability for demandingness and responsiveness were .86 and .72, respectively (Hughes et al., 2005). These alpha coefficients indicate acceptable reliability. Test-retest reliability was also shown for the combined demandingness and responsiveness subscales, with Pearson's correlation coefficients for the two dimensions reported as .85 and .82, respectively (Hughes et al., 2005). The reliability coefficient for this scale in the current study was .89, indicating good internal consistency. For the English- and Spanish-speaking subsample, Cronbach's alpha was .88 and .89, respectively.

**Child BMI.** Because of the inherent problems with the reliability of obtaining BMI from parent self-report, child BMI was assessed in conjunction with each child's clinic visit.

Parents were provided a piece of paper to take into their clinic appointment, on which the nurse indicated the child's height and weight as measured that day. Parents then gave their child's height and weight data to me in addition to the completed survey. Height and weight were utilized to compute BMI and BMI z-score. BMI z-score was used in all quantitative analyses and BMI percentile was used to classify participants into a weight status (i.e., normal, overweight, obese) due to the inaccuracy of purely using BMI alone. Because what constitutes a "healthy" BMI can vary based on a child's gender and age, best practice suggests utilizing a z-score that controls for gender and age.

**Demographic Information.** Parents were asked to indicate their age, gender, ethnicity (i.e., country of origin), length of time living in the United States, employment status, marital status, educational attainment, and annual family income. They were also asked to indicate whether or not they received any form of public assistance, and if so, what kind they received. In order to further describe the sample, parents were asked to estimate their own height and weight in order for parent BMI to be calculated. Only 73 of the 124 participants in the present study provided parent BMI information, thus all study findings related to parent BMI are based on a subsample of participants. Participants were asked about the kind of education they had received and would like to receive about nutrition, obesity, and diet for their children. Finally, participants were asked whether or not they thought their child's weight was a health problem.

## CHAPTER 4

### RESULTS

#### **Data Screening**

The statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) Software. Prior to analysis, data were screened to ensure statistics, which were all within the normal range. Homogeneity of variance was investigated through Levene's test, which was nonsignificant. Thus, equality of variances was assumed. There were a total of 17 cases with at least one missing data point. The majority of the missing data came from the Parenting Stress measure, as several participants ( $n = 5$ ) incorrectly responded to the items (i.e., responded by writing "yes" or "no" as opposed to providing a number ranging from 1 to 5) or left the item blank. One participant did not complete the MASI, while another did not complete all of the CFSQ. The highest number of missing data came from one participant who did not complete the MASI or the PSS. There were no missing child BMI data. Little's MCAR test revealed that data were missing that assumptions of univariate and multivariate analysis had not been violated. Outliers were detected by observing descriptive statistics of standardized values. There were no univariate or multivariate outliers. Normality of distributions for all variables was examined through histograms, skewness, and kurtosis completely at random ( $\chi^2 = 39.38, p > .05$ ), and were imputed using expectation maximization at the scale level. See Table 2 for statistical characteristics of the study's scales.

#### **Preliminary Analyses**

Pearson product moment correlation coefficients were conducted to examine bivariate relationships. See Table 3 for the full correlation matrix. Preliminary analyses indicated that

acculturation level was significantly correlated with Parenting Stress,  $r = -.216$ , and English Competency Pressure,  $r = -.426$ . These findings were consistent with previous literature and acculturation level was thus used as a control variable for all primary analyses. The sample was also analyzed to look at differences according to preferred language. Independent samples  $t$ -tests were conducted, showing that English-speaking participants had significantly higher acculturation levels ( $t(122) = 11.96, p < .001$ ), lower parenting stress ( $t(122) = 2.80, p < .01$ ), higher demandingness ( $t(122) = 2.61, p < .05$ ), higher responsiveness ( $t(122) = 2.20, p < .05$ ), and lower English Competency Pressure ( $t(122) = 5.32, p < .001$ ). Because these differences can be attributed to acculturation level, these analyses provided further support to control for acculturation in all primary analyses.

### **Primary Analyses**

Hypotheses 1 through 3 and Research Question 1, which explored the influence of parenting stress on parental feeding style, were tested using discriminant analysis. The discriminant analysis included parenting stress after controlling for acculturation level as the predictor variable, with parental feeding style as the dependent variable. This analysis was not significant, indicating that Hypotheses 1 through 3 and Research Question 1 were not supported, Wilks' Lambda = .903,  $p = .06$ . A review of the canonical discriminant function coefficient indicated that there is a medium effect of parenting stress on parental feeding style with a discriminant function coefficient of  $-.623$ . The observed power for this analysis was .55, which is considered low. Given a  $p$ -value of .06 for this discriminant analysis, a follow-up one-way ANOVA with planned comparisons was run examining group differences by parenting stress. This ANOVA showed that authoritative parents endorsed less parenting stress than the other three parental feeding styles,  $F(3, 120) = 2.21, p = .09$ . This was a small-

to-medium effect,  $\eta^2 = 0.05$ , with a low observed power of .55. See Table 4 for parenting stress mean scores by parental feeding style.

Hypotheses 4 through 6 and Research Question 2, which explored the influence of acculturative stress on parental feeding style, were tested using a second discriminant analysis. This discriminant analysis included the two acculturative stress subscales after controlling for acculturation level as the predictor variable, with parental feeding style as the dependent variable. Again, this discriminant analysis was not significant, indicating that hypotheses 4 through 6 and research question 2 were not supported, Wilks' Lambda = .899,  $p = .18$ . This suggests that the model predicted group membership no better than what would have been predicted randomly. However, a review of the effect size for this analysis showed that both acculturative stress subscales had a medium effect on parental feeding style, with a discriminant function coefficient of -.534 for English Competency Pressure and .508 for Pressure to Acculturate. Likewise, the observed power for this analysis was low at .44 and .33 for English Competency Pressure and Pressure to Acculturate subscales, respectively.

Hypothesis 7 stated that there would be differences in child BMI z-score according to parental feeding style. In order to test this hypothesis, a one-way ANOVA with planned comparisons was run, comparing the four parental feeding styles on the dependent variable of child BMI z-score. This ANOVA was also used to examine Research Question 3, which examined the relationship between uninvolved parental feeding style and child BMI. This ANOVA was not significant, suggesting that there was no relationship between parental feeding style and child BMI z-score in the current study,  $F(3, 120) = 1.13$ ,  $p = .34$ . Analyses showed this to be a small effect,  $\eta^2 = 0.03$ . However, the observed power for this analysis was .30, which is too low to reliably infer the absence of an effect.

Finally, Research Question 4, which explored the combined effect of acculturative and parenting stress on parental feeding style was tested by conducting a third discriminant analysis. This analysis, after controlling for acculturation level, included the two acculturative stress subscales and parenting stress as predictor variables. The outcome variable for this analysis was again parental feeding style. This test was nonsignificant, indicating that there was no observed combined effect of acculturative and parenting stress on parental feeding style, Wilks' Lambda = .862,  $p = .13$ . Again, this model was no better at predicting group membership than what could have been predicted randomly. See Tables 5, 6, and 7 for actual and predicted group memberships from the three discriminant analyses conducted.

### **Exploratory Analyses**

Because of the nonsignificant findings for all hypotheses and research questions, further exploratory analyses were reviewed. An examination of the correlational findings revealed that Parent BMI was significantly positively related to child BMI z-score,  $r = .273$ ,  $p < .05$ . This suggests a small-to-medium effect of parent BMI on child BMI. Furthermore, although child BMI z-score was not related to parental feeding style, parent BMI was significantly associated with parental feeding style,  $F(3, 69) = 3.38$ ,  $p < .05$ . There was found to be a medium effect of parental feeding style on parent BMI,  $\eta^2 = 0.13$ . This analysis also had an observed power of .74. Bonferroni post-hoc analyses revealed that parents who displayed an uninvolved parental feeding style had significantly higher BMIs than parents who displayed an authoritarian feeding style,  $p < .05$ . Likewise, parent BMI for uninvolved feeding style was almost one whole standard deviation greater than the next highest BMI by feeding style. Furthermore, uninvolved parental feeding style was also associated with higher



BMI when compared to indulgent feeding style and authoritative feeding style; however, these relationships were not significant,  $p = .07$  and  $p = .08$ , respectively. Finally, parent BMI was significantly related to parenting stress,  $r = .272$ ,  $p < .05$ , suggesting that greater stress was associated with higher BMI. This is also a small effect. See Tables 8 and 9 for parent and child BMI means according to parental feeding style.

Child BMI z-score was found to be negatively related to the demandingness dimension of parental feeding style,  $r = -.179$ ,  $p < .05$ , suggesting that more demanding parental behaviors during mealtimes were associated with lower BMI z-scores for children. This coefficient is indicative of a small effect of demandingness on child BMI with a high level of observed power at .86. Although BMI z-score was not related to age, a one-way ANOVA revealed that child age was significantly related to child BMI category,  $F(2, 121) = 6.54$ ,  $p < .01$ . This was found to be a small-to-medium effect,  $\eta^2 = .10$ . Observed power for this ANOVA was large, at .90. A Bonferroni post-hoc test showed that children classified as obese (i.e., with BMI percentiles greater than 95%) were significantly older than normal and overweight children,  $p < .05$ . Furthermore, a one-way ANOVA showed that there was a significant relationship between parental demandingness and child BMI category,  $F(2,121) = 5.70$ ,  $p < .01$ . This was also found to be a small-to-medium effect,  $\eta^2 = .09$ . This ANOVA had a large observed power of .86. A Bonferroni post-hoc test for this analysis revealed that parents of obese children endorsed significantly less demandingness in their feeding styles than parents of healthy or overweight children,  $p < .01$ . Additionally, a one-way ANOVA showed that parental responsiveness was also related to child weight category,  $F(2, 121) = 5.08$ ,  $p < .01$ . This was found to be a small-to-medium effect,  $\eta^2 = .08$ , and also had a large observed power of .81. Bonferroni post-hoc tests showed that children of parents who

endorsed more responsiveness in their feeding styles were significantly more likely to be overweight than normal weight,  $p < .01$ , however responsiveness was not significantly related to whether or not a child was classified as obese. See Tables 10, 11, and 12 for group means from the above ANOVAs.

In addition to parental demandingness being associated with child BMI category, demandingness was also positively associated with acculturation level,  $r = .213, p < .05$ . This suggests that parents who were more acculturated displayed more demanding feeding styles. Acculturation level was unrelated to child and parent BMI. However, acculturation level was significantly negatively associated with parenting stress ( $r = -.216, p < .05$ ) and English competency pressure ( $r = -.426, p < .01$ ). These are small and medium effects, respectively. Finally, acculturation level was also associated with parental education ( $r = .324, p < .01$ ) and annual family income ( $r = .334, p < .01$ ). Again, these correlation coefficients show medium effects of acculturation level on parental education and annual family income. Likewise, an independent samples  $t$ -test showed that parents who were more acculturated were less likely to report receiving public assistance,  $t(117) = 2.04, p < .05$ . See Table 3 for the correlational matrix.

Exploratory analyses were also conducted regarding parents' expressed concern about obesity. Parents were asked about whether or not they thought their child's weight was a health problem by answering "yes," "no," or "maybe." A one-way ANOVA was run comparing these possible responses on the dependent variable of child BMI z-score. This test was significant,  $F(2,111) = 3.18, p < .05$ . There was found to be a small effect of parental concern for weight being a health problem on child BMI,  $\eta^2 = 0.05$ . A Bonferroni post-hoc test showed that parents who reported that they did not think weight was a health concern for

their child had a child with significantly increased BMI z-score compared to parents who did believe weight was a health concern. Further, parents who responded “no” to this question had children with an average BMI score in the 87<sup>th</sup> percentile, which is considered to be “overweight” according to the CDC (CDC, 2012). This suggests that parents were generally unaware that their child’s weight was a problem, especially if their child was already overweight or obese.

## CHAPTER 5

### DISCUSSION

The present study examined the influences of parenting and acculturative stress on the parental feeding styles of Latino parents. The study also investigated the effect of parental feeding style on child BMI among a sample of 124 Latino parents. Overall, the hypotheses and research questions were not statistically supported. However, further exploratory analyses were conducted that found important significant relationships worth discussing.

#### **Parenting Stress**

The hypotheses, research questions, and exploratory analyses related to parenting stress are discussed in this section. Hypotheses 1 through 3 and research questions 1 and 4, which explored the relationship between parenting stress and parental feeding style, were not supported at the  $p < .05$  level. In other words, the discriminant analysis conducted to assess the relationship between parenting stress and parental feeding style was nonsignificant at  $p = .06$ . Given the small  $p$ -value found in the discriminant analysis, it was important to further investigate the relationship between parenting stress and parental feeding style. Follow-up analyses revealed nonsignificant relationships between parenting stress and authoritarian (Hypothesis 1), indulgent (Hypothesis 2), and uninvolved feeding style (Research Question 1). Likewise, there was no combined effect of parenting and acculturative stress on parental feeding style (Research Question 4). However, there was a trend finding suggesting that parents with lower parenting stress endorsed authoritative feeding style (Hypothesis 3), which will be discussed later in this section.

It is difficult to determine why parenting stress was not significantly associated with indulgent, uninvolved, and authoritarian parental feeding styles (i.e., an aspect of parenting

behaviors), especially given previous research which has found an association between stress and parenting behaviors, such that high stress places families at risk for inconsistent discipline, coercive parent-child interactions, and child maltreatment (Rodgers, 1998). It is possible that the low endorsement of parenting stress in the current sample did not provide the statistical variability needed to detect a significant relationship. The maximum score possible on the parenting stress scale was 80, whereas the highest reported score for the current sample was 56, with an average score of 30.93. Items on the scale vary in the tone in which they are conveyed; some questions are worded positively, (“I am happy in my role as a parent”) while others are worded more negatively (“The major source of stress in my life is my child”). It is possible that pressure to provide a socially desirable response resulted in participants endorsing more positively worded items and to a much lesser extent negatively worded items. Although the parenting stress variable was normally distributed with appropriate skewness and kurtosis values, it is possible that authoritarian, indulgent, and uninvolved parents endorsed less stress than necessary to support the hypotheses that high levels of parenting stress are associated with these three feeding styles.

Measurement issues aside, there are several other potential reasons for the nonsignificant parenting stress findings of the current study. Although previous research has found support for the relationship between parenting stress and parenting style (Park & Walton-Moss, 2012; Tan et al., 2012), very few studies have specifically investigated parental feeding style and parenting stress among Latino families. It is possible that the relationship between parenting stress and authoritarian, indulgent, and even uninvolved parental feeding style failed to emerge as significant because the construct of parental feeding style encompasses relatively less parental behaviors and activity time than general

parenting style. The measure of parental feeding style used in the present study (i.e., CFSQ) only assesses behaviors related to mealtime and how parents respond or do not respond to their children's behaviors within that time period. However, general parenting style has been defined by an overall pattern of parenting that is consistent across time, setting, and circumstance. Because parental feeding style is restricted to only meal times, the relationship between parenting stress and parental feeding style may be less obvious since parental feeding style is defined by a very specific interaction. To the contrary, parenting style includes a much broader experience of behaviors and interactions with one's child. Theoretically, parents' feeding styles should be consistent with their general parenting styles; however, the questions asked by the CFSQ in the current study may not be relevant to the general concerns addressed by the parenting stress measure. For example, one question on the CFSQ asks the parent how often he or she, "tells the child to eat something on the plate (for example, 'Eat your beans')." This question is only relevant to mealtimes, making it difficult to generalize to the broader construct of parenting style.

Another reason parenting stress and parental feeding style may have a weaker relationship than that hypothesized by the current study has to do with the fact that there is such a strong relationship between stress and childhood obesity, even without considering the variable of parental feeding style (Moens et al., 2009; Stenhammar et al., 2010; Lytle et al., 2011). The literature on stress and obesity has consistently found that heightened family and parent stress levels are associated with child obesity and weight gain (Koch, Sepa, & Ludvigsson, 2008). Koch and colleagues (2008) found that serious life events, lack of social support, and parental worries were significantly associated with increased odds of obesity in children. A more recent study explored the relationship between parental stressors and child

obesity and found that the number of parental stressors (as operationalized by physical health, mental health, financial strain, and family structure) was directly positively related to child obesity (Parks et al., 2012). This particularly held true for ethnic minority groups. Other variables that may play a role in understanding the relations between stress, parental feeding style, and pediatric obesity include (a) whether or not the child lives in a single parent home, (b) the amount of time a parent has to prepare meals and implement mealtime, (c) whether or not a parent is able to be present for meals on a consistent basis, (d) the behaviors of the child, (e) the presence of other children during the meal itself, and (f) the amount of work stress a parent may experience. All of these factors can affect the manner in which a parent behaves during mealtime as well as the level of his or her stress, and may have added uncontrolled variance to the current study's analyses. The multitude of potential interactive effects these variables may have on parenting stress and child BMI suggest that parental feeding style may have had a smaller influence than hypothesized in the relationship between stress and obesity.

The above plausible explanations for the lack of significant findings do not negate the fact that the current study resulted in trend findings that provide valuable information. An examination of mean parenting stress scores by parental feeding style showed that authoritative parents endorsed less parenting stress than the other three feeding styles. The relationship found between authoritative parental feeding style and parenting stress is consistent with previous research findings that general authoritative parents experience less parenting stress (Park & Walton-Moss, 2012). The current finding expands on previous research, however, by supporting the notion that parents with authoritative feeding style (as opposed to just authoritative parenting style) endorse lower levels of parenting stress than the

other feeding styles. Although the difference in parenting stress scores by feeding style was not statistically significant ( $p = .09$ ), it is a trend finding that carries practical value for both clinicians and researchers by suggesting that lower stressed parents may show behaviors that are consistent with a parenting style that has been found to result in better child outcomes. There are numerous positive child health outcomes previous research has found with regard to authoritative parenting in general (Johnson et al., 2012; Kitzmann et al., 2008; Patrick et al., 2005; Rhee et al., 2006; Sleddens et al., 2011). Indeed, these researchers have found that authoritative parenting is associated with better health behaviors in children (i.e., eating fruits and vegetables), better school performance, less externalizing behaviors, and increased psychological adjustment. Because parental feeding style is such a new construct, it is an important finding that mean parenting stress scores were lower for authoritative parental feeding style, even if the scores were not statistically different at the  $p < .05$  level. Because this is the first study to investigate the relationship between authoritative feeding style and parenting stress, trend findings create more impetus for further research in the area.

Although more research is needed to determine why parents with authoritative feeding style endorse lower levels of parenting stress, it is possible to highlight various potential reasons. To do so, it is necessary to refer to past research findings related to general authoritative parenting. It is well known that children and adolescents from authoritative homes tend to do better in school, report less psychological distress, and engage in less delinquent behaviors (Steinberg et al., 1991). Authoritative parenting has also been associated with better parent-child relationships due to the more collaborative nature of discipline and parenting. The development of positive parent-child relationships common in authoritative families likely puts parents at less risk for parenting stress. In fact, Chan, Doan,



and Tompson (2014) recently found that there is a significant positive relationship between poor parent-child relationships and family stress. Likewise, children from non-authoritative homes are at risk for poorer academic outcomes and psychological adjustment (Mckinney et al., 2011). Another recent study reported that there was a strong association between permissive and authoritarian parenting, family stress, and child behavior problems (Tan, Camras, Deng, Zhang, & Lu, 2012). It is possible that the negative outcomes associated with non-authoritative parenting may introduce more stress on parents due to the added pressures of having children who demonstrate poor behaviors and psychological well-being. Park and Walton-Moss (2012) reported that uninvolved parents in particular endorsed high levels of parenting stress relative to the other parenting styles, and that this was likely due to the incongruence between how they behave as parents and how societal norms dictate they should behave. These are all important considerations to make when contemplating why parents with authoritative parental feeding styles tended to endorse lower stress levels than the other three styles.

**Exploratory Findings.** One important exploratory finding from the current study was that parenting stress was significantly positively associated with parent BMI. This finding is consistent with previous research on stress and BMI in adults, which has found that high levels of stress alter eating behaviors and can directly influence the brain's reward pathways, leading to weight gain (Sinha & Jastreboff, 2013). Likewise, chronic life stress has been found to be associated with greater preference for foods that are high in sugar and fat, which again leads to obesity (Torres & Nowson, 2007). Although this is a highly physiological process, it is important to note the social and behavioral components of stress. Changes in eating behaviors combined with increased parental stress can lead to poor parental modeling

as well as lack of healthy food preparation. This poor modeling and parental risk for weight gain has significant repercussions for children. Although child BMI z-score was unrelated to parenting stress in the current study, it was significantly positively related to parent BMI such that overweight parents were more likely to have overweight children. For this reason, it is important to consider parents' stress levels when developing treatment plans for overweight and obese children, as the current study points toward a strong relationship among parenting stress, parent BMI, and child BMI.

Another significant exploratory finding from the current study was that parenting stress was negatively correlated with acculturation level, suggesting that parents who were less acculturated experienced more parenting stress. There are a number of reasons why less acculturated participants may have experienced more parenting stress. Previous research has found these to include (a) financial demands, (b) poor employment conditions, (c) language barriers, and (d) less access to health care (Lara et al., 2005; White et al., 2009).

Acculturating individuals are especially vulnerable to these stressors. Extrapolating from this, being a parent with low acculturation likely adds a significant level of stress due to the pressures of parenting when one is already overwhelmed by the above-mentioned socioeconomic and cultural stressors.

Although parenting stress has been shown to be correlated with general stress (Berry & Jones, 1995), it is possible that the parenting stress endorsed by the current sample reflects unique cultural characteristics. In particular, the idea of family, or *familismo*, is a strong element of Latino culture and is highly endorsed by Latinos with lower acculturation levels (Rodriguez, Mira, Paez, & Myers, 2007). If parents who value family connectedness and cohesion also begin to see themselves as too overwhelmed by their parenting duties, they

may perceive themselves as “bad parents” and thereby experience a level of stress that might not exist for parents of higher acculturation levels. Likewise, general Latino values such as family and community cohesion and support could also play a role in how parents experience parenting stress. For example, receiving support from extended family members may serve as a protective factor for parenting stress in low acculturated Latino parents. On the contrary, such support received by non-Latino or highly acculturated parents may be unwanted or even more stressful for said parents. That is, highly acculturated parents with a more individualistic value system might perceive extended family involvement and/or support to be intrusive or inappropriate. Future research may want to consider these and other cultural variables that could play a role in the relationship between acculturation and parenting stress.

### **Acculturative Stress**

The hypotheses, research questions, and exploratory analyses related to acculturative stress are discussed in this section. Hypotheses 4 through 6 and research questions 2 and 4, which explored the relationship between acculturative stress and parental feeding style, were not supported. In other words, the discriminant analysis conducted to assess the relationship between both subscales of acculturative stress and parental feeding style was nonsignificant. There are a number of reasons for the nonsignificant findings, the most important of which being the generally low levels of acculturative stress endorsed by the respondents. For both subscales, the highest possible stress score was 42; however, the highest endorsed score was 29 for the English Competency Pressures subscale and 22 for the Pressure to Acculturate subscale, with mean stress scores of 6.64 and 3.56, respectively. Although the skewness and kurtosis values were within an appropriate range for statistical analyses, it is possible that the low mean acculturative stress scores are the reason why the discriminant analysis was not

significant. It is difficult to determine why participants in the current sample endorsed such low levels of acculturative stress, especially considering their generally low level of acculturation. It is possible that social desirability played a role in the low level of endorsed acculturative stress, as parents may have felt uncomfortable admitting that having strong Latino identities and/or feeling pressured to adopt the “American” culture was a source of stress for them. Being asked to provide responses on a topic so personal as cultural identity may have been difficult for some individuals, especially if parents had limited insight or had never thought about acculturation pressures before. One other potential explanation could be the strong sense of community support Latinos have in the metropolitan area in which the survey was administered. Although community support was not assessed in the current study, sample participants resided in a community that offers support by means of nearby Latino social service agencies and an abundance of Spanish-speaking healthcare providers at the primary care clinic. The experience of community support may have resulted in genuinely lower levels of acculturative stress for the current sample. This notion has been supported by previous research findings that cultural discrimination is less harmful to individuals with strong social support networks than it is for individuals with poor social support (Finch & Vega, 2003). Likewise, Crockett and colleagues (2007) found that Latino college students with high levels of social support from peers and family experienced less detrimental psychological effects of acculturative stress. It is possible that the current sample’s acculturative stress endorsement was lower because participants felt a strong sense of support from the large Latino community in the area.

**Exploratory Findings.** Exploratory analyses using acculturative stress yielded similar results to those found in the primary analyses. Pressure to Acculturate was unrelated

to all of the study variables, including demographic variables (e.g., child and parent age, years living in the United States, income and education level). This lack of significance is unsurprising given the fact that the scale's developers reported that pressure to acculturate is experienced by Latinos of all levels of acculturation, regardless of background characteristics such as the demographics listed above (Rodriguez et al., 2002). The scale's authors also reported that pressure to acculturate may vary across time for the same individual, making it difficult to reliably measure over time. This lack of reliability, in combination with the general lack of endorsed stress for the subscale, make finding statistical significance difficult for the current sample.

On the other hand, the English Competency Pressure subscale was significantly negatively related to acculturation level, suggesting that parents with low levels of acculturation had higher levels of pressure to learn English. This is expected given the fact that less acculturated individuals are generally less likely to know English. Similarly, previous research has suggested that learning a new language is of primary significance for acculturating individuals (Rodriguez et al., 2002) and that lack of English fluency is a significant stressor for parents especially (Nomaguchi & House, 2013). However, the current sample tended to be on the low end of acculturation with a mean acculturation level of 9.23, with a possible range of 5.00-25.00. This suggests that parents' level of pressure to learn English is a serious concern due to the statistical significance even in spite of low variability of the measures.

The finding that acculturative stress was unrelated to parental feeding style contradicts that of Varela and colleagues (2004), who compared the parental feeding styles of acculturating Mexican Americans with non-Latino Whites and parents residing in Mexico.

These authors found that Latino parents living in the United States reported more authoritarian parenting styles than non-Latino Whites as well as Latino parents residing in Mexico. Varela and colleagues concluded that the reason for this difference was that Latino parents in the United States endorsed more authoritarian patterns due to their acculturative stress levels, as non-Latino White parents and Latino parents living in Mexico would by definition not have high levels of acculturative stress. On the other hand, it is well established that Latino mothers tend to have more authoritarian parenting values than their non-Latino counterparts (Nomaguchi & House, 2013). Because the current study did not include non-Latino White parents in its sample, there is no way to determine whether or not there were differences in parental feeding style by ethnicity. For this reason, it would be beneficial for future research studies to incorporate parents of both ethnic backgrounds in order to determine group differences.

There are numerous other variables that play a role in acculturative stress that I did not consider for the current study. These include neighborhood danger, perceived level of economic stress, and parental depression. It is possible that including these variables in analyses could have accounted for some of the unexplained variance and led to significant findings. The current study utilized acculturative stress purely in relation to feeding style and child BMI. However, the lack of significant findings indicate that perhaps it is necessary to take a step back and continue studying acculturative stress more broadly, and how it affects parents in a more general way than just parental feeding style. Currently, there is a paucity of research on the negative effects of acculturative stress on parenting in the Latino community. Leidy and colleagues (2009) were able to show that acculturative stress mediated the relationship between marital quality and child outcomes in the area of internalizing

behaviors. However, this study did not assess how acculturative stress impacts parenting behaviors. Taking a broader look at this relationship would allow researchers to better ascertain how acculturative stress affects parenting in the Latino community.

### **Parental Feeding Style and Child BMI Z-score**

The hypothesis, research question, and exploratory analyses related to parental feeding style and child BMI are discussed in this section. Hypothesis 7 and research question 3 of the current study explored the relationship between parental feeding style and child BMI z-score. Neither the hypothesis nor the research question were supported by the current data, suggesting that none of the parental feeding styles were associated with child BMI z-score. It is somewhat puzzling that there was no significant relationship between parental feeding style (in particular, authoritarian and indulgent) and child BMI in the current study because previous research has, generally, found that indulgent and authoritarian parenting styles are associated with higher child BMI outcomes compared to children of authoritative parents (Kremers et al., 2003; Park & Walton-Moss, 2012; Patrick et al., 2005; Rhee et al., 2006; Rodenburg et al., 2011; Savage et al., 2007; Sleddens et al., 2011). Similar findings have been found when looking more specifically at parental feeding style and child BMI outcomes (Hughes et al., 2005; Hughes et al., 2008). However, data are limited due to the fact that parental feeding style is a relatively new construct with few studies using it with primarily Latino populations.

One potential reason for the lack of significant findings regarding the relationship between parental feeding style and child BMI is that there were far less authoritative parents in the current study than the other three styles. It is possible that this grouping imbalance may have resulted in statistical power that was not large enough to detect differences in child BMI

according to parental feeding style. This being said, the feeding style patterns found in the current study are consistent with those found in other research using the CFSQ and other parenting style questionnaires in minority populations (Hughes et al., 2005; Hughes et al., 2008; Olvera & Power, 2010). In particular, these other studies have found that generally, fewer parents endorse authoritative styles than they do indulgent and authoritarian.

Furthermore, an examination of child BMI z-score by parental feeding style (see Table 6) showed a similar pattern to that of Hughes and colleagues (2005). More specifically, Hughes and colleagues reported that children from authoritarian parents had an average BMI z-score of 0.52, children with authoritative parents had an average BMI z-score of 0.72, children of indulgent parents had an average BMI z-score of 1.01, and finally, children of uninvolved parents had an average BMI z-score of 0.62. These z-scores are similar to what was found in the current study.

Given past research, which has found parental feeding style to be associated with child BMI, one may ask how it is that parental feeding style was unrelated to child BMI z-score, even after the considering the statistical problems with uneven group sizes. One plausible explanation is that Hughes and colleagues only found a statistically significant difference between authoritarian and indulgent children, with indulgent children having significantly higher BMI z-scores than children of authoritarian parents. The current study found BMI z-scores for authoritarian and indulgent children that were similar to those found by Hughes and colleagues, suggesting that having more power could potentially have yielded significant results. Overall, the current study's data from the Caregiver Feeding Style Questionnaire expands research with this measure and provides more evidence for its reliability and validity when used with Latino parents.



**Exploratory Findings.** One interesting exploratory finding from the current study was that while child BMI was unrelated to parental feeding style, a significant relationship was found between parent BMI and parental feeding style. In particular, uninvolved parents tended to have higher BMIs than authoritarian and indulgent parents. It is difficult to ascertain why uninvolved parents had higher BMIs. A likely explanation could be that these parents are by definition less involved in their child's nutrition. One could extrapolate from this and posit that uninvolved parents are also less attentive to their own nutrition and physical activity. This could explain the significant relationship between parent BMI and uninvolved parents. This idea coincides with past research that has found that uninvolved parenting style is associated with less physical activity in the family (Hennessy et al., 2010). Other research has posited that parents who show lower levels of control and who do not provide children with the guidance they need to develop healthy lifestyles are at risk for child obesity (Olvera & Power, 2010). Often, these are patterns seen throughout the family system, such that overweight parents with unhealthy lifestyles often have children with the same unhealthy lifestyles and weight concerns (Fassihi, McElhone, Feltbower, & Rudolf, 2012), leading to poor health outcomes for both parent and child.

The significant relationship between parent BMI and feeding style and the nonsignificant relationship between child BMI and feeding style are not completely understood. However, it is helpful to consider these findings in combination with the fact that parenting stress was positively associated with parent BMI. Because past research has connected parenting stress and child BMI (Parks et al., 2012), the findings of the current study (i.e., parent BMI's association with both parental feeding style and parenting stress) suggest that there may be an indirect effect of parental feeding style on child BMI, as

overweight parents tended to have overweight children as well. These findings suggest that weight management interventions for children should also provide support for parents, as increased stress may initiate a chain reaction that results in both parent and childhood overweight and obese status.

One exploratory finding related to parental feeding style worth noting is that high demandingness was found to be negatively correlated with BMI z-score in children, suggesting that parents who used more demanding feeding styles had children with lower BMI's. This demandingness, as measured by the CFSQ, includes both confrontive (i.e., fair and reasoned) and coercive (i.e., unreasonable and overbearing) powers. Therefore, high demandingness on the CFSQ included parents who could have been either authoritarian or authoritative; the difference lay in the parents' endorsed level of responsiveness on the CFSQ. Because responsiveness was not related to child BMI z-score and demandingness was, this leads me to consider what aspect of demandingness on the CFSQ was most influential for child BMI outcomes: confrontive or coercive? There is minimal research on this difference for Latino families, but the finding that demandingness was negatively correlated with child BMI could be interpreted to mean that for the Latino population, demanding parental feeding styles are beneficial for child BMI outcomes, regardless of how child-centered (i.e., "responsive") the parents' behaviors are. Indulgent parents (i.e., parents with low demandingness) had children with relatively higher BMI z-scores than authoritarian and authoritative parents. Although these differences were not significant, there is past research that has found them to be significant (Olvera & Power, 2010). Perhaps, researchers should focus less on distinguishing authoritarian and authoritative feeding styles for this population and instead focus on how demanding a parent is with regard to his or her feeding

style. These data could indicate that while non-authoritative parenting style in general is associated with negative child outcomes (Johnson et al., 2012; Kremers et al., 2003; Park & Walton-Moss, 2012; Patrick et al., 2005; Rhee et al., 2006; Rodenburg et al., 2011; Savage et al., 2007; Steinberg et al., 1991; Sleddens et al., 2011; Wake et al., 2007), this might not be true for non-authoritative (i.e., authoritarian) parental feeding style.

There is some past research that supports this notion. In particular, Hughes and colleagues (2006) reported that Latino parents used more parent-centered/high control *and* more child-centered feeding styles than African American parents. The authors concluded that because both of these strategies involve encouraging children to eat, this could be the reason for the overall higher risk for pediatric obesity in this population. However, Hughes and colleagues (2006) also found that parents of obese children were less likely to use high control feeding strategies. This lack of demandingness when parenting children who are already overweight is supported by the current finding that demandingness is negatively correlated with child BMI, and suggests yet again that demandingness is both a risk-factor and a protective factor for obesity in the Latino population: being too demanding puts children at risk for obesity, while not being demanding enough for already overweight and obese children actually perpetuates their weight problem. Further research in this area is necessary to better understand the impact of demanding feeding styles on Latino children.

### **Parental Concern for Obesity**

Perhaps one of the most interesting findings of the current study was that parents who endorsed the belief that the weight of their children was not a health concern were actually more likely to have an overweight or obese child. This finding is consistent with previous research in the area of parental perception of obesity, which has found that parents have

varying understandings of pediatric obesity (Bayles, 2010; Chaparro, Langellier, Kim, & Whaley, 2010; Killion, Hughes, Wendt, Pease, & Nicklas, 2006; Reifsnider et al., 2006). One significant problem related to pediatric obesity among Latino populations has to do with a vast misunderstanding of what obesity is and the degree to which it is a health concern. There are a number of studies showing that individuals from Latino backgrounds have different beliefs about overweight and obesity (Sivalingam et al., 2011), both with regard to their own weight and that of their children. In particular, parents from Latino backgrounds have been found to incorrectly rate overweight and obese children as being “healthy,” and healthy-weight children as being “underweight” (Bayles, 2010; Reifsnider et al., 2006). This distortion of child weight is alarming yet supports the findings of the current study.

In addition to research examining misperceptions of weight among Latino parents, the findings of the current study indicate that it is important to understand parents’ concerns about obesity in young children. Styles, Meier, Sutherland, and Campbell (2007) sought to qualitatively examine the needs and concerns of parents and caregivers with regard to childhood obesity and found that minority parents have a number of significant barriers that preclude them from being able to prioritize healthy lifestyles for themselves and their children. These included time pressures, knowledge deficits, and poor financial resources. These past research findings have suggested that although there seems to be a lack of parental concern for childhood obesity in the Latino population, there are numerous socioeconomic and cultural reasons for this discrepancy, many of which can be combated with appropriate intervention. The plethora of previous research on parental concern (or lack thereof) for obesity, in conjunction with the current findings, indicates that this is an area of tremendous importance when working with Latino families. The treatment implications in

this area are multifold.

### **Implications for Treatment**

The present study found that parents who endorse less parenting stress were associated with a more authoritative parental feeding style. Although the current study did not find a relationship between feeding style and child BMI, it is important to note that past literature has found relationships between feeding style and child weight and healthy eating outcomes (Blissett, 2011; Patrick et al., 2005). The current study did find a relationship between parenting stress, feeding style and parent BMI, as well as parent and child BMI. These findings suggest that it is equally important to work on reducing parental stress in Latino families that are at-risk for either adult or childhood overweight and obesity. Additionally, the current study provides further rationale for a family-based approach for treating obesity, as overweight parents are highly associated with having overweight children. Thus, directing interventions that focus on healthy habits of the entire family is vitally important.

Although parental concern for and cultural misperceptions of obesity were not the target variables of the current study, the finding that parents with overweight and obese children were relatively unconcerned with their child's weight is highly important for treatment of obesity. Pediatricians and other primary care health professionals should be aware of this cultural difference and incorporate educational initiatives about obesity and its health consequences into their regular patient care. It is important that providers not assume parents of Latino background have the same level of awareness as their non-Latino counterparts. In particular, it would be beneficial for treatment providers to refer to Styles and colleague (2007)'s report that minority caregivers experience added time pressures,

knowledge deficits, and institutional barriers to treatment. These unfortunate social inequalities make prevention and treatment significantly more difficult for marginalized minority groups. Likewise, it is vital that healthcare providers be trained in appropriate ways to broach the topic of obesity with this population. Use of interpreters is also highly important given the discrepancy about what is meant by the terms “overweight” and “obesity.” It is important to utilize culturally relevant terms when studying weight perception among Latino women. This also holds true for treatment of obesity for youth in this age group, as language and cultural differences creating a barrier for treatment is possible. Treatment providers should not assume that “obesity” and “overweight” are relevant terms for Latino families, and should instead make sure to define what they mean by these terms. It is imperative that this health information not get lost in translation or brushed aside during clinical encounters.

Latino parents experience an array of barriers that preclude them from developing healthy habits with their children. Some of these are related to the difficulties of working numerous jobs while also building the time necessary to plan healthy meals and exercise time for children. Other barriers include lack of education on health or lack of the financial means to educate oneself and/or incorporate healthy lifestyle behaviors into childrearing practices. Furthermore, living in dangerous neighborhoods, lack of English language competency, and high rates of adult obesity among Latinos are all significant obstacles for parents. Providers in all health fields, including physical and mental health, need to be aware of these barriers and address them to the extent possible when working with families of diverse backgrounds.

### **Future research**

Given the study findings, parenting stress is an important variable for future research

to consider both with minority parents and non-Latino White parents. Future research should include parents of multiple ethnicities in order to better understand the ethnic differences in stress and parenting. Likewise, it would also be beneficial for future research to incorporate strong Latino values when investigating parenting stress among Latino parents. In particular, *familismo* is a common value that may play a role in Latino parents' experience of stress. It would be interesting to determine to what degree the endorsement of strong family and community values interacts with parenting stress. Finally, the finding that increased parenting stress is associated with increased parent BMI is important and warrants further investigation, especially considering the fact that parents with higher BMI are more likely to have children with higher BMI. It may also be important for future research to address strategies to reduce parent BMI when introducing interventions for childhood obesity.

The current study is among the first to investigate the effects of acculturative stress on parental feeding style and child BMI. As such, it is important to highlight the fact that these findings in no way close the door on future research in this area. In fact, the nonsignificant findings point towards an array of new questions about these variables for future research to consider. For example, it is possible that the current sample simply did not experience the same levels of stress that another sample might experience. By thoroughly examining acculturative stress in relation to parental feeding behaviors, researchers will be able to gain a more culturally sensitive understanding of the unique experiences of Latino parents in the United States. Given the high obesity rates for this population, it is imperative that future research continue to address acculturative stress and how it affects parenting behaviors and child BMI. Because this is among the first studies to explore acculturative stress in relation to parental feeding style and child BMI z-score, it may be necessary for future research to take a

step back and assess acculturative stress in relation to general parenting behaviors that can affect child health outcomes.

Parenting feeding style is a new construct with minimal research in relation to the Latino population. As such, it is imperative that future researchers continue exploring parental feeding style and how it relates to child outcomes in the area of BMI and healthy lifestyle. In particular, it would be helpful for researchers to incorporate parents of multiple ethnic backgrounds in order to examine group differences by parental feeding style. This may be helpful in determining why Latino parents tend to be more authoritarian in their feeding styles. It may also be helpful for future research to consider the feeding behaviors outside of meals, and how these might differ by ethnicity. In addition, the findings from the current study suggest that demandingness in regard to feeding style may play a unique role for Latino families. Future research might consider what aspects of “control” (i.e., confrontive vs. coercive) are beneficial for the Latino population.

Future research might also consider the relationship between stress, child BMI, and attachment style. There has been some research indicating that parenting stress was associated with attachment style, which then was associated with child BMI outcomes (Stenhammar et al., 2010). The current study did not assess attachment style, but this might be a worthwhile endeavor for future research given the paucity of literature investigating childhood obesity and attachment style in the Latino community.

### **Limitations**

One of the most important limitations to address was the method of collecting data. Use of a convenience sample limits generalizability of findings. All of the participants for the current study were being seen at the same metropolitan children’s hospital within a two-



month time period. Additionally, because of the self-report nature of the data, social desirability may have influenced parents' responses to the survey questions in that parents may have been less likely to endorse strong feelings of stress that they may have actually been experiencing. Methods were taken to reduce this limitation, in particular regarding the confidential and voluntary nature of the design. It is possible that cultural mistrust may have resulted in parents minimizing their level of acculturative stress when responding to survey questions, which can skew data and result in nonsignificant findings. Furthermore, while parents were offered assistance in completing the survey, it is possible that parents with minimal literacy completed the survey without asking for help from the researcher.

Although a power analysis indicated that a sample of 100 participants would yield sufficient power to find statistical significance, and a total of 124 were recruited, it is possible that the study still did not have enough power to find significant results for all of the hypotheses. This notion is also supported by the fact that there was a medium effect size for many of the study's relationships, even in spite of the low observed power. Had the study had more power by means of a larger sample size, it is quite possible that it could have yielded statistical support and even larger effect sizes for the hypotheses that were not supported by the current sample.

Another important limitation in the current study was the method in which parent BMI was obtained. Although child BMI was obtained via height and weight measurements during each child's clinic appointment, parents were asked to self-report their height and weight, and BMI was calculated from those measurements. Only a subsample of 73 parents included their height and weight values. Additionally, it is possible that parents underreported their weight, as is often the case with self-report weight surveys. However, the

fact that parent BMI was significantly associated with various study variables is important and suggests that there may have been more significant findings, or greater effect sizes of the current findings, had I been able to obtain parents' BMI through more reliable measurement methods.

The statistical analyses of the current study were of course limited by the imperfections of the measures utilized. No measures are flawless even though good alpha coefficients were obtained for all of the scales used. Furthermore, the general lack of endorsed stress by the current sample could have created statistical problems even though the skewness and kurtosis values were within an acceptable range.

**Study Design Strengths and Limitations.** The current study followed a quantitative descriptive design with a two-fold purpose. The first aim of the study was to investigate the unique and combined effects parenting and acculturative stress have on the parental feeding styles of Latino parents. The second goal was to examine the influence parental feeding styles have on child BMI z-score for a Latino population. Strengths of this design include being able to describe relationships among variables, providing descriptive information of phenomena, and reducing error variance. However, this design is limited by the accuracy of the measurement tools being used. Furthermore, one is unable to make causal inferences based on quantitative data. Another limit of this research design is the difficulty inherent in collecting data using surveys. Given these limitations, this design allowed us to collect a large amount of data with relative ease from a population that has not been studied extensively.

## **Conclusions**

The current study investigated the relationships between acculturative stress,

parenting stress, and parental feeding style among Latino parents and how these variables contribute to pediatric obesity in this highly vulnerable population. Results provided an impetus for future research in this area, especially in the area of ethnic variations and cultural misperceptions of what obesity is and how it is a health epidemic. Findings from the current study can be used to inform health care practitioners of the need to use culturally sensitive interventions that consider parents' stress levels and health behaviors. Programs dedicated toward reducing overweight and obesity in childhood should continue to incorporate family-based methodology and educate parents on proper behaviors to utilize during child feeding times. Further, these programs should include components that work with parents to decrease stress levels and combat barriers to healthy lifestyles that are unfortunately so common among lower socioeconomic ethnic minority groups.

Table 1  
*Sample Characteristics*

Characteristic	<i>N</i> = 124
Parent Age (years)	<i>M</i> = 31.59 ( <i>SD</i> = 6.54)
Child Age (months)	<i>M</i> = 59.02 ( <i>SD</i> = 23.82)
Respondent Type	<i>n</i> (%)
Biological Mother	110 (88.7)
Biological Father	10 (8.1)
Adoptive Parent	2 (1.6)
Child Gender	<i>n</i> (%)
Male	65 (52.4)
Female	59 (47.6)
Participant Ethnicity	<i>n</i> (%)
Mexican, Mexican American, Chicano	71 (57.3)
Puerto Rican	1 (0.8)
Cuban	2 (1.6)
Other Latino	43 (34.6)
Employment status	<i>n</i> (%)
Unemployed, not looking	34 (27.4)
Unemployed, looking	22 (17.7)
Employed full-time	38 (30.6)
Employed part-time	17 (13.7)
Employed, maternity/medical leave	1 (0.8)
Educational Attainment	<i>n</i> (%)

1-6 years	17 (13.7)
7-9 years	16 (12.9)
Few years of high school	21 (16.9)
High school or GED	42 (33.9)
Associates Degree/Some college	17 (13.7)
Bachelor's Degree	5 (4.0)
Graduate Degree	1 (0.8)
Yearly Income	<i>n</i> (%)
Below \$10,000	41 (33.1)
\$11,000-20,000	35 (28.2)
\$21,000-30,000	22 (17.7)
\$31,000-40,000	4 (3.2)
\$41,000 and above	4 (3.2)
Receives Public Assistance	<i>n</i> (%)
Yes	71 (57.3)
No	48 (38.7)
Participant Marital Status	<i>n</i> (%)
Married	54 (43.5)
Single	26 (21.0)
Living with Partner	29 (23.4)
Separated	8 (6.5)
Divorced	1 (0.8)
Born in United States	<i>n</i> (%)

Yes	21 (16.9)
No	94 (75.8)
If not born in the United States, length of time here (years)	$M = 12.12$ ( $SD = 5.07$ )
Child BMI z-score	$M = 0.77$ ( $SD = 1.14$ )
Child Weight Status	$n$ (%)
Underweight	2 (1.6)
Healthy Weight	70 (56.4)
Overweight	24 (19.4)
Obese	28 (22.6)
Parent BMI	$M = 28.93$ ( $SD = 5.46$ )
Parent Weight Status	$n$ (% who responded)
Normal	21 (28.8)
Overweight	23 (31.5)
Obese	29 (39.7)
Parental Feeding Style	$n$ (%)
Uninvolved	34 (27.4)
Indulgent	47 (37.9)
Authoritarian	26 (21.0)
Authoritative	17 (13.7)

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*Note.* Variation in sample size for respondent type, child and parent ethnicity, marital status, educational level, employment status, yearly income, country of origin, years living in the United States, and parent BMI exist because some participants chose not to respond to those items.

Table 2  
*Psychometric Properties of Major Study Variables*

Variable	Range		Mean	Standard Deviation
	Potential	Actual		
Acculturation Level	5.00-25.00	5.00-24.00	9.23	4.78
Parenting Stress	16.00-80.00	16.00-56.00	30.93	7.43
English Competency Pressure	0.00-42.00	0.00-29.00	6.64	7.43
Pressure to Acculturate	0.00-42.00	0.00-22.00	3.56	5.19

Table 3  
*Pearson Coefficients of Study Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Child age												
2. Child BMI z-score	.153											
3. Parent age	.318**	.089										
4. Parent BMI	.135	.273*	.169									
5. Acculturation level	-.101	.054	-.382**	.002								
6. Parenting stress	.072	-.113	.095	.272*	-.216*							
7. Pressure to acculturate	-.020	.058	.018	-.037	.122	.132						
8. English competency pressure	.045	-.024	.167	.078	-.426**	.219*	.306**					
9. Demandingness	-.120	-.179*	-.104	-.126	.213*	.002	.083	.014				
10. Responsiveness	.122	.148	.034	-.092	.150	-.240**	.042	-.184*	-.199*			
11. Parent education level	-.058	-.077	-.245**	-.116	.324**	-.164	.127	-.173	.098	.090		
12. Yearly income	.212*	-.121	.099	-.070	.334**	-.147	-.018	-.229*	-.007	.142	.216*	
13. Years living in United States	-.031	-.146	.090	.049	.516**	-.010	.038	-.274**	.253*	.155	.004	.264*

*Note.* Parent BMI is based on a subsample (n = 73) who provided height and weight information.

\*  $p < .05$ ; \*\*  $p < .01$



Table 4

*Endorsed Parenting Stress by Parental Feeding Style*

Feeding Style	Mean	Standard Deviation
Uninvolved	32.39	6.18
Indulgent	30.78	8.58
Authoritarian	31.86	6.86
Authoritative	27.03	6.17

Table 5

*Classification of Parental Feeding Style Based on Parenting Stress*

Actual Group	<i>n</i>	Predicted Group			
		Uninvolved	Indulgent	Authoritarian	Authoritative
Uninvolved	34	21	1	5	7
Indulgent	47	17	2	10	18
Authoritarian	26	10	0	8	8
Authoritative	17	6	1	2	8

Table 6

*Classification of Parental Feeding Style Based on Acculturative Stress*

Actual Group	<i>n</i>	Predicted Group			
		Uninvolved	Indulgent	Authoritarian	Authoritative
Uninvolved	34	20	9	2	3
Indulgent	47	16	14	9	8
Authoritarian	26	6	8	7	5
Authoritative	17	5	5	3	4

Table 7  
*Classification of Parental Feeding Style Based on Combined Parenting and Acculturative Stress*

Actual Group	<i>n</i>	Predicted Group			
		Uninvolved	Indulgent	Authoritarian	Authoritative
Uninvolved	34	18	6	4	6
Indulgent	47	17	7	10	13
Authoritarian	26	6	3	10	7
Authoritative	17	4	4	4	5

Table 8

*Parent BMI by Parental Feeding Style*

Feeding Style	Mean	Standard Deviation
Uninvolved	33.01	6.91
Indulgent	28.50	5.09
Authoritarian	27.50	4.31
Authoritative	27.78	4.64

Table 9

*Child BMI z-score by Parental Feeding Style*

Feeding Style	Mean	Standard Deviation
Uninvolved	0.66	1.17
Indulgent	1.01	1.22
Authoritarian	0.58	1.01
Authoritative	0.63	0.98

Table 10

*Child Age (in months) by Child BMI Category*

BMI Category	Mean	Standard Deviation
Normal Weight	54.74	23.86
Overweight	55.88	22.27
Obese	72.71	20.36

Table 11

*Parental Demandingness in Feeding Style by Child BMI Category*

BMI Category	Mean	Standard Deviation
Normal Weight	2.71	0.63
Overweight	2.55	0.64
Obese	2.22	0.71



Table 12

*Parental Responsiveness in Feeding Style by Child BMI Category*

BMI Category	Mean	Standard Deviation
Normal Weight	1.15	0.14
Overweight	1.26	0.17
Obese	1.18	0.16

## Appendix

### Short Acculturation Scale for Hispanics Language Use Subscale

1. In general, what language(s) do you read and speak?
  - a. Only Spanish
  - b. Spanish better than English
  - c. Both equally
  - d. English better than Spanish
  - e. Only English
  
2. What was the language(s) you used as a child?
  - a. Only Spanish
  - b. More Spanish than English
  - c. Both Equally
  - d. More English than Spanish
  - e. Only English
  
3. What language(s) do you usually speak at home?
  - a. Only Spanish
  - b. More Spanish than English
  - c. Both Equally
  - d. More English than Spanish
  - e. Only English
  
4. In which language(s) do you usually think?
  - a. Only Spanish
  - b. More Spanish than English
  - c. Both Equally
  - d. More English than Spanish
  - e. Only English
  
5. What language(s) do you usually speak with your friends?
  - a. Only Spanish
  - b. More Spanish than English
  - c. Both Equally
  - d. More English than Spanish
  - e. Only English

## Parenting Stress Scale

1. I am happy in my role as a parent
  - a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
  
2. There is little or nothing I wouldn't do for my child(ren) if it was necessary.
  - a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
  
3. Caring for my child(ren) sometimes takes more time and energy than I have to give.
  - a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
  
4. I sometimes worry whether I am doing enough for my child(ren).
  - a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
  
5. I enjoy spending time with my child(ren).
  - a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
  
6. Having child(ren) gives me a more certain and optimistic view for the future.
  - a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
  
7. The major source of stress in my life is my child(ren).
  - a. Strongly Disagree

- b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
8. Having child(ren) leaves little time and flexibility in my life.
- a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
9. Having child(ren) has been a financial burden.
- a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
10. It is difficult to balance different responsibilities because of my child(ren).
- a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
11. The behavior of my child(ren) is often embarrassing or stressful to me.
- a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
12. If I had it to do over again, I might decide not to have child(ren).
- a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree
13. I feel overwhelmed by the responsibility of being a parent.
- a. Strongly Disagree
  - b. Disagree
  - c. Undecided
  - d. Agree
  - e. Strongly Agree

14. Having child(ren) has meant having too few choices and too little control over my life.

- a. Strongly Disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly Agree

15. I am satisfied as a parent.

- a. Strongly Disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly Agree

16. I find my child(ren) enjoyable.

- a. Strongly Disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly Agree

Multidimensional Acculturative Stress Inventory  
Pressure to Acculturate and English Competency Pressure Subscales

**Below is a list of situations that as a Mexican/Latino you may have experienced.** Read each item carefully and first decide whether or not you have experienced that situation during the past 3 months. If you have experienced the situation during the past 3 months, circle YES. Then circle the number that best represents HOW STRESSFUL the situation has been for you. If you have not experienced the situation during the past 3 months, circle NO, and go to the next item.

1. It bothers me when people pressure me to assimilate to the American way of doing things.  
YES                      NO  
If you answered YES, how stressful has this situation been during the last 3 months?  
If you answered NO, go to question #2.
  - a. Not at all stressful
  - b. A little stressful
  - c. Somewhat Stressful
  - d. Very Stressful
  - e. Extremely Stressful
  
2. It bothers me when people don't respect my Mexican/Latino values (e.g., family).  
YES                      NO  
If you answered YES, how stressful has this situation been during the last 3 months?  
If you answered NO, go to question #3.
  - a. Not at all stressful
  - b. A little stressful
  - c. Somewhat Stressful
  - d. Very Stressful
  - e. Extremely Stressful
  
3. Because of my cultural background, I have a hard time fitting in with Whites.  
YES                      NO  
If you answered YES, how stressful has this situation been during the last 3 months?  
If you answered NO, go to question #4.
  - a. Not at all stressful
  - b. A little stressful
  - c. Somewhat Stressful
  - d. Very Stressful
  - e. Extremely Stressful

4. I feel uncomfortable when others expect me to know American ways of doing things.  
YES NO

If you answered YES, how stressful has this situation been during the last 3 months?

If you answered NO, go to question #5.

- a. Not at all stressful
- b. A little stressful
- c. Somewhat Stressful
- d. Very Stressful
- e. Extremely Stressful

5. I don't feel accepted by Whites.

YES NO

If you answered YES, how stressful has this situation been during the last 3 months?

If you answered NO, go to question #6.

- a. Not at all stressful
- b. A little stressful
- c. Somewhat Stressful
- d. Very Stressful
- e. Extremely Stressful

6. I feel uncomfortable when I have to choose between Mexican/Latino and American ways of doing things.

YES NO

If you answered YES, how stressful has this situation been during the last 3 months?

If you answered NO, go to question #7.

- a. Not at all stressful
- b. A little stressful
- c. Somewhat Stressful
- d. Very Stressful
- e. Extremely Stressful

7. People look down upon me if I practice Mexican/Latino customs.

YES NO

If you answered YES, how stressful has this situation been during the last 3 months?

If you answered NO, go to question #8

- a. Not at all stressful
- b. A little stressful
- c. Somewhat Stressful
- d. Very Stressful
- e. Extremely Stressful

English Competency Subscale

8. I don't speak English or don't speak it well.

YES NO

If you answered YES, how stressful has this situation been during the last 3 months?

If you answered NO, go to question #9.

- a. Not at all stressful
- b. A little stressful
- c. Somewhat Stressful
- d. Very Stressful
- e. Extremely Stressful

9. I have been discriminated against because I have difficulty speaking English

YES NO

If you answered YES, how stressful has this situation been during the last 3 months?

If you answered NO, go to question #10.

- a. Not at all stressful
- b. A little stressful
- c. Somewhat Stressful
- d. Very Stressful
- e. Extremely Stressful

10. Since I don't speak English well, people have treated me rudely or unfairly.

YES NO

If you answered YES, how stressful has this situation been during the last 3 months?

If you answered NO, go to question #11.

- a. Not at all stressful
- b. A little stressful
- c. Somewhat Stressful
- d. Very Stressful
- e. Extremely Stressful

11. I feel pressure to learn English.

YES NO

If you answered YES, how stressful has this situation been during the last 3 months?

If you answered NO, go to question #12.

- a. Not at all stressful
- b. A little stressful
- c. Somewhat Stressful
- d. Very Stressful
- e. Extremely Stressful



12. It bothers me that I speak English with an accent.

YES NO

If you answered YES, how stressful has this situation been during the last 3 months?

If you answered NO, go to question #13.

- a. Not at all stressful
- b. A little stressful
- c. Somewhat Stressful
- d. Very Stressful
- e. Extremely Stressful

13. I have a hard time understanding others when they speak English.

YES NO

If you answered YES, how stressful has this situation been during the last 3 months?

If you answered NO, go to question #14.

- a. Not at all stressful
- b. A little stressful
- c. Somewhat Stressful
- d. Very Stressful
- e. Extremely Stressful

14. I feel uncomfortable being around people who only speak English.

YES NO

If you answered YES, how stressful has this situation been during the last 3 months?

- a. Not at all stressful
- b. A little stressful
- c. Somewhat Stressful
- d. Very Stressful
- e. Extremely Stressful

## Caregiver Feeding Style Questionnaire

These questions deal with YOUR interactions with your preschool child during the dinner meal. Circle the best answer that describes how often these things happen. If you are not certain, make your best guess.

How often during the dinner meal do YOU....

1. Physical struggle with the child to get him or her to eat (for example, physically putting the child in the chair so he or she will eat).
  - a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
  
2. Promise the child something other than food if he or she eats (for example, "If you eat your beans, we can play ball after dinner").
  - a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
  
3. Encourage the child to eat by arranging the food to make it more interesting (for example, making smiley faces on the pancakes).
  - a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
  
4. Ask the child questions about the food during dinner.
  - a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
  
5. Tell the child to eat at least a little bit of food on his or her plate.
  - a. Never
  - b. Rarely

- c. Sometimes
  - d. Most of the time
  - e. Always
6. Reason with the child to get him or her to eat (for example, “Milk is good for your health because it will make you strong”).
- a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
7. Say something to show your disapproval of the child for not eating dinner.
- a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
8. Allow the child to choose the foods he or she wants to eat for dinner from foods already prepared.
- a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
9. Compliment the child for eating food (for example, “What a good boy! You’re eating your beans”).
- a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
10. Suggest to the child that he or she eats dinner, for example by saying, “Your dinner is getting cold.”
- a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always

11. Say to the child, "Hurry up and eat your food".
  - a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
  
12. Warn the child that you will take something **other than food** if he or she doesn't eat (for example, "If you don't finish your meat, there will be no play time after dinner").
  - a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
  
13. Tell the child to eat something on the plate (for example, "Eat your beans").
  - a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
  
14. Warn the child that you will take a food away if the child doesn't eat (for example, "If you don't finish your vegetables, you won't get fruit").
  - a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
  
15. Say something positive about the food the child is eating during dinner.
  - a. Never
  - b. Rarely
  - c. Sometimes
  - d. Most of the time
  - e. Always
  
16. Spoon-feed the child to get him or her to eat dinner.
  - a. Never
  - b. Rarely
  - c. Sometimes

- d. Most of the time
- e. Always

17. Help the child to eat dinner (for example, cutting the food into smaller pieces).

- a. Never
- b. Rarely
- c. Sometimes
- d. Most of the time
- e. Always

18. Encourage the child to eat something by using food as a reward (for example, “If you finish your vegetables, you will get some fruit”).

- a. Never
- b. Rarely
- c. Sometimes
- d. Most of the time
- e. Always

19. Beg the child to eat dinner.

- a. Never
- b. Rarely
- c. Sometimes
- d. Most of the time
- e. Always

## Demographic Questionnaire

1. Person filling out this questionnaire:
  - a. Child's biological mother
  - b. Child's biological father
  - c. Child's stepmother or stepfather
  - d. Adoptive mother or father
  - e. Other: \_\_\_\_\_
2. What is your child's age? \_\_\_\_\_
3. What is your child's gender?
  - a. Male
  - b. Female
4. Is your child of Hispanic, Latino, or Spanish origin?
  - a. No, not of Hispanic, Latino, or Spanish origin
  - b. Yes, Mexican, Mexican American, Chicano
  - c. Yes, Puerto Rican
  - d. Yes, Cuban
  - e. Yes, another Hispanic, Latino, or Spanish Origin
5. What is YOUR age? \_\_\_\_\_
6. Are YOU of Hispanic, Latino, or Spanish origin?
  - a. No, not of Hispanic, Latino, or Spanish origin
  - b. Yes, Mexican, Mexican American, Chicano
  - c. Yes, Puerto Rican
  - d. Yes, Cuban
  - e. Yes, another Hispanic, Latino, or Spanish Origin
7. What is your marital status? (Choose one)
  - a. Married
  - b. Single
  - c. Living with a partner
  - d. Widowed
  - e. Separated
  - f. Divorced
8. What is the highest level of education you have completed? (Choose one)
  - a. 1-6 years
  - b. 7-9 years
  - c. A few years of high school
  - d. High school or GED
  - e. Associates degree or some college
  - f. Bachelor's degree
  - g. Graduate degree

9. What is your employment status? (Choose one)
- a. Employed part-time
  - b. Employed full-time
  - c. Employed but on maternity or medical leave
  - d. Not employed, not looking for work
  - e. Not employed, looking for work
10. Do you think your child's weight is a health problem?
- a. Yes
  - b. No
  - c. Not sure
11. What is your yearly income?
- a. Below 10,000
  - b. 11,000-20,000
  - c. 21,000-30,000
  - d. 31,000-40,000
  - e. 41,000 and above
12. Are you receiving public assistance of any kind?
- a. Yes
  - b. No
13. If you answered "yes" to question 12, please indicate the type(s) of public assistance you are receiving (please select all that apply):
- a. Food Stamps
  - b. WIC
  - c. SSI
  - d. TANF
  - e. Disability
  - f. Food pantry assistance
  - g. Free or Reduced Lunch Program
  - h. Weekend Backpack Snack Program (Harvesters)
14. Were you born in the United States?
- a. Yes
  - b. No
15. If you were not born in the United States, how many years have you lived here?  
\_\_\_\_\_
16. Please indicate your country of origin: \_\_\_\_\_
17. Please provide an estimate of YOUR height: \_\_\_\_\_

18. Please provide an estimate of YOUR weight: \_\_\_\_\_
19. Currently, what is your source of information regarding nutrition and diet for children? Please select all that apply.
- a. Primary care doctor
  - b. Family members
  - c. Online
  - d. Television
  - e. Books/magazines
  - f. Other: \_\_\_\_\_
20. What is your **preferred** means of receiving diet and nutrition information? Please select all that apply.
- a. Primary care doctor
  - b. Family members
  - c. Online
  - d. Television
  - e. Books/magazines
  - f. Other: \_\_\_\_\_
21. Would you be interested in receiving more information about childhood obesity?
- a. Yes
  - b. No



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## VITA

Genevieve Maliszewski was born in Kansas City, Missouri, where she lived until the age of 15. She completed high school at Duchesne Academy of the Sacred Heart in Omaha, Nebraska in 2004. Ms. Maliszewski then obtained her Bachelor of Arts degree in Psychology from the College of the Holy Cross, in Worcester, Massachusetts in 2008.

Shortly after graduation, Ms. Maliszewski moved to Milwaukee, Wisconsin, where she completed her Master of Arts degree in Community Counseling at Marquette University. For her master's degree, Ms. Maliszewski focused her academic work on child and adolescent counseling, particularly in the Latino community. Upon completion of her master's degree in 2010, Ms. Maliszewski moved back to Kansas City and initiated her doctoral training in Counseling Psychology at the University of Missouri – Kansas City. She completed numerous training experiences in child clinical and pediatric psychology and went on to complete her pre-doctoral internship at Children's Mercy – Kansas City.

The next step on Ms. Maliszewski's professional journey will include a one-year post-doctoral fellowship, after which she plans on obtaining licensure and employment as a pediatric psychologist. Ms. Maliszewski plans to continue serving children and families through clinical work, research, and social justice advocacy.

Ms. Maliszewski is a member of the American Psychological Association.