

University of San Diego

Digital USD

Dissertations

Theses and Dissertations

2009-12-01

Is Parenting Style Related to Overweight in Mexican or Mexican-American Preschoolers?

Darlene McPherson-Ventura PhD
University of San Diego

Follow this and additional works at: <https://digital.sandiego.edu/dissertations>



Part of the [Nursing Commons](#)

Digital USD Citation

McPherson-Ventura, Darlene PhD, "Is Parenting Style Related to Overweight in Mexican or Mexican-American Preschoolers?" (2009). *Dissertations*. 389.
<https://digital.sandiego.edu/dissertations/389>

This Dissertation: Open Access is brought to you for free and open access by the Theses and Dissertations at Digital USD. It has been accepted for inclusion in Dissertations by an authorized administrator of Digital USD. For more information, please contact digital@sandiego.edu.

UNIVERSITY OF SAN DIEGO
Hahn School of Nursing and Health Sciences
DOCTOR OF PHILOSOPHY IN NURSING

IS PARENTING STYLE RELATED TO OVERWEIGHT IN MEXICAN OR
MEXICAN-AMERICAN PRESCHOOLERS?

by

Darlene McPherson-Ventura

A dissertation presented to the
FACULTY OF THE HAHN SCHOOL OF NURSING AND HEALTH SCIENCE
UNIVERSITY OF SAN DIEGO

In partial fulfillment of the
requirements for the degree
DOCTOR OF PHILOSOPHY IN NURSING

December 2009

Dissertation Committee

Anita Hunter, PhD, RN, CPNP, FAAN, Chairperson

Kathy Shadle James, DNSc, RN, CNP

Susan Instone, DNSc, APRN, CPNP

Copyright © 2010 by Darlene McPherson-Ventura
All rights reserved.

No part of the material protected by this copyright may be reproduced or
utilized in any form without written permission from the copyright owner.

ABSTRACT

The prevalence of childhood overweight (OW) continues to rise and children from low-income, Mexican or Mexican-American families are disproportionately affected. The preschool years have been identified as a critical period for excessive weight gain and during this time children respond to parental cues as they form their early eating habits. Certain parenting styles have been associated with improved health outcomes in children. The purpose of this study was to evaluate the relationship of parenting styles and feeding practices to the Mexican or Mexican-American preschool child's risk of overweight.

Interdependence Theory was used to inform this study to understand the interaction affect of social influence, interpersonal communication, and behavior. An exploratory research study was performed to determine if parental feeding styles were related to higher child BMI scores of the targeted preschool child. A convenience sample of 80 Mexican or Mexican-American female and male caregiver dyads completed a demographic, health profile, and the Caregiver's Feeding Style Questionnaire (CFSQ).

Data analysis revealed there were no differences between the female and the male caregiver's feeding styles; no association between the female or male caregiver's feeding style and the child's BMI; significant relationships between the child's BMI, male caregiver's residency in the U.S., length of time on WIC, and female caregiver's BMI. The *authoritarian* and the *indulgent* feeding styles were most commonly used in this sample population; yet, parents who demonstrated an *authoritative* style, though not statistically significant, had children with a lower mean BMI percentile score.

These findings provide evidence that generalizations regarding parenting styles and feeding practices in the Mexican or Mexican-American population should not be assumed. Instead, underlying parenting styles should be addressed especially in interventions aimed at making healthy behavioral changes within the family.

DEDICATION

This dissertation is dedicated to the following people who have encouraged and supported me throughout this process:

To my husband, Greg Ventura, who has patiently and selflessly supported me throughout my many academic endeavors: "You are one in a million and the love of my life."

To our daughters, Gillian and Nicole, who remind us everyday how blessed we are to have two happy, healthy children. "I love you both very much".

To my sister, Vicki Carver, who assisted in editing this dissertation and who shared her theological expertise as I pondered the *biblical meaning of food*.

To my mother, Margrie McPherson, who countless times typed my high school reports and college papers before the advent of the word processor. She would be very proud (and relieved) to know I typed every word of this document. I miss her very much.

To the rest of my family and friends who periodically called to ask how I was doing and to those who frequently asked the proverbial question, "So, when will you be done"? Well, I'm done!

ACKNOWLEDGEMENTS

A dissertation is never the accomplishment of a single individual. I have many people to recognize for their invaluable contributions to my work.

First, I want to express my sincere gratitude to my advisor and committee chair, Dr. Anita Hunter, for sharing her invaluable clinical expertise and research experience. She allowed me the room to work independently but would gently rein me in when I wandered off course.

I would also like to thank my committee members, Dr. Kathy James, Dr. Susan Instone, and Dr. Dale Glaser for their expert contributions and thoughtful guidance throughout the dissertation process. I will always appreciate their enthusiasm and commitment to my research.

Many, many thanks are extended to Anna Lopez and the Pomona Unified School District for allowing me to use their facilities and for offering their support and encouragement with this project.

Finally, I am indebted to the preschool families who graciously allowed me to inquire about their family's eating habits and willingly subjected themselves to be weighed and measured. I am forever grateful to all of you!

TABLE OF CONTENTS

ABSTRACT	
DEDICATION.....	ii
ACKNOWLEDGEMENTS.....	iii
LIST OF TABLES.....	vi
LIST OF ILLUSTRATIONS.....	vii
LIST OF APPENDICES.....	viii
CHAPTER ONE: INTRODUCTION.....	1
Statement of the Problem.....	2
Background of the Study.....	4
Theoretical Framework.....	6
Research Questions.....	10
Significance to Nursing and Clinical Practice.....	11
CHAPTER TWO: LITERATURE REVIEW.....	13
Parenting Style and Feeding Practices.....	14
Parenting Style and Overweight Risks.....	16
Inconsistencies in the Literature.....	31
CHAPTER THREE: METHODOLOGY.....	33
Introduction.....	33
Research Design.....	34
Sample and Sampling.....	34
Setting.....	35
Data Collection.....	36

Instruments.....	37
Data Analysis.....	39
Limitations.....	40
Human Subject Protection.....	41
Risks and Benefits.....	41
 CHAPTER FOUR: RESULTS.....	 43
Characteristics of the Sample.....	43
Health Profile Data.....	45
Reliability.....	48
Descriptive Statistics.....	49
Limitations.....	56
 CHAPTER 5: DISCUSSION.....	 58
Summary of the Problem.....	58
Summary of the Purpose.....	59
Discussion of the Results.....	59
Research Question 1.....	59
Research Question 2.....	62
Research Questions 3.....	66
Implications for Nursing Theory, Nursing Practice and Nursing Education.....	72
Nursing Theory.....	72
Nursing Practice.....	74
Nursing Education.....	77
 References.....	 80
 Appendices.....	 89

LIST OF TABLES

Table 1. Caregiver's Demographic Characteristics.....	44
Table 2. Caregiver's Health Profile Characteristics.....	46
Table 3. Child Health Profile Characteristics & Covariates.....	47
Table 4. Reliability Statistics: Cronbach's Alpha.....	49
Table 5. Feeding Styles: Typology Approach.....	51
Table 6. Correlation between parenting dimension scores and child's BMI.....	52
Table 7. Correlation between caregiver's years in U.S. and child's BMI.....	54
Table 8. Correlation between years in WIC program and child's BMI.....	54
Table 9. Correlation between caregiver's BMI and child's BMI.....	55

LIST OF ILLUSTRATIONS

Figure 1. Interdependence Model of Social Influence and Interpersonal Communication. (Lewis, DeVillis, & Sleath, 2002).....	8
Figure 2. Child's mean BMI percentile scores for each feeding style.....	52
Figure 3. An adaptation of the Interdependence Model applied to childhood OW. (Source: Modified from Lewis et al., 2002).....	74

LIST OF APPENDICES

Appendix A: CFS Questionnaire (English).....	90
Appendix B: CFS Questionnaire (Spanish).....	93
Appendix C: Demographic Questionnaire (English).....	96
Appendix D: Demographic Questionnaire (Spanish).....	98
Appendix E: Approval from USD IRB.....	100
Appendix F: Approval from Preschool Director.....	103
Appendix G: Consent Form (English).....	105
Appendix H: Consent Form (Spanish).....	108
Appendix I: Flyer (English).....	111
Appendix J: Flyer (Spanish).....	113

CHAPTER ONE: INTRODUCTION

The prevalence of childhood overweight in the United States has risen steadily over the last three decades. Results from National Health and Nutrition Examination Survey (NHANES) showed that approximately 34% of all children and adolescents between the ages of 2-19 were overweight and 17% were obese (Ogden, Carroll, Curtin, McDowell, Tabak, Flegal, 2006). When compared to the 1976-1980 NHANES II results, the prevalence of overweight among preschool children has more than doubled, and the prevalence among 6-11 year olds and adolescents has tripled (Centers for Disease Control and Prevention, 2008). Low-income African-American and Mexican-American children continue to be disproportionately affected (Lutfiyya, Garcia, Dankwa, Young & Lipsky, 2008). Significant co-morbidities associated with childhood overweight and obesity includes hypertension, hyperlipidemia, type 2 diabetes mellitus, sleep apnea, asthma and slipped capital femoral epiphysis (Institute of Medicine, 2004). In addition, overweight children are more likely to suffer from psychosocial problems related to low self-esteem, including sadness, loneliness and nervousness (Strauss, 2000). These statistics are significant since it is estimated over 80% of overweight adolescents will become overweight adults (Institute of Medicine, 2004) which pose considerable life-long health risks for future generations. It is speculated minority children are

disproportionately affected due to lower socioeconomic status (SES), biological predisposition and cultural influences, such as food preferences, attitudes related to exercise and body image perceptions (Lutfiyya, et al., 2008). Childhood overweight has become a major health concern for the 21st century. Nursing professionals, particularly in primary care settings, are well poised in training and experience to understand this complex health issue and contribute appreciably to the body of knowledge. Nursing's understanding of family dynamics and normal child development can provide necessary parental support. And, nursing's expertise in health education can offer behavioral changes in the family, potentially creating long-term life style modifications. It is important for nursing to utilize research that can be translated into clinical practice. Yet, nursing research in this area, especially with minority populations is limited and significantly less than research conducted by other health professionals such as dietitians, sociologists, psychologists and physicians.

Statement of the Problem

The prevalence of childhood overweight in the United States continues to rise despite increased public awareness and increased research funding. Children at greatest risk for overweight are from lower socioeconomic status families and certain ethnic minority populations (Institute of Medicine, 2004). According to the 2007 Pediatric Nutrition Surveillance System (PedNSS), 17.3% of low-income preschool children living in California are obese (U.S. Department of Health and Human Services, 2009). Increased adiposity occurs during the preschool years with normal adiposity rebound/or when a child's BMI reaches nadir, generally occurring between 4-6 years of age (Dietz,

1994). Early adiposity rebound (occurring at younger than 4.8 years) is associated with an increased risk of obesity in adulthood due to enlargement of the fat cells (Dietz, 1994). Preschooler's growth spurts accompanied by weight gain may also result from greater expression for food preferences (Matheson & Robinson, 2008). Therefore, targeting children at greatest risk for overweight and during developmental periods when overweight is most likely to occur may be the most optimal time for studying the problem and implementing behavioral changes.

Childhood overweight is the result of an imbalance in the energy in calories a child consumes and the energy in calories a child expends. Contributing factors have broadly been identified as biological, behavioral and environmental (Krebs, Baker, Greer, Heyman, Jaksic, & Lifshitz, 2003). Common genetic factors include a hereditary tendency to overweight, hypothyroidism or the development of metabolic disorders such as glucose intolerance and insulin resistance (Baker, Barlow, Cochran, Fuchs, Klish, Krebs, et al., 2005). Behavioral factors such as family lifestyle, eating practices, and physical activity level are often influenced by cultural norms or customs (Golan & Crow, 2004). Finally, environmental factors are highly diverse and involve not only family influences but community, corporate and governmental influences as well (Institute of Medicine, 2004). An obesogenic environment has been described as one that encourages an intake of excessive food (Golan & Crow, 2004) and simultaneously encourages a sedentary lifestyle (Barton, Gilbert, Baramée & Granger, 2006). Collectively, these interacting influences are currently understood to be the major obesogenic factors.

It is impossible to identify one specific factor as having a causal relationship to overweight since these potential influences are interrelated. However, there are certain

influences which can be identified as being significantly related to a child's energy imbalance which subsequently leads to excessive weight gain. For example, an increase in portion sizes, the consumption of sugar-sweetened drinks and frequency of eating outside the home all contribute to an excess in caloric intake (Burrows, 2007). Activity-related influences include an increase in television viewing, computers and electronic game time and a decrease in the time spent in unstructured exercise or outdoor activities (Barton, 2006). It is not surprising these influences have a direct relationship to the family, and for the most part, are under parental control. Yet, little is known about the cultural influences and parenting practices in minority groups in the United States. Furthermore, there is limited research on the parenting styles and feeding practices of Mexican or Mexican-American parents (Arredondo, Elder, Ayala, Campbell Baquero, & Duerksen, 2006) despite a significant heritability in the obesity-related traits of Hispanic children (Fisler & Warden, 2006).

Background of the Study

Parental influences including parenting styles, feeding practices, and role modeling behavior have been widely studied (Golan & Weizman, 2001; Rhee, Lumeng, Appugliese, Kaciroti & Bradley, 2006). Most, if not all, of the current research has been examined from a maternal perspective. The maternal influence is significant since mothers usually purchase, prepare and serve the family meals. But, to ignore or negate the possible influence of the father is shortsighted.

Fathers have a major influence on the preschool child's responsiveness to commands (Power, McGrath, Hughes & Manire, 1994) and the early developmental

years are a time of learning self-regulation of one's behaviors and compliance to parental direction (Wu, Yu, Wei & Yin, 2003). One study found greater moderation in children's food intake behaviors are achieved when both the mother and the father provide monitoring and supervision (Wilkins, Kendric, Stitt, Stinett, & Hammerlund, 1998), illustrating the effects of a positive paternal influence. Therefore, it is reasonable to conclude the development of healthy eating behaviors in preschool children is influenced by both parents.

There are significant variations in parenting styles both within families and between genders (Powers, et al., 1994). For example, mothers tend to be less direct, more cooperative and more responsive to others when giving requests or commands whereas, fathers were more likely to model directiveness and self-assertive behavior (Powers, et al., 1994). Parental communication styles may also be reflected in parental feeding strategies and ultimately influence the young child's feeding habits. Whether Mexican or Mexican-American parents have similar or dissimilar feeding strategies, the impact on the preschool-age child's weight status remains unknown.

Variations in parenting styles have been shown to have a relationship to childhood overweight (Patrick, Nicklas, Hughes & Morales, 2005). For example, controlling and permissive parenting styles were positively related to unhealthy eating behaviors and overweight in children (Rhee, et al., 2006). Whereas, a parenting style that is responsive, supportive and age appropriate, was found to be associated with increased self-regulation and compliance with healthy eating behaviors (Arredondo, et al., 2006). Research conducted with Mexican-American families has rarely captured data regarding the father's parenting style. But paternal influences in Mexican families have been shown to

be relevant (Julian, McKenry & McKelvey, 1994) and need to be explored within the context of healthy eating behaviors.

The overall purpose of this study is to evaluate the relationship of parenting styles, as demonstrated in feeding practices, to the Mexican or Mexican-American preschool child's risk of overweight. Specifically, maternal and paternal parenting styles will be examined to determine if the parents' roles or genders differ from each other. This research has significant clinical application for nurses working with parents of at-risk children, since parents have been identified as providing the child's contextual environment and therefore are the central agents of change (Golan & Crow, 2004). Both maternal and paternal influences must be identified and understood in order to successfully integrate family interventions into life-long, healthy life-style changes.

Theoretical Framework

Interdependence Theory is a middle-range theory that was used to inform this study by providing a foundation for understanding how social influence and interpersonal communication can affect behavior especially within dyads, or paired relationships. Furthermore, it explains how influence and communication affect behavior based on the outcomes experienced by the interacting partners (Lewis, DeVillis & Sleath, 2002). The variable, *authoritative parenting* was tangential to this theory and to the current research.

The four classic parenting styles originally identified by Baumrind (1971) and later modified by Maccoby and Martin (Mussen, 1983) are authoritative, authoritarian, permissive and neglectful. The parenting style constructs were operationalized based on 2 dimensions: a) *demandingness*, the parent's demands for self-control or maturity from the

child; and b) *responsiveness*, the parent's sensitivity and emotional involvement with the child. Baumrind's (1971) parenting typologies are: a) *authoritative*, demonstrated by high expectations of the child's behavior and high responsiveness to the child's needs and abilities: b) *authoritarian*, demonstrated by high expectations of the child but low sensitivity to their opinions or needs: c) *permissive*, demonstrated by low behavioral expectations of the child but high responsiveness to their needs and abilities: and d) *neglectful*, demonstrated by low behavioral expectations and low sensitivity or responsiveness to the child's needs. Authoritative parenting as described in Interdependence Theory (Lewis, et al, 2002), "...is a bidirectional communication style that is developmentally appropriate, responsive, and supportive" (p.242). The application of authoritative parenting is demonstrated by empathic or reflective listening, and when parents set rules and standards for their child's behavior (Lewis, et al., 2002).

Interdependence Theory proposes that influence and communication is most effective in changing health behavior when relationships exemplify mutual trust, respect, shared power and decision-making (Lewis, et al., 2002). Authoritative parenting within the context of Interdependency Theory utilizes an open and reciprocal communication style that encourages the child's participation and combines with appropriate parental responsiveness and demands (Lewis, et al., 2002). Research has demonstrated when a child believes that parental control is fair and reasonable the demands are more likely to be complied with resulting in positive behavioral changes (Luther, 2007). Furthermore, in a dyad, especially involving family members, health behavior is influenced by one's own characteristics and by the characteristics of the other family member or members (Lewis,

et al., 2002). Therefore, when change in health behavior is required, the interventions targeting the individual should include the other members of the family (Figure 1).

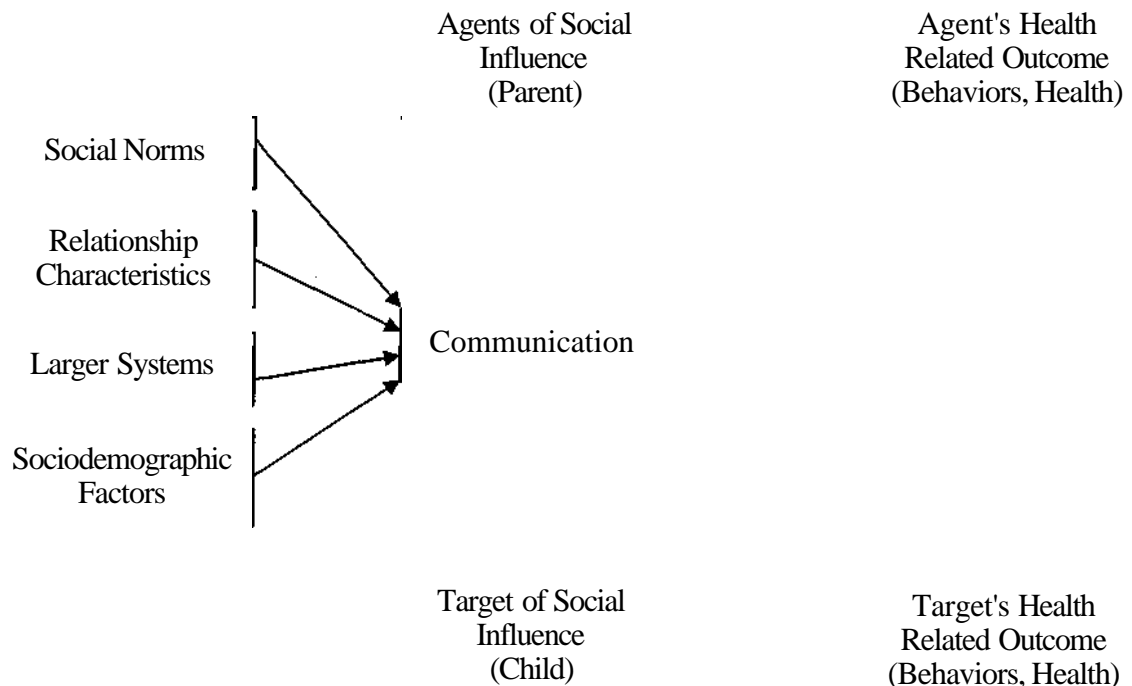


Figure 1. Interdependence Model of Social Influence and Interpersonal Communication (Lewis, DeVillis & Sleath, 2002)

Environmental and behavioral influences have already been identified as contributing obesogenic factors. Therefore, understanding social influence (as an environmental factor) and interpersonal communication (as a behavioral factor) in the parent-child dyad increased our knowledge of how feeding practices correlates to child health outcomes. Interdependency Theory provided the framework to identify which

parenting styles are more closely associated with normal weight and which are more closely associated with overweight by utilizing authoritative parenting as the reference parenting style. Interdependency Theory may also provide a foundation for developing an effective intervention to elicit healthy feeding practices within families. Utilizing the Interdependency Theory for understanding the problem of childhood obesity, this study evaluated the relationship of parenting styles in low-income Mexican or Mexican-American families to the preschool child's risk of overweight.

There were several gaps in the literature pertaining to childhood overweight and parenting styles. First, there was a lack of understanding of the social influences related to Mexican or Mexican-American parents and childhood overweight. Specifically, little was known about Mexican or Mexican-American parenting skills and how those skills translated into feeding practices. Secondly, there are few studies that have examined the father's influences on childhood overweight. More importantly, there are no known studies that specifically target Mexican or Mexican-American fathers. Therefore, the goal of this current research was to determine if the feeding practices of both parents were related to the Mexican or Mexican-American preschooler's risk for overweight.

A cross-sectional exploratory design was used to determine if parental feeding styles were related to higher body mass index (BMI) scores of the target preschool child. The independent variables included the Caregiver's Feeding Style Questionnaire (CFSQ) which measured the parents' feeding styles, the parent's calculated BMI scores and selected demographic and health profile variables. The dependent variable was the preschooler's calculated BMI percentile score. The data was examined using descriptive statistics. Initial analysis assessed the results of the feeding styles of both groups of

parents using the standardized CFSQ scoring tool for the typological approach. Next, general linear modeling using ANOVA evaluated the child's BMI score across the feeding styles based on the mothers' and fathers' scores, the parent's BMI scores and selected demographic and health profile variables. Parents with an authoritative style were expected to be positively associated with the child's normal weight BMI percentile score, while parents with an authoritarian, indulgent (permissive) and uninvolved (neglectful) style were expected to be positively associated with the child's overweight BMI percentile score. Furthermore, a statistical difference between the maternal and paternal scores on each measure of the feeding style questionnaire was anticipated to occur.

Research Questions

The following research questions were explored:

- To what extent did the maternal and paternal scores differ on each measure of the feeding style questionnaire?
- To what extent was overweight in the Mexican or Mexican-American preschooler related to maternal feeding style and paternal feeding style?
- What were the relationships between the child's BMI and selected demographic variables (parent's BMI, length of time child was breastfed, years parents lived in the U.S., years the family participated in the WIC program and years the family participated in Head Start or state-funded preschool program) in this group?

Significance to Nursing and Clinical Practice

Nursing research and clinical practice will benefit from the current study because of the contributions made to our existing knowledge regarding childhood overweight. Also, it provided evidence-based research for nurses to utilize to validate our clinical practice.

Unfortunately, the vast majority of research on childhood overweight has been conducted by health care providers outside of nursing. Yet, nurses have contact with children and their parents in multiple settings including primary care offices, schools, community clinics and hospitals. These diverse clinical settings, together with nursing's holistic perspective on child, family and community, provide a rich opportunity for conducting research and adding to the profession's current body of knowledge. The current study addressed the inconsistencies and gaps in the literature that were most significant and meaningful to nursing practice.

The purpose of nursing research is to provide evidence upon which nurses can base their clinical decisions, actions and outcomes (Polit & Beck, 2004). The research instrument, the Caregiver's Feeding Style Questionnaire (CFSQ), can be used in the clinical setting to assess parental feeding practices and thereby provide a basis for directing family interventions. Early identification of risk factors (behavioral, environmental and genetic) and implementation of nursing measures (health education, health counseling and supporting lifestyle changes) enable nurses to promote nutritional health, an essential aspect of successful child development. Advanced practice nurses utilize best research evidence when making child and family clinical decisions with the

intent of providing positive health and quality of life outcomes. The current research attempted to understand the relationship between parental feeding practices and childhood overweight and was expected to ultimately guide nursing practice in this area.

CHAPTER 2: LITERATURE REVIEW

Childhood overweight has become the leading health concern for the current generation of children and due to related co-morbidities will have a significant impact on the health of future generations (Baker, Barlow, Cochran, Fuchs, Klish, Krebs, et al., 2005). Recent surveys demonstrate that low income, minority children are at highest risk for developing obesity (Lutfiyya, Garcia, Dankwa, Young, & Lipsky, 2008).

Furthermore, research shows the risk for childhood overweight increases during periods of developmental growth spurts, specifically during the preschool years and during adolescence (Whitaker, Pepe, Wright, Seidel & Dietz, 1998). Identifying possible prevention strategies will require research targeting populations at-risk for childhood overweight and targeting children during the developmental years when they may be more susceptible to increased adiposity.

Families, specifically parents, have been identified as key to preventing childhood overweight (Golan, 2006). Parents play a significant role in purchasing and preparing family meals and modeling eating behaviors. Furthermore, research has shown that parenting styles may influence parental feeding practices (Rhee, Lumeng, Appugliese, Kaciroti, & Bradley, 2006). Therefore, understanding the relationship between parenting styles and feeding practices may be significant in identifying prevention strategies.

The purpose of this study was to evaluate the relationship of parental feeding styles to the Mexican or Mexican-American preschool child's risk of overweight. Specifically, maternal and paternal feeding styles were examined to determine if the feeding practices differed from each other. The following review presents research on parenting styles and the influence on parental feeding practices. Also, the review focuses on research conducted with the at-risk population of preschoolers from Mexican or Mexican-American families.

Parenting Style and Feeding Practices

It is important to distinguish parenting styles from parental feeding practices when discussing childhood overweight. Parental feeding practices are defined as the strategy a parent utilizes to persuade or discourage a child to eat (Rhee, et al., 2006). Examples of feeding practices associated with unhealthful eating behaviors include, encouraging a child to eat beyond his or her satiety, the practice of using food as a reward, and restricting a child from eating a certain type or amount of food (Birch, Fisher, Davison, 2003). Whereas, strategies associated with healthy eating include monitoring the child's intake of high fat foods, allowing the child to make choices from pre-selected healthy foods and providing praise for healthy eating with nonfood items (Burrows, 2007). Parental feeding practices are further influenced by environmental factors associated with socioeconomic status, cultural backgrounds, family dynamics and often the parent's perception of the child's weight (Krebs, Baker, Greer, Heyman, Jaksic, & Lifshitz, 2003). While parental feeding practices appear to be variable and influenced

by external factors, parenting styles are more consistent and stable over time (Baumrind, 1971).

Parenting styles were originally identified by Baumrind (1971) as authoritative, authoritarian, permissive and neglectful. The parenting style constructs are based on two dimensions: a) the parent's demandingness, or expectations for the child to demonstrate self-control and age appropriate maturity, and b) the parent's responsiveness or sensitivity to the individuality of the child. McCoby and Martin (Mussen, 1983) describe the four parenting styles as: a) *authoritative*, a high demand for self control or maturity from the child and a high sensitivity and emotional involvement: b) *authoritarian*, a high demand for self control or maturity from the child but low sensitivity and emotional involvement: c) *permissive*, a low demand for self control or maturity from the child but high sensitivity and emotional involvement: and d) *neglectful*, a low demand for self control and maturity from the child and a low sensitivity and emotional involvement. The authoritative parenting style has been considered the ideal style and is associated with improved academic and behavioral outcomes in children (Rhee, et al, 2006).

Baumrind (1971) considers parenting style a characteristic of the parent that remains constant over time and it provides the environmental and emotional context where child-rearing and socialization occur. Parents maintain or modify their child's behavior within this context which impacts all aspects of their socialization (Mussen, 1983) including their child's feeding behaviors. Therefore, parenting style may have a significant impact on shaping the daily activities, behavior, and emotional functioning of children, and ultimately impact the risk for overweight. In order to demonstrate the

impact of parenting style on childhood overweight, the following research articles will be discussed and analyzed.

Parenting Styles and Overweight Risks

Wake, Nicholson, Hardy & Smith (2007) examined the relationships between the parenting dimensions and parenting styles of mother-father dyads to the BMI status of their 4-5 year old child. The sample consisted of 4,983 children randomly selected from the Longitudinal Study of Australian Children (from March to November, 2004) with known height and weight measurements. Trained interviewers conducted in-home interviews with the primary caregiver (usually the mother) and a written questionnaire was given to the secondary caregiver (usually the father) to complete. The parents self-rated their parenting behaviors along three dimensions (warmth, control, and irritability) and were then categorized as demonstrating one of four parenting styles (authoritative, authoritarian, permissive, and disengaged). Parents with high control and high warmth were categorized as authoritative, high control and low warmth were categorized as authoritarian, low control and high warmth were categorized as permissive and low control and low warmth were categorized as disengaged. The covariates included the parent's self-reported height and weight (calculated as BMI), educational level, socioeconomic status, and family structure (one or two parent home). The covariate *irritability* was included as one of the parenting dimensions because it may vary independent of the parenting style.

The demographic results showed that 15.3% of the children were overweight, 5.2% were obese. Furthermore, English was the main language spoken in the home

(87.5%), the majority of the children were from 2-parent households (86%) and the sample evenly represented the socioeconomic quintiles (most disadvantaged to least disadvantaged).

The association of the child's BMI status to the parenting dimensions and style demonstrated interesting results. The authors found no association among any of the three maternal parenting dimensions with the child's BMI status. However, the authors did find a strong association between the paternal *control* dimension and the child's BMI but no association between the child's BMI and the paternal *warmth* and *irritability* dimensions. Fathers with a higher *control* score were strongly associated with a child having decreased odds of being in a heavier BMI category. Using the paternal authoritative style as the reference category, the odds of a child being overweight or obese increased by 59% when the father had a permissive style and by 35% when the father had a disengaged style. There was no association between the child's BMI with the paternal authoritative or authoritarian parenting style. The authors concluded that low paternal parenting control was associated with preschooler overweight.

The sample size and the ability of the researchers to conduct in-home interviews were some of the study's strengths. According to the authors, research on childhood obesity that includes both the mother and the father's responses to questionnaires and both parents' BMI status is rare. Although the results did not reveal a relationship between the reference parenting style and the child's BMI, they did establish an association of paternal influence on the preschooler's weight.

The population sample evenly represented the Australian socioeconomic quintile, but there was little variation related to race and ethnicity. Cultural variations are probably

more homogeneous in Australia and therefore ethnic differences may not have been a concern for this particular study. Also, self-reported height and weight by the parents could have caused some variation in the calculation of parental BMI status but observations by the researchers during face-to-face interviewing would have confirmed or denied obvious discrepancies. Lastly, the authors used tertile cut points to group parents in each of the parenting styles categories. Since there are no standardized cut points there may be significant variation in the categories depending on the population sample and the median scores with the same instrument. Despite the study's limitations, its findings are important because most of the research to date has focused on maternal • behavioral and environmental influence. This is the first study to suggest a relationship between paternal influences and the child's risk for overweight.

Rhee, Lumeng, Appugliese, Kaciroti, & Bradley (2006) conducted a longitudinal study to determine the relationship between 4 parenting styles (authoritative, authoritarian, permissive, and neglectful) and the overweight status of children in the first grade. The authors examined the association of parenting styles indexed at 54 months and the child's overweight status two years later when the child was in first grade. The authors operationalized the parenting style constructs by defining them based on two dimensions: 1) maternal expectations for self control and 2) maternal sensitivity. Maternal sensitivity was assessed by direct observation and coded from videotapes of standardized interaction tasks between the mother and child. Maternal expectations for control were assessed with a self-administered 11 item survey, a subscale of the original 32 item questionnaire. The outcome was the child's overweight status in first grade, measured as BMI percentile rank score. Additional variables measured were race, family

income/needs ratio, gender, maternal education, presence of a spouse or significant other in the home, and child behavioral problems (measured by the Child Behavior Checklist survey). The sample included 872 children with the following characteristics: 82.8% Caucasian, 11.1% overweight and 13.4% at risk for overweight.

The results of the final analysis showed when adjusted for race and income/needs ratio, 3.9% of the children with authoritative mothers compared to 17.1% of the children with authoritarian mothers were overweight. The prevalence of overweight in children with permissive mothers was 9.8% and with neglectful mothers was 9.9%. Children with authoritarian parents had approximately 5 times the odds of being overweight than children of parents with an authoritative style. Children of parents with a permissive and neglectful parenting style were 2 times the odds of overweight than children of parents with an authoritative style. Potential covariates, including race, income/needs ratio, maternal education and having a spouse or significant other in the home were tested and found not to be significantly related to maternal sensitivity and risk of overweight. These findings are inconsistent with the results from other studies (Krebs, et al., 2003; Lutfiyya, 2008). Yet, the findings relating to parenting style are consistent with the literature (Patrick, Nicklas, Hughes, Morales, 2005) which suggests an authoritative parenting style provides structure and sensitivity while allowing the child to make decisions and develop self-regulation of one's behaviors.

Limitations of this study include a homogenous sample of primarily Caucasian participants limiting the generalizability of the results to other ethnic groups. Also, the authors assessed the influence of the mother's parenting style and did not assess the potential influence of the father's parenting style. Lastly, known risk factors, i.e. child's

birth weight and parent's BMI, were not included as variables. The study's strengths include the large sample size and the researchers conducting observational interactions between mother and child to determine maternal sensitivity as opposed to maternal self-reported data. The following study examines parenting styles in Mexican-American families.

Arredondo, Elder, Ayala, Campbell, Baquero & Duerksen, (2006) conducted a study which identified the influence of parenting style on the school-age child's risk for developing overweight. Specifically, the study goals were to evaluate the influence of: a) parenting style on children's health behaviors specifically, physical activity and dietary intake: b) children's sociodemographic characteristics on parenting style and on health behaviors: and c) parents' sociodemographic characteristics on their use of controlling parenting styles to promote a healthy home environment. The authors developed a modified version of the Child Feeding Questionnaire (CFQ) to measure authoritative and authoritarian parenting styles regarding children's eating and activity behaviors. The sample included 812 Latino caregivers and their school-aged children. Variables included children's dietary intake, children's physical activity, parenting styles and the parent and child body mass index (BMI). Acculturation and demographic variables were also reported. The authors controlled for sociodemographic characteristics.

The author's findings were consistent with previous studies measuring parental behaviors related to feeding practices (Patrick, et al., 2005). The authors found that parents who monitored and reinforced healthy behaviors (authoritative style) had children who ate more healthy foods and less unhealthy foods. Parents who demonstrated a more controlling parenting style had children who ate more unhealthy foods.

The authors also found gender differences related to parenting styles. Boys ate significantly less unhealthy foods than girls when parents set limits regarding food choices (authoritative style). Whereas, girls ate significantly more unhealthy foods than boys when parents utilized a controlling style. Fisher & Birch (1999) also found gender differences when food restrictions were exercised with the boys exhibiting more verbal and physically reactive behavior than the girls.

The sociodemographic data revealed that parents who were younger, unemployed and less acculturated were more likely to use a more authoritarian style with their children's eating behaviors. Prior studies have found similar results and surmise that lower SES and less experience with the dominate culture may increase the vulnerability of the parents, thereby the need to demonstrate greater control over their children (Varela, Vernberg, Sanchez-Sosa, Riveros, Mitchell, & Mashunkashey, 2004).

The strength of the study was the large number of Latino participants and the control for the parent's sociodemographic characteristics. But there are several limitations worth noting. First, 96% of the caregivers surveyed were female. Although mothers are the primary provider of meals in the family, Latino cultures are generally considered to be paternalistic. Therefore, Latino fathers may have a significant influence on family feeding practices and may display different parenting styles than their spouses. Also, this study only measured two (authoritative and authoritarian) parenting styles. It is plausible that Mexican or Mexican-American parents may demonstrate other parenting styles, such as a permissive/indulgent style, or combination of styles which could influence their feeding practices. The following study demonstrates the cultural variations in parenting styles.

Golan (2006) examined Israeli parents as the agents of change in the treatment of childhood obesity. Families with at least one overweight or obese child were permitted to participate in the study. Anthropometric measurements of the child and both parents were obtained. Parents completed two questionnaires, the Family Eating and Activity Habits Questionnaire (measured obesogenic factors in the family environment) and the Parental Authority Questionnaire (measured authoritative, authoritarian and permissive parenting styles). The significance of this study related to the current literature review is to emphasize the cultural variation in parenting styles found in different ethnic groups.

The author conducted two randomized clinical interventions comparing parental roles in the treatment of childhood overweight. The author hypothesized a parent targeted program would: a) prevent the child's resistance to make behavioral changes: b) avoid stigmatization: and c) reduce the child's risk of preoccupation with food and dieting. The first study examined the effectiveness of a *child-only* intervention treatment program compared to a *parents-only* intervention treatment program. The second study examined a *child and parent* intervention treatment program compared to a *parents-only* intervention treatment program. In both studies, the intervention aimed at the *parents-only* resulted in a significant reduction in the percentage of overweight at the end of the program and at the one-year follow-up. Additionally, the child's weight change was negatively correlated with the mother's permissive parenting style and was not significantly associated with authoritative and authoritarian parenting styles. These findings suggest that parents are a significant mediating factor influencing behavioral change in the child. Furthermore, the results demonstrate a permissive style may be more

common in the Israeli culture than the other two parenting styles and further emphasizes the need to understand cultural influences and cultural differences.

Patrick, Nicklas, Hughes, Morales (2005) conducted a study to determine parental feeding styles and children's food consumption patterns. The sample consisted of 231 low-income African American (AA) and Hispanic (H) primary caregivers of preschool-aged children. The authors used the Caregiver's Feeding Style Questionnaire (CFSQ) which was originally developed to be used with African American and Hispanic caregivers. The instrument examines feeding styles relating on two dimensions, *demandingness* and *responsiveness*. Four feeding style categories (authoritarian, authoritative, indulgent and uninvolved) were subsequently developed based on the two dimensions. Research variables included the availability of dairy, fruits, and vegetables in the home; the parent's attempts to serve dairy, fruits and vegetables to their child; and the child's actual dairy, fruit and vegetable consumption. Demographic information as well as the caregiver and child's BMI was also collected.

The authors found that parents who were more authoritative were positively associated with having fruits, vegetables, and dairy available. Also, they were more likely to attempt to get their children to eat these foods and their children were more likely to consume these foods than parents who were more authoritarian. Whereas, parents who were more authoritarian were negatively associated with having fruits, vegetables, and dairy available and their children were less likely to consume these foods. There was no statistical significance in the association of an authoritarian parenting style and the attempts to get their child to consume these foods. All results remained significant after controlling for the covariates.

The study's strengths included examination of at-risk populations, specifically low-income Hispanic and African American preschool children. The authors also utilized an instrument which was tested and validated within these ethnic groups and it investigated both authoritative and authoritarian parenting styles. Limitations of the study included the disproportionately larger female caregiver to male caregiver ratio. Furthermore, the caregivers participating in the investigation were not always the parents of the targeted child thereby limiting the generalizability of the results. The following study investigates feeding strategies in Mexican-American father-mother dyads.

Melgar-Quinonez & Kaiser (2004) explored the relationship of parental feeding strategies, child eating patterns and other household characteristics to overweight status among low income Mexican-American preschool children. A convenience sample of 204 parents was surveyed utilizing a 57 item food frequency questionnaire and a 12 item child-feeding questionnaire. Additional data was obtained regarding the level of acculturation, food insecurity, characteristics of the preschooler, characteristics of the parents and demographic information.

The authors found a number of variables both positively and negatively related to the child's overweight status. The mother's BMI, the child's birth weight status, the monthly household income (> \$1500) and the juice intake as a proportion of the total daily energy intake were positively associated with the child's overweight status. Whereas, current participation in the Women, Infant and Children (WIC) program, other nutritional education programs and the intake of vegetables as a proportion of total daily energy intake were negatively associated with the child's overweight status. Furthermore, the child-feeding strategies among mothers and fathers in the same households were

found to be similar in this study. Only one child-feeding strategy (*child accessing food from the refrigerator or pantry between meals*) was negatively associated with the child's overweight status. These finds are consistent with another study where the authors concluded that children learn self-regulation of their eating when food is available and therefore can be interpreted as supporting the child's autonomy in food choices (Zive, Frank-Spohrer, Sallis, McKenzie, Elder, Berry, et al., 1998). None of the other child-feeding strategies were found to be significantly associated with the risk of overweight or actual overweight status. The authors concluded the biological and socioeconomic factors were associated with overweight more than the self-reported child-feeding strategies.

The strength of the study was the mother-father dyads and the inclusion of the fathers in completing the child-feeding questionnaire. One limitation of the study was the omission of the fathers' anthropometric information in the final overweight risk analysis. The child-feeding questionnaire may have been a limitation due to the marginal internal reliability of the subscales.

These findings highlight the complexity and the variability of the problem of childhood overweight. First, biological factors such as the child's birth weight and the mother's BMI imply that the prenatal period may be a significant time for the development of child overweight risks. These findings are consistent with the current literature (Krebs, et al., 2003) and suggest the importance of including them in the demographic data of future research. Secondly, socioeconomic factors such as monthly income level (> \$1500) suggest that families with a higher income have greater access to certain foods such as fresh fruits and vegetables. Lastly, the child feeding strategy associated with the child accessing food at-will suggest that a) Mexican-American

parents may have a different parenting style than the authoritarian style that has been suggested in other studies, and b) a permissive parenting style with boundaries may help to teach children to make appropriate food choices that result in a lower risk of overweight. Interestingly, the authors suggest Mexican-American parents do not demonstrate the same parenting style as other ethnicities and their feeding practices are a reflection of their culture and their socioeconomic circumstances. The following study suggests there may be a reciprocal influence between parental feeding style and the child's weight status.

Faith, Berkowitz, Stallings, Kerns, Storey, & Stunkard (2004) tested parental feeding attitudes and styles over a two-year period and investigated whether these variables predicted body mass z scores two years later. The sample consisted of 57 Caucasian families enrolled in the program at the birth of the targeted child. Children were classified as high risk for obesity and low risk for obesity based on the maternal pre-pregnancy weight ($>66^{\text{th}}$ percentile and $<33^{\text{rd}}$ percentile respectively). Anthropometric measurements of the children were obtained at 3, 5, and 7 years. Parental feeding attitudes and styles were measured utilizing subscales of the Child Feeding Questionnaire (CFQ) when the children were 5 and 7 years of age. The authors hypothesized that: a) parental feeding styles and attitudes would be stable for two years: b) increased parental restriction of child eating, reduced parental pressure to eat and increased concerns about the child's weight would be associated with increased child weight status, especially in high risk children: and c) the effects of parental feeding style and attitudes on the child's weight would be in part due to the child's prior body weight.

The authors found that parental feeding attitudes and styles and the child's BMI z score were highly stable for the two year period between age of 5 and 7 years. This implies these variables are not transient and may remain consistent over time and throughout the child's growth and development. These findings are consistent with Baumrind's (1971) assertion that parenting styles are constant and change little with time. Furthermore, the authors suggest a reciprocal influence between parent and child where parental feeding styles might influence the child's weight, the child's weight might influence feeding styles, or they may influence each other.

Another important finding was the relationship between the CFQ subscales and the BMI z scores differed for high risk families and low risk families. The parental feeding attitude subscale, *concern with child weight*, was positively associated with high-risk children only. The authors concluded that parents whose children are at higher risk for obesity may be more concerned about their child's weight. Whereas, the parental feeding strategy, *monitoring of the child's fat intake*, predicted reduced child BMI z scores in low risk children at 7 years, which suggests these strategies protect the child from gaining excessive weight. Also among high risk families, *parental restriction of food intake* predicted increased BMI z scores two years later. Previous research supports this finding suggesting that *restrictive feeding practices* may exacerbate the problem by disrupting the child's ability to self-regulate and respond to their internal hunger cues (Fisher & Birch, 1999).

Finally, maternal BMI predicted child BMI z scores at 7 years in both high risk and low risk families and was associated with *child weight concern*. There was no association with the other parental feeding styles or attitudes. The authors concluded that

the differing relationships between the high risk and low risk families on the CFQ subscales and the child's BMI z score strongly suggest a genetic-environment interaction.

The studies limitations included an all white population, a small sample size and the majority of the parents surveyed were mothers. The CFQ measured primarily restrictive or authoritarian feeding practices and did not address other parenting styles, i.e. permissive styles. The following study found no differences in feeding practices as related to the child's total body fat mass in both genders and ethnicities.

Spruijt-Metz, Lindquist, Birch, Fisher, & Gorman (2002) used dual-energy X-ray absorptiometry (DXA) to measure total fat mass in children for the purpose of determining the relationship to mothers' child-feeding practices. The authors used the DXA to obtain a more reliable measurement of total fat mass as compared to the more commonly used BMI percentile. Specifically, the investigators examined the child-feeding practices utilizing subscales of the Child Feeding Questionnaire (*mother's monitoring of food intake, responsibility for feeding, food restriction, pressure to eat and concern for child's weight*). Covariates included socioeconomic status and the child's energy intake (using a 24 hour recall technique). The dependent variable was the child's body composition, including total lean tissue mass and total fat mass. The sample consisted of 120 Caucasian and African American school-age children between 7-14 years of age.

The results demonstrated that total fat mass was associated with child-feeding practices more than the energy intake of the children. The mother's *concern for child's weight* was positively related and the mother's use of *pressure to eat* was negatively related to the child's total fat mass. The authors explained these results by suggesting that

mothers pressure their thinner children to eat while they are more concerned and restrictive with their heavier children. The researchers also found that specific feeding practices are equally related to total fat mass in both boys and girls and in both ethnicities suggesting that similar methods are used by mothers with both genders and in both ethnic groups. Lastly, the authors found that dietary fat intake and socioeconomic status did not contribute significantly to the total fat mass. Dietary intake from sources other than fat explained 5% of the total fat mass while child-feeding practices explained 15% of the total fat mass beyond the energy intake. The authors suggest that feeding practices may be a response of the parent to the child's body composition and may not have a cause and effect relationship. More importantly, these findings suggest that parental feeding practices are significant and may be more important than focusing on the nutrient intake of the child.

Strengths of the study include the validation of BMI measurements as proxies for fat mass. Although there were some variations in the relationship of the DXA vs. BMI results when compared to child-feeding practices, for the most part the results were similar. Variations in parenting style based on ethnicity and the relationship to the child's gender continue to demonstrate mixed results supporting the complexity of childhood overweight. The final study presented for review demonstrated no relationship between childhood overweight and parenting style.

Baughcum, Powers, Johnson, Chamberlin, Deeks, Jain, et al. (2001) conducted a study to explore the relationship of maternal feeding practices to childhood overweight. The authors conducted two studies, one utilizing an instrument to assess maternal feeding practices and beliefs with infants (The Infant Feeding Questionnaire) and the second to

assess maternal feeding practices and beliefs with preschool-age children (The Preschooler Feeding Questionnaire). The Preschooler Feeding Questionnaire (PFQ) elicited mothers feeding practices and beliefs retrospectively from the time the child was 18 months old until the time the mother completed the survey. The researchers hypothesized that potential obesity-promoting feeding practices or beliefs were associated with the child being overweight, with maternal obesity and with lower socioeconomic status. The second study relating to the preschool-age child will be reviewed.

The sample consisted of 634 mothers of children between 23 months and 60 months old and was intended to survey mothers from two socioeconomic extremes. Approximately half were recruited from the Special Supplemental Nutrition Program for Women's and Infants and Children (WIC) and were primarily of low income status, while the remaining mothers were recruited from three pediatric practices in a local network and were primarily upper middle-class income status. Overall, the sample consisted of primarily white children with 19% of the children being nonwhite. Of those who were nonwhite, 68% were non-Hispanic black and 9% were Hispanic-white.

The authors were unable to identify specific feeding practices which were associated with childhood overweight but the results did demonstrate a difference in maternal perceptions of the child's weight between whites and nonwhites and differences in feeding behaviors between high and low income mothers. For example, mothers in the low income group scored twice as high regarding concern about their child being underweight as they scored regarding their concern about their child being overweight or overeating. However, the children in this study were above average weight for height and

were three times more likely to be overweight as underweight. The authors concluded that black mothers may perceive a larger child as being healthier and this perception may be a reflection of her role as a mother. In addition, mothers in the low income group reported a higher degree of age-inappropriate feeding and less of a structured environment than mothers in the high income group. Also, mothers in the low income group reported greater difficulty with feeding their child and pushed their child to eat more than mothers in the high income group. The findings from this study suggest that family income and cultural influences are strong covariates.

The weaknesses in this study include surveying only mothers and the lack of a more diverse minority sample. Although the authors purposefully sampled two extreme income levels with the intention of obtaining greater variation in the results, the results did not meet their expectations of developing an instrument that assessed the relationship of feeding styles to childhood overweight.

Inconsistencies in the Literature

Childhood obesity is a complex problem requiring a multifaceted approach. It is essential for nurses seeking to develop family-centered interventions to understand the relationship between the biological, behavioral and environmental factors influencing this problem. The literature review identified several gaps which shaped and supported the current research.

Several studies pertaining to childhood overweight and parenting styles were identified in the literature but significant gaps remain. First, more research is needed on vulnerable populations specifically, ethnic minorities such as Mexican or Mexican-

American families. The literature has identified an increase in prevalence of overweight in this population but the behavioral and environmental influences are not well understood. Secondly, there is little attention given to the possible influence of fathers related to childhood overweight. Mothers have been the exclusive target of research interest especially related to feeding practices and parenting behaviors although traditional Mexican culture is considered family-centered and paternalistic. Thirdly, parenting styles of Mexican or Mexican-American parents and the relationship to feeding practices have not been widely studied or well understood. Research which includes both parents of preschool children may provide important information that can be used in developing preventive strategies. The preschool years are a formative time when eating habits are most likely to transpire. Fourth, more research is needed on the gene-environment relationship and the possible influence of immigration and low income on the prevalence of overweight. Finally, little is known about the reciprocal influences between the parent and child related to feeding practices. Yet, understanding these influences would be an important modifying factor when making behavioral changes within the family.

The literature review presented contributing factors commonly associated with childhood overweight. Specifically, the review discussed research on parenting styles and the influence on parental feeding practices. Also, the review presented research conducted with at-risk populations of preschoolers from Mexican or Mexican-American families as well supporting research with other populations. Finally, relevant gaps in the literature were discussed as potential research questions.

CHAPTER 3: METHODOLOGY

Introduction

The increasing trend in prevalence of childhood overweight is a major public health concern. The associated long-term medical consequences are significant and it is estimated 80% of overweight youth will remain overweight in adulthood (Institute of Medicine, 2004). Therefore, childhood overweight is considered an early risk factor for adult morbidity and mortality.

Currently in the United States, low income minority children are at an increased risk of becoming overweight (Lutfiyya, Garcia, Dankwa, Young, & Lipsky, 2008). Developmental changes and biological predisposition place certain age groups of children at greater risk of increased adiposity. Since children have limited control over their environment, parents are often the target as health care professionals attempt to understand the problem and develop potential interventions to change health behaviors. But, parenting processes are complex and attempts to understand feeding practices within this context have been limited in the populations studied. Furthermore, the research has shown conflicting results. The current study evaluated the relationship of parenting style as demonstrated by feeding practices in low-income Mexican or Mexican-American families to the preschool child's risk of overweight.

Research Design

A cross-sectional exploratory design was used to determine if parental feeding styles and other demographic and health variables are related to higher body mass index (BMI) scores of the target preschool child. The aim of descriptive correlational research is to explore the interrelationships among variables of interest without any active intervention on the part of the researcher (Polit & Beck, 2004). The advantages for using this design were the variables which were measured at a single point in time and the descriptive information regarding the prevalence and association between the variables. The methodology included the use of a standardized measure to assess both maternal and paternal feeding styles and an instrument to assess demographic and health profile information. The dependent variable was the child's body mass index which determined the risks for overweight.

Sample and Sampling

A convenience sample of Mexican and Mexican-American parents or caregiver dyads of a preschool age child were recruited to participate in the study. Caregivers did not have to be the biologic parent but they had to be identified as participating in the primary mother-father parenting role with the child. Inclusion criteria included parents or caregivers: a) greater than or equal to 18 years of age: b) who identify themselves as Mexican or Mexican-American: c) who currently lived in the home with the target child: and d) who are present in the home for a majority of the meals served during an average week. Exclusion criteria included parents or caregivers of a preschool child with

significant health problems which could alter the child's weight. Using the power analysis formula, a sample size of 160 participants or 80 dyads was needed.

Parents or caregivers of a target child between 3 and 5 years of age who attend a low-income preschool were recruited to participate in the study. When parents or caregivers had more than one preschool child attending the school, one child was randomly selected as the target child. Flyers, developed in both English and Spanish, were posted at the preschool sites and distributed to all adult caregivers to advertise the study. Recruitment information regarding the study was distributed to both mothers and fathers over a two-week period when their child was picked up or dropped off at the preschool. Eliciting the interest of the mother was a crucial recruitment strategy since mothers were a strong influencing factor in the father's willingness to participate. The primary investigator was available onsite and by phone to answer questions. Staff members were informed about the study so they could provide information to parents when they had questions or concerns.

Setting

The study sites included six low-income, state-subsidized preschools in a large, Southern California urban community. Hispanics comprise 60% of the community with a majority of the children at each site identified as Hispanic, Mexican or Mexican-American. The school staff spoke both English and Spanish and the majority of the staff was of Mexican or Hispanic heritage. There were several advantages to using these preschool centers. First, there was less variation in the sample since the preschools are comprised of children from similar cultural backgrounds and are specifically for children

from low-income families. Secondly, children who attended preschool daily were more likely to spend an equivalent amount of time with each parent as opposed to a child not attending school and staying home with a primary caregiver. Lastly, the preschool sites were conveniently located in the neighborhood where the families lived.

Data Collection

Data collection took place at each of the preschool sites during the early evening hours. Parents were instructed to attend together if possible and to bring their preschool-aged child with them. Initially, the height and weight of both parents and the child were collected. Then, each parent was instructed to complete the Caregiver's Feeding Style Questionnaire (see Appendices A and B for English and Spanish versions) and the Demographic and Health Profile questionnaire (see Appendices C and D for English and Spanish versions). Parents did not have to attend the group meeting on the same date but both had to complete all forms for the family to be included in the study.

It was anticipated that recruitment rates would be compromised due to the required mother-father dyads in the sample. Employment reasons, such as working varied hours or one parent not being home during the evening when the family eats together, were expected to prevent some from participating. As anticipated there were a number of single parents or caregivers in a non-traditional mother-father family which prevented their participation. Yet, attrition rates were low since the participants were required to attend only one meeting and the amount of time invested in the project was less than an hour. The final sample represented a population of low-income, Mexican or Mexican-American parents where one or both worked outside of the home and had a young child

attending a state-subsidized preschool. The generalizability of the findings to a larger population will be discussed in chapter 5.

Instruments

The dependent variable (DV) in this study was the preschool child's body mass index (BMI) percentile rank. BMI has been widely used as a calculated measurement of a person's height and weight (weight in kilograms divided by height in meters squared) for the purpose of classifying individuals as underweight, normal weight, overweight and obese. For children, the BMI-for-age-percentile is used to interpret the BMI number because BMI is age and sex specific. Adiposity in children varies depending on the child's age and depending on the child's gender. BMI is generally used as an indicator of body adiposity although it does not measure body fat directly. However, research has demonstrated the BMI to be a reliable indicator of body fatness when correlated with direct measurements such as underwater weighing, skin fold thickness measurements, computed tomography (CT) and dual energy x-ray absorptiometry (DEXA) (Calle, Thun, Petrelli, Rodriguez, & Heath, 1999).

The child's body mass and stature (standing height) were collected by individuals trained in using the measurement equipment. Descriptive information was noted at the time of the measurements and included the child's age, birth date and gender. The child was measured in light clothing and without shoes. All measurements were performed by trained staff and averaged to within 100 grams for body mass and 0.1 cm for height. BMI was computed from these measures. The 840 Bella Digital Scale was used to measure body mass and has a graduation of 0.21b (100 g). The 214 Road Rod portable stadiometer

which has a graduation of 1/8 inch (0.1cm) was used to measure stature. The scale was calibrated based on the instructions provided by the manufacturers.

The independent variables included the Caregiver's Feeding Style Questionnaire (CFSQ) and the demographic and health profile questionnaire. CFSQ is a 19 item question scale used to assess feeding styles among the primary caregivers of preschool age children (Hughes, Power, Fisher, Muller & Nicklas, 2005). The instrument was originally developed to be used with low income African-American and Hispanic caregivers to examine feeding styles based on two dimensions, *demandingness* and *responsiveness*. Demandingness refers to the degree to which a parent attempts to either encourage or discourage their child's eating behavior. Responsiveness refers to the type of demand strategies the parent uses to influence their child's eating behavior. Demand strategies can be either child-centered or parent-centered. Four feeding styles categories (authoritarian, authoritative, indulgent and uninvolved) were subsequently developed based on the two dimensions. The participants rated each item on a 5 point Likert-type scale ranging from 1 - "Never" to 5 = "Always". Scoring was done according to the standardized CFSQ scoring tool for the typological approach. The CFSQ has a strong internal consistency for the demandingness scale (coefficient alpha = 0.85) and the responsiveness scale (coefficient alpha = .86 and .71 for authoritarian and authoritative, respectively). Test-retest reliability was measured by Pearson's correlation and revealed 0.85 for demandingness scale and 0.82 for the responsiveness scale (Hughes, et al., 2005). The CFSQ has been translated and back translated into Spanish. The self-administered demographic and health profile instrument was translated into Spanish by a college educated, native born Mexican currently residing in the United States.

The BMI score for each parent was obtained at the time of data collection. Parents were instructed to wear light clothing and the measurements were performed without shoes. All measurements were conducted by trained staff and averaged to within 100 grams for body mass and 0.1 cm for height. BMI were computed from these measures. The 840 Bella Digital Scale was used to measure body mass and has a graduation of 0.2 lb (100 g). The 214 Road Rod portable stadiometer which has a graduation of 1/8 inch (0.1cm) was used to measure stature. The scale was calibrated based on the instructions provided by the manufacturer.

Demographic information was collected on a self-administered form and included age, number of years in the U.S., length of time the mother breastfed the child, number of years the family have had children in the preschool program and number of years the family participated in the Women, Infants and Children (WIC) Supplemental Food Program. The demographic information including the parent's BMI was reported as descriptive information. All data related to the mother-father dyad were coded to identify the parent-child unit.

Data Analysis

The overall aim was to identify the parenting styles of Mexican or Mexican-American mother-father dyads and to determine if there was a relationship between the parenting style and the risk of overweight in their preschool-age child. Other potential covariates related to childhood overweight were also analyzed.

The research questions were:

1. To what extent do the maternal and paternal scores differ on each measure of the feeding style questionnaire? An ANOVA was conducted to determine whether group means differed from each other. The assumptions for ANOVA are; a) the groups are mutually exclusive and, b) they have homogeneity of variance. To test for homogeneity of variance the Levene's Test was performed and demonstrated the group means for the mothers and fathers did not differ significantly on any of the parenting scales. Therefore, the Levene's test confirmed the groups had equal variances and are from a single population.

2. To what extent is overweight in the Mexican or Mexican-American preschooler related to maternal parenting style and paternal parenting style? Parenting styles were dichotomized by utilizing the typological approach to categorized parent into one of 4 parenting styles. Pearson correlation was conducted to determine the relationship between the child's BMI and each of the parenting scales.

3. What are the relationships between the child's BMI, parenting styles and selected demographic variables (parent's BMI, child's gender, length of time breastfeeding child, years living in the U.S., participation in WIC program, years in Head Start or state-funded preschool program) in this group? Pearson correlation was conducted to determine the relationship between the child's BMI and each of the demographic variables.

Limitations

The study had limitations which are consistent with other studies utilizing a similar methodology. Convenience samples may not be representative of other like

populations and therefore will have limited generalizability. Furthermore, the study utilized a questionnaire requiring the parents to self-report information. This technique has inherent limitations which may encourage social desirability responses and may not represent their actual feeding styles. Also, family dynamics are situational and one cannot infer that an identified style or behavior is consistently performed in the household. Lastly, as the results demonstrated, parent-dyads influence each others and feeding style may be the result of mutual influence.

Human Subjects Protection

This study was approved by the Internal Review Board of the University of San Diego (see Appendix E). The investigator received approval to conduct the study at the preschool sites from the Administrative Director (see Appendix F) and ensured all questions from the preschool's Advisory Board were addressed prior to initiating the study. Informed consent was obtained from all adults and the child's assent was obtained before testing (see Appendices G and H for English and Spanish versions). All study data was de-identified to protect the unintended disclosure of the participants' health information and questionnaire responses. All subjects (parent dyads) received a monetary compensation for their participation and the children received an age appropriate book on healthy nutrition as compensation.

Risks and Benefits

The participants in this research could have experienced risks or discomfort when revealing personal information on the questionnaires. To minimize these risks, the

investigator ensured all participants are provided privacy and ensured confidentiality. All measurements were conducted in a separate room or behind a partition. The participants submitted their completed questionnaires in an envelope and handed it directly to the investigator. All identifying information was known only to the investigator.

There was no direct benefit from participation in this study. Several possible benefits included the potential to increased knowledge and awareness of one's own health status and understanding of one's health behaviors and that of their child.

CHAPTER 4: RESULTS

The purposes of this study were to determine (1) to what extent the maternal and paternal scores differ on each measure of the feeding style questionnaire; (2) to what extent overweight in the Mexican or Mexican-American preschooler was related to maternal feeding style and to the paternal feeding style; and (3) what were the relationships between the child's BMI and selected demographic variables (parent's BMI, length of time child was breastfed, years parents lived in the U.S., years family participated in the WIC program, years the family participated in Head Start or state-funded preschool program) in this group?

The results and analysis are presented in three sections. The first section presents a description of the sample population. Next, is a discussion of the Caregiver's Feeding Style Questionnaire (CFSQ) reliability and psychometrics. Section three provides the results related to the research questions.

Characteristics of the Sample

The demographic portion of the data included information on both parents and the child. Eighty mother-father or female-male caregiver dyads ($N=80$) completed the CFSQ and a self-administered Demographic and Health Profile Questionnaire. Two caregivers identified themselves as the child's grandparent and each grandparent was one

of the primary caregivers in the household (the other caregiver was the opposite-gender biological parent). Since the majority of the adult dyads identified themselves as the child's parents, the term *caregivers* will be used to identify all parents, mother and father, or grandparent.

The average age of the female caregivers was 32.13 years ($SD = 6.6$) and the average age of male caregivers was 34.43 years ($SD = 7.5$). Forty percent of all caregivers lived in the United States for less than 10 years; 32% had lived in the United States between 11 and 20 years and 28% had lived in the United States for more than 20 years. The majority of all caregivers identified themselves as Mexican (72%), followed by Mexican-American (13%), Hispanic (13%) and Latino (2%) (See Table1). Lastly, the majority of the preschoolers were female (63%) and the mean child age was 51.94 months (approximately 4 years and 4 months old).

Table 1

Caregiver's Demographic Characteristics

	Women (n = 80)	Men (n = 80)
Age	32.13 (6.6)	34.4 (7.5)
Years in US	14.7 (8.7)	17.0 (9.6)
Ethnicity		
Mexican	69.6%	75.0%
Mexican-American	11.4%	15.0%
Hispanic	16.5%	8.8%
Latino	2.5%	1.3%

Note: numerical values are reported as means; standard deviations are in parenthesis. All percentages are reported as valid percent.

Health Profile Data

Caregivers were asked to report the length of time their preschool child was breastfed, the number of years the family participated in the Women, Infants and Children's Food and Nutrition Service Program (WIC) and the total number of years the family had children enrolled in state-subsidized preschools. Twenty percent reported they had never breastfed their child, 44% had breastfed 6 months or less, 25% had breastfed between 7 and 12 months and 11% had breastfed longer than 12 months. The mean years of the family's participation in the WIC program were 4.61 years and the mean years the families participated in a state-subsidized or Head Start preschools were 1.26 years (Table 3). Five percent of the dyads stated their child was not currently attending preschool but their child was enrolled and scheduled to begin in the upcoming school session.

Caregivers were asked the same nutritional health questions on their individual questionnaires. When there was a discrepancy in the data (related to breastfeeding, years in preschool and years in WIC program) within the dyad, the female caregiver's responses were used for data collection. Therefore, the nutritional health data related to breastfeeding, years of participation in WIC program and years of participation in a state-subsidized or Head Start preschool is the same for both caregivers in the dyad.

Height and weight data were collected on all caregiver dyads and their targeted preschool child for the purposes of calculating the body mass index (BMI) score. The mean BMI score for all women was 28.76 kg/m² and the mean BMI score for all men was 29.60 kg/m². According to the Center for Disease Control (2007) adult weight status

categories, a BMI score $> 25 \text{ kg/m}^2$ but $< 29.9 \text{ kg/m}^2$ is considered overweight. Seventy-two percent of the women and 79% of the men were either overweight or obese (see Table 2).

Table 2 *Caregiver's Health Profile Characteristics*

	Women (n = 80)	Men (n = 80)
BMI	28.8(5.2)	29.6(5.0)
Underweight		
BMI < 18.5	4%	0
Normal weight		
BMI $> 18.5 < 24.9$	24%	21%
Overweight		
BMI $> 25 < 29.9$	36%	39%
Obese		
BMI > 30	36%	40%

Note: numerical values are reported as means; standard deviations are in parenthesis. All percentages are reported as valid percent.

Body Mass Index scores for children are calculated by height and weight based on the child's gender and age. The BMI weight categories for the child are reported as a percentile range (Centers for Disease Control, 2007). The mean BMI percentile for both female and male children was 69.44. The female children had a higher BMI percentile mean (72.46) than the BMI percentile mean for the male children (64.40). According to the Centers for Disease Control (2007) child weight status categories, 63% of the children in this sample were in the *healthy weight* category which is defined as a calculated BMI at or above the 5th percentile but less than the 85th percentile (see Table 3). The large standard deviations in the child BMI percentiles are due to the wide range in the *healthy weight* category for children. Thirty seven percent of the children were either overweight or obese, with more girls (38.0%) than boys (33.3%) having a BMI $>$ the 85th percentile.

Table 3

Child Health Profile Characteristics & Covariates

	Female (n = 50)	Male (n = 30)	All (n = 80)
BMI			
Mean (SD)	72.46 (25.32)	64.40 (29.79)	69.44 (27.18)
Underweight < 5 th percentile	2%	0	1.25%
Healthy Weight			
5 th to < 85 th percentile	60%	66.7%	62.5%
Overweight			
85 th to < 95 th percentile	20%	13.3%	17.5%
Obese			
> 95 th percentile	18%	20%	18.75%
Breastfeeding			
Never	-	-	20%
6 months or less	-	-	44%
7 months to 12 months	-	-	25%
Greater than 12 months	-	-	11%
Yrs in Preschool	-	-	1.3 (.99)
Yrs in WIC	-	-	4.6(2.16)

Note: numerical values are reported as means; standard deviations are in parenthesis. All percentages are reported as valid percent.

The demographic and health profile data provided information regarding the sample population and potential risks for overweight. The majority of the caregiver dyads identified themselves as Mexican and since 72% had lived in the U.S. for less than 20 years, most of the caregivers were first generation immigrants. The health profile data identified more than 1/3 of the children and 2/3 of the caregivers as either overweight or obese. Additional health indicators generally associated with lowering overweight risks (i.e. breastfeeding) demonstrated mixed results but provided insight regarding the population and the socioeconomic health challenges. The data begin to address environmental and genetic influences related to overweight in this population. The

Caregiver's Feeding Style Questionnaire (CFSQ) was used to identify behavioral influences in Mexican or Mexican-American families and the potential risks for overweight related to their feeding practices. These behavioral issues were addressed in research questions 1 and 2.

Reliability

The reliability of the answers to research questions 1 and 2 are dependent on the reliability of the instruments used. As discussed in Chapter 3, the original internal consistency reliabilities of the Caregiver's Feeding Style Questionnaire (CFSQ) were $\alpha = 0.85$ for demandingness (all 19 items), $\alpha = 0.86$ for parent-centered strategies (12 items), and $\alpha = 0.71$ for child-centered strategies (7 items). All 19 items on the CFSQ were proposed to assess demandingness or the degree to which parents did something to encourage or discourage their child's eating behavior. The responsiveness dimension, or the type of strategy that controlled for the level of demandingness, was measured for each caregiver by dividing the mean of the child-centered items by the mean of all nineteen items. The difference between the parent-centered and child-centered strategies is based on the level of parental warmth and responsiveness (Hughes, Power, Fisher, Muller, & Nicklas, 2005) and therefore yielded the measure of parent responsiveness.

In this study, the coefficient alphas for the total sample were calculated followed by the coefficient alphas for the female and male caregivers. A consideration in this sample of caregiver dyads is the potential for the variance between the groups to violate the rule of independence. Internal consistency reliability revealed a Cronbach's alpha coefficient for all *N* on demandingness $\alpha = .85$ and responsiveness $\alpha = .70$. The alpha

coefficient values reported for female and male caregivers' responses demonstrated similar results between dyads (see Table 4).

Table 4

Reliability Statistics: Cronbach 's Alpha

	Mother	Father	All
Demandingness Scale	.865	.847	.855
Responsiveness Scale	.701	.705	.703

Descriptive Statistics

The first research question sought to determine to what extent maternal and paternal scores differ on each measure of the feeding style questionnaire. An ANOVA test was performed to determine between-group or between-caregiver variances. The ANOVA demonstrated there were no statistically significant differences between the female and male caregiver scores on the demandingness scale $F(1, 158) = .353, p > .05$ or on the responsiveness scale $F(1, 158) = 1.414, p > .05$. The statistical test was performed with the assumption the caregiver groups were independent of each other and therefore, did not take into account the violation of independence.

The CFSQ parenting styles were dichotomized using the original author's scoring of the data for typological approach (Hughes, et al., 2005). The demandingness score was calculated as the mean of all 19 items and the responsiveness score was calculated by dividing the mean of the child-centered items (7 items) by the total mean of all items.

Median splits for the sample were then calculated on the two dimensions of demandingness (median split 2.90) and responsiveness (median split 1.155). Scores at or above the median split were considered high and scores below the median split were considered low.

Sample participants were grouped into high and low categories to determine the four parenting styles; 1) caregivers with high demandingness and high responsiveness scores demonstrated an authoritative style, 2) caregivers with a high demandingness and low responsiveness scores demonstrated an authoritarian style, 3) caregivers with a low demandingness and high responsiveness scores demonstrated an indulgent style, and 4) caregivers with a low demandingness and low responsiveness scores demonstrated an uninvolved style. The authoritative style is often viewed as the reference style and uses developmentally appropriate responses and support for the child. It is associated with improved health outcomes and lower BMI percentile scores (Burrowes, 2007). In contrast, an authoritarian, indulgent and uninvolved style lacks developmentally appropriate responses and support for the child and is often associated with poorer health outcomes and higher BMI percentile scores (Birch, Fisher, Davison, 2003).

The majority of the caregivers ($N=160$) demonstrated an authoritarian style (38%), followed by indulgent style (36%), authoritative style (14%) and uninvolved style (13%). Feeding styles by parent groups are presented in Table 5. Chi-square test was performed and found there was no relationship between the caregiver-groups and the four feeding styles, $\chi^2 (3 df) = 1.07, p = .785$. The percentage of caregivers demonstrating each feeding style did not differ by gender. The Chi-Square test did not take into account the violation of independence between the parent groups. The lack of statistical

significance indicates that male and female caregivers demonstrate similar feeding styles. However, the authoritative style was associated with lower BMI mean percentile scores although the association between the caregiver's feeding styles and the child's BMI was not statistically significance (see Figure 2).

Table 5

Feeding Styles: Typology Approach

Parent	Feeding Style	Frequency	Valid Percent
Female Caregiver	Authoritarian	31	38.8
	Indulgent	30	37.5
	Authoritative	11	13.8
	Uninvolved	8	10.0
Male Caregiver	Authoritarian	29	36.3
	Indulgent	27	33.8
	Authoritative	12	15.0
	Uninvolved	12	15.0
$\chi^2(df)=.01, p>$		<i>M</i>	

The second research question sought to determine to what extent overweight (BMI) in the preschooler was related to the female caregiver feeding style and to the male caregiver feeding style. A Pearson correlation was performed to determine if there was a relationship between child's BMI and each of the caregiver scales. For both female and male caregivers, the correlation between the child's BMI and the caregiver's scores on the demandingness scale and responsiveness scale were found to be statistically non-significant (see Table 6).

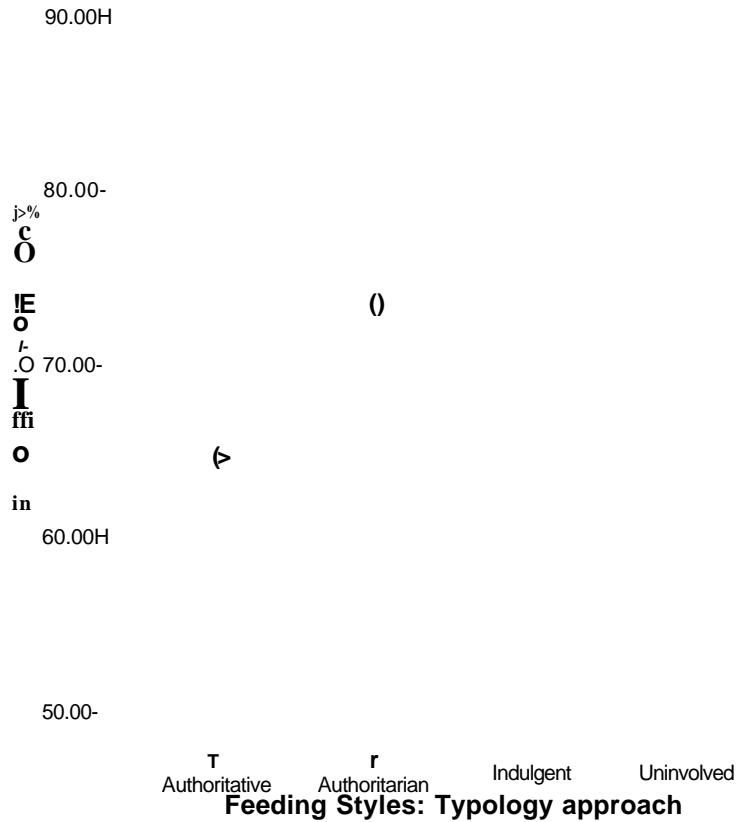


Figure 2. Child's mean **BMI** percentile scores for each feeding style.

Table 6

Correlation between parenting dimensions scores and child's BMI

Female Caregiver		Child's BMI
Demandingness Scale	Pearson Correlation	.011
	Sig. (2-tailed)	.923
	N	80
Responsiveness Scale	Pearson Correlation	-.089
	Sig. (2-tailed)	.432
	N	80
Male Caregiver		Child's BMI
Demandingness Scale	Pearson Correlation	.029
	Sig. (2-tailed)	.769
	N	80
Responsiveness Scale	Pearson Correlation	-.086
	Sig. (2-tailed)	.451
	N	80

Note: All Correlations are not significant at the 0.05 level (2 tailed)

An ANOVA test was performed to determine group variances between the child's BMI and the female and male caregiver feeding styles. The ANOVA found no statistical significance between the female caregiver feeding styles and the child's BMI, $F(1, 3) = 1.41, p > .05$ or between the male caregiver feeding styles and the child's BMI, $F(1, 3) = 1.40, p > .05$. In this analysis the rule of independence was not violated. The lack of statistical significance indicates male and female caregiver feeding styles had no effect on BMI; a finding that is supported in some research on this issue (Melgar-Quinonez & Kaiser, 2004) and in opposition to other research on this issue (Arredondo, Elder, Ayala, Campbell, Baquero & Duerksen, 2006; Hughes, et al., 2005). This will be discussed in more detail in Chapter 5.

The third research question sought to determine the relationships between the child's BMI and selected demographic variables specifically; parent's BMI, years living in the U.S., years of participation in the WIC program, years in Head Start or state-funded preschool program, and the length of time the child was breastfed. Pearson correlation demonstrated there was no statistical significance between the number of years the female caregiver had lived in the U.S. and the child's BMI, $r(78) = -.007, p > .05$. However, there was statistical significance between the number of years the male caregiver had lived in the U.S. and the child's BMI, $r(78) = -.281, p < .05$. Although this was a weak correlation, the analysis indicates an inverse relationship between the length of time the male caregiver lived in the U.S. and the child's BMI (see Table 7).

Table 7

Correlation between caregiver's years in U.S. and child's BMI

Years in U.S.		Child's BMI
Female Caregiver	Pearson Correlation	-.007
	Sig. (2-tailed)	.949
	N	80
Male Caregiver	Pearson Correlation	-.218*
	Sig. (2-tailed)	.054
	N	79

Correlation is significant at the 0.05 level (2 tailed)

The remaining demographic variables were analyzed for all caregivers (N=160) since the data was the same for each caregiver dyad. Pearson correlation analysis for number of years in a state subsidized preschool and the child's BMI, $r(158) = .070, p > .05$ and the number of years the child was breastfed and the child's BMI, $r(158) = -.059, p > .05$ demonstrated statistical non-significance. However, the number of years the family participated in a WIC program and the child's BMI demonstrated statistical significance, $r(158) = .258, p < .05$. The correlation indicates a positive relationship between the length of time the family participated in the WIC program and the child's BMI (see Table 8).

Table 8

Correlation between years in WIC program and child's BMI

Years in WIC Program		Child's BMI
Caregiver Dyads	Pearson Correlation	.258*
	Sig. (2-tailed)	.001
	N	160

* Correlation is significant at the 0.05 level (2tailed)

Pearson correlation was performed to determine if there was a relationship between the child's BMI and the BMI of each caregiver group. The correlation between the child's BMI and the female caregiver's BMI was found to be statistically significant,

$r(78) = .326, p < .01$; while the correlation between the child's BMI and the male caregiver's BMI was found to be statistically non-significant, $r(78) = .160, p > .05$ (see Table 9). The findings related to question 3 indicate the male caregiver's length of stay in the US, the female caregiver's BMI, and the number of years the family was on WIC had an effect on the child's BMI. These are important variables for health care providers to consider when identifying factors to address in childhood overweight.

Table 9

Correlation between caregiver's BMI and child's BMI

Caregiver's BMI		Child's BMI
Female Caregiver	Pearson Correlation	.326*
	Sig. (2-tailed)	.003
	N	80
Male Caregiver	Pearson Correlation	.160
	Sig. (2-tailed)	.155
	N	80

* Correlation is significant at the 0.01 level (2tailed)

The Caregiver's Feeding Style Questionnaire (CFSQ) provided information regarding the behavioral influences of Mexican or Mexican-American caregivers and the potential risks to overweight in this population. The CFSQ instrument was found to be reliable and offered insight into the feeding practices of this population. Previous research has found a variety of parenting styles used particularly among first generation immigrants which may help to explain the current findings (Varela, Vernberg, Sanchez-Sosa, Riveros, Mitchell & Mashunkashey 2004). Yet, contrary to previous research utilizing the CFSQ (Hughes, et al., 2005), the current study did not find a correlation between the feeding practices of the caregivers and the risk for overweight in the

preschool-age child. Nor, did the current study find significant differences between the feeding practices of the male and female caregivers; however, the current study did find significant relationships between the child's BMI status and the length of time the male caregiver lived in the US, the length of time the parents participated in the WIC program and the female caregiver's BMI. Chapter 5 will address the importance of these findings and their relationship to nursing research, practice and education.

Limitations

Several limitations were identified in this study. First, a small sample size may have been a contributing factor to the lack of statistically significant findings in this study compared to prior research (Rhee, Lumeng, Appugliese, Kaciroti, & Bradley, 2006; Wake, Nicholson, Hardy & Smith, 2007). There may not have been enough power to detect a correlation between the caregiver feeding styles and the child's BMI scores. Secondly, the majority of the caregivers were first generation Mexican immigrants who have lived in the U.S. for less than 20 years. Therefore, the results from this study cannot be generalized to all populations including second and third generation Mexican decedents who were born and raised in the U.S. Also, due to the unanticipated sample demographics, additional information regarding the caregiver's education level and possible language limitations were not included in the data collection. In future research, these important assimilation measures would provide greater understanding regarding the impact of culture and assimilation on the caregiver's health behaviors. Thirdly, the data collection procedure may have contributed to the lack of statistically significance findings in the caregiver's feeding practices. Male and female caregivers were asked to

answer the questions independently but were allowed to sit at the same tables while completing the instruments. Some caregivers appeared to have difficulty deciding on their answers and would ask their significant other for assistance. In future studies, male and female caregivers should be separated to ensure individualized answers and to validate the results from the current study. Lastly, there were limitations associated with the Demographic and Health Profile Questionnaire. The questions related to the length of time the family participated in the WIC program and the length of time the family had children in Head Start or state-subsidized preschool was intended to include all children in the family and not just the targeted child in the study. Most parents appeared to answer these questions related only to the targeted child in the study. Therefore, the benefits of prior educational classes or the impact of program services were not accurately assessed. In addition, questions regarding breastfeeding did not address the possibility that the child was mix-fed (concurrent use of formula) or if the child was breastfed exclusively. In the future, these questions would be restated to elicit all possible variables which may impact the child's weight. These limitations will be discussed further in chapter 5.

CHAPTER 5: DISCUSSION

Summary of the Problem

The prevalence of childhood overweight is highest among low income, ethnic minority children. Environmental, behavioral, and genetic influences have been identified as contributing factors to the overweight problem. Understanding the family's culture, parental behavior and biological predispositions are just some of the challenges facing nurses and other health care providers. However, eating behaviors are learned early in life and the self-regulated internal hunger cues deteriorate over time and are replaced by the external cues related to food palatability, parental routines and social context (Devaney & Fox, 2008). Consequently, parental behavior as demonstrated through role modeling or parenting style is often considered a mediating factor in the development of the young child's response to food (Fisher & Birch, 2008).

The influence of parental feeding on the eating behaviors of children is not well understood in Mexican or Mexican-American populations. Also, it is unknown if mothers and fathers share similar or dissimilar feeding practices contributing to the complexity of the current overweight problem. Furthermore, fathers of young children are rarely included in obesity research leaving a gap in our understanding of how to assist families in making effective behavioral changes. Parenting styles, as demonstrated by

feeding practices, have been examined primarily with mothers of Caucasian, middle-class families, using instruments developed in the same population. Furthermore, a specific parenting style which may be understood to contribute to the healthy development of a child may not be the reference style for all cultures or in all environments.

Summary of the Purpose

The overall purpose of this study was to determine if maternal and paternal parenting styles, as demonstrated by feeding practices, in the Mexican or Mexican-American population differed from each other and to evaluate the relationship of feeding practices to the Mexican or Mexican-American preschool child's risk of overweight. Selected demographic variables and their relationship to the preschooler's weight were also evaluated.

Discussion of Results

Research Question 1: *To what extent do the male and female caregivers' scores differ on each measure of the feeding style questionnaire?*

In this study, no differences were found between the female or male caregivers' scores. These findings are consistent with a study involving Latino mothers and fathers which also found no differences in the parent's child-feeding strategies (Melgar-Quinonez & Kaiser, 2004). However, the uniqueness of this study was its attempt to assess the effect Mexican or Mexican-American fathers have on their children's nutrition since few studies have surveyed the feeding practices of fathers. In research which included fathers the participants were primarily from middle-class, Caucasian families

(Wake, Nicholson, Hardy & Smith, 2007). The lack of differences between parental strategies may be explained by several factors.

Parenting practices and styles in the Mexican culture are diverse and evolving (Esteinou, 2005). Traditional family structures and parental roles based on collectivism, hierarchical family attachments and patriarchy may be more an ideal than a reality (Hawkes & Taylor, 1975). Since fathers play a critical role in the Hispanic family, this study was particularly interested in understanding if they had any effect on the child's eating patterns. Contrary to common stereotypes depicting Mexican or Mexican-American fathers as authoritarian and uninvolved (Cardona, Nicholson & Fox 2000), current research has found that both mothers and fathers maintain traditional values but demonstrate egalitarian roles within the family (Behnke, Taylor, Parra-Cardone, 2008). Parenting roles and styles have been changing over the last thirty years and Mexican fathers are establishing more contemporary tasks within the household, such as housework and childcare activities (Esteinou, 2005).

In the early 1970s in California, a study conducted with Mexican farm labor families challenged the previous assumptions regarding the traditional patriarchal family structure (Hawkes & Taylor, 1975). The authors found the dominance-submissive patterns were not universal and that parents were more likely to demonstrate shared decision-making and action-taking responsibilities. Although parental feeding styles were not a measured indicator, the egalitarian family pattern may explain the commonality of the caregiver's scores in the current study.

Sociocultural influences may also explain the similarity in the caregiver's feeding practices. First, parenting styles are a result of socialization practices which are normative

for a specific culture but are also determined by individual characteristics such as, experiences, knowledge, skills and interests (Maccoby & Martin, 1983). Since all caregiver dyads in this study were Mexican or of Mexican descent, it is reasonable to assume their shared culture had a significant influence on their feeding practices.

Socialization practices are also an adapted response to societal problems and challenges within a particular environment (Baumrind, 1996; Maccoby & Martin, 1983). This is particularly evident with the immigrant family. The majority of the caregivers in this study were first generation Mexican immigrants and migration to the U.S. presents unique circumstances. The socioeconomic challenges associated with assimilation often cause families to modify their parenting strategies after coming to the United States (Perreira, Chapman & Stein, 2006). For example, parents may exhibit a permissive or indulgent parenting style in their home country but after immigrating they adopt a more controlling style as a means of providing optimum supervision and support (Perreira, et al., 2006). Socioeconomic conditions, especially involving food scarcity or economic hardship, may necessitate shared feeding practices within the parent dyad. Changes in economic, demographic and sociocultural patterns in Mexican families over the last three decades have had significant impact on the changing parenting styles and practices (Esteinou, 2005).

Furthermore, it is unknown the degree to which mothers and fathers influence each other's child-feeding practices. In a dyad relationship, one partner's behavior is never free from the influence of the other partner's behavior (Lewis, Devillis & Sleath, 2002). Although an individual's characteristics which influences parenting styles are stable over time (Baumrind, 1971), parents may modify their parenting strategies based

on the dyad's shared experiences. Feeding practices are multifaceted and influenced by cultural and socioeconomic circumstances, by the individual characteristics of each caregiver and by the shared experiences within the dyad.

Thus lack of differences could have been related to cultural evolutionary factors inherent in Mexican fathers, or by sociocultural factors inherent within modern Hispanic mother-father dyads, or by the lack of power in the study to detect a difference between the caregivers. In a similar study which found differences in feeding practices within the caregiver dyads, the sample size was significantly larger (Wake, et al., 2007). Therefore, this may have been a limitation to the current study.

Research Question 2: *To what extent is overweight in the Mexican or Mexican-American preschooler related to the female caregiver's feeding style and to the male caregiver's feeding style?*

There was no statistical significance between the female caregiver feeding styles and the child's **BMI** or between the male caregiver feeding styles and the child's **BMI**.

The majority of caregivers demonstrated an authoritarian feeding style (38%) although a comparable proportion demonstrated an indulgent style (36%). Furthermore, children of caregivers with an authoritarian style had the highest **BMI** percentile rank mean (73.3); while children of caregivers with an authoritative style had the lowest **BMI** percentile rank mean (64.5). These findings are important since they illustrate the health benefits of an authoritative feeding style versus an authoritarian feeding style. The current research produced mixed results which pose additional questions for consideration.

First, an authoritative style has been shown to improve health behavior and subsequently healthy outcomes (Lewis, et al., 2002). Consequently, an inverse relationship was anticipated between an authoritative feeding style and the child's BMI. Furthermore, preschool-age children of parents who demonstrate controlling and permissive feeding styles often lack intake control and are subsequently associated with higher weight status (Birch, Fisher & Davison, 2003). Therefore, a positive association between authoritarian, indulgent and uninvolved feeding styles to the child's BMI was anticipated. Yet in the current study, none of these hypotheses were proven. This finding could have been related to lack of power in the study to detect a difference between the feeding styles.

Previous research conducted in different ethnic groups which attempted to establish an association between feeding styles and the child's weight status showed contradictory results. Research involving low income, Hispanic families found no association between parental feeding styles and the child's BMI status (Arredondo, Elder, Ayala, Campbell, Baquero & Duerken, 2006; Melgar-Quinonez & Kaiser, 2004). Whereas, an association was found between parental feeding styles and the child's weight in studies involving Caucasian families (Rhee, Lumeng, Appugliese, Kaciroti & Bradley, 2006; Wake, et al., 2007). A major difference between the two ethnic groups was their socioeconomic status. The Caucasian families were primarily middle-class while the Hispanic and Latino families were from low income groups. Biological differences may also account for the findings. The predisposition to overweight and related health conditions, such as diabetes and heart disease, are well known in individuals of Mexican descent (Barton, Gilbert, Baramée, & Granger, 2006). Together with the negative health

affects associated with low socioeconomic and immigrant status, behavioral influences (such as feeding practices) may not be as strongly related to overweight for Mexican and Mexican-American families as it is in the white population. Socioeconomic and biologic covariates in the current study will be addressed in research question 3.

However, in the absence of a correlation between feeding styles and the child's weight, an authoritative style was associated with healthier behaviors such as availability of fruits and vegetables and increased amount of family exercise (Arredondo, et al., 2006; Hughes, et al., 2005;). In the current study, the association between the caregiver's authoritative feeding style and the child's lower BMI percentile rank means is encouraging and warrants further research in this population of preschoolers.

Secondly, parenting styles have been shown to be highly variable within the Hispanic culture (Cardona, Nicholson & Fox, 2000) and may explain the mixed findings in the current study. These results mirror other research regarding Latino and Hispanic feeding styles. In one study involving Latino parents of school-aged children the majority of the parents reported an authoritarian feeding style (Arredondo, et al., 2006) while in another study involving caregivers of preschool-aged children an equal number of the Hispanic caregivers reported an indulgent feeding style (38.4%) and an authoritarian style (37.7%) (Hughes, et al., 2005). As noted earlier, parenting styles vary in Mexican or Mexican-American families and are influenced by multiple confounding factors such as assimilation and socioeconomic status. Research suggests that ethnic minority status rather than affiliation to Mexican culture, contributed to greater use of an authoritarian parenting style especially in immigrant families (Varela, et al, 2004). Whereas, some research has reported Hispanic parents to be more permissive with increased assimilation

to the dominate culture (Julian, McKenry & McKelvey, 1994). Still, an authoritative parenting style has been shown to demonstrate improved health benefits in minority populations such as Mexican-Americans and African Americans (Patrick, Nicklas, Hughes & Morales, 2005). Since parental feeding practices have been shown to accurately predict parenting styles (Hubbs-Tait, 2008), understanding the relationship of parenting styles to health behaviors in children is significant. Furthermore, these findings provide evidence that generalizations regarding parenting styles and feeding practices in the Mexican or Mexican-American population should not be assumed. Instead, underlying parenting styles should be addressed especially in interventions aimed at making healthy behavioral changes.

Thirdly, the current study and the Hughes, et al. (2005) study both used the CFSQ instrument and reported equal percentages of authoritarian and indulgent caregiver feeding styles. The similarities in the two studies may be attributed to the instrument and the low reliability of the *responsiveness* scale. The CFSQ is composed of 19 items; 12 assessing parent-centered strategies (*demandingness*) and 7 assessing child-centered strategies (*responsiveness*). In the Hughes et al. (2005) study the coefficient alpha for the *demandingness* scale was 0.86 and the coefficient alpha for the *responsiveness* scales was 0.71. In comparison to the current study, the *responsiveness* scale ($\alpha = 0.70$) was found to be less reliable than the *demandingness* scale ($\alpha = 0.85$). This similarity in the findings may be attributed to the instrument not being sensitive enough to differentiate between the feeding styles.

Another likely explanation is the instrument did not capture the correct *responsiveness* construct for this population. Research has shown that Mexican mothers

of young children are more likely to demonstrate warmth and nurturing through acts of physical affection and are less likely to demonstrate nurturing by providing the child with material rewards (Cardona, et al., 2000). It is possible the caregivers may not have identified certain *responsive* feeding behaviors on the CFSQ (i.e. *making smiley faces on the pancakes*) as a necessary and appropriate action to encourage their child to eat. The caregiver may be responsive to the child's needs but the CFSQ instrument may not accurately reflect the caregiver's actions. A future qualitative study to explore questions regarding the instrument and the *responsiveness* and *demandingness* constructs is warranted.

Finally, a small sample size may have been a contributing factor to the lack of statistical significant findings in this study compared to prior research (Rhee, et al., 2006; Wake, et al., 2007). There may not have been enough power in the study to detect a correlation between the caregiver feeding styles and the child's BMI scores.

Research Question 3: *What are the relationships between the preschooler's BMI and selected demographic variables (years living in the U.S., years in Head Start or state-funded preschool program, participation in WIC program, length of time child was breastfed, and parent's BMI) in this group?*

Several covariates have been identified as having either a positive or a negative influence on childhood overweight. Socioeconomic and biologic variables were tested to gain greater insight into the complexity of the overweight problem.

Assimilation was determined by the reported length of time the caregivers had lived in the U.S. Since the majority of the caregiver dyads identified themselves as Mexican and 72% had lived in the U.S. for less than 20 years, most of the caregivers

were first generation immigrants. It is important to note the caregivers were asked to self identify their ethnicity and were not prompted by ethnic definitions. According to the U.S. Census Bureau, a person's origin can be interpreted as their heritage, nationality group, lineage, country of their birth or the country of birth of their ancestors before immigrating to the U.S. (United States Census Bureau, 2000). Definitions, such as Mexican-American can apply to a variety of people and is not based on immigration status, citizenship or place of birth (Flegal, Ogden & Carroll, 2004). The designations in this study were chosen by the individuals.

The effect of parental assimilation to the United States on the risk of childhood overweight status showed no statistical significance between the number of years the female caregiver had lived in the United States and the child's BMI percentile rank. But, there was a statistically significant inverse correlation between the length of time the male caregiver lived in the United States and the child's BMI. In other words, the longer the male caregiver lived in the U.S., the lower the child's BMI percentile rank mean. Although this finding was a weak correlation it is contradictory to other research regarding assimilation and health status levels.

Research has shown an increase risk of overweight and obesity in both immigrant adults and children the longer they reside in the United States (Antecol & Bedard, 2006). In fact, trends in obesity and overweight in Mexican-American families over time are similar to those seen in other segments of the U.S. population and in other countries (Flegal, Ogden, Carroll, 2004). Corresponding research to support the inverse paternal relationship is currently unknown but the parenting style of Mexican or Mexican-

American male caregivers may explain some of the association between assimilation and the child's BMI.

Arredondo, et al (2006) was one of the few studies that included Latino fathers in the sample. The authors found that parenting styles characterized by monitoring and reinforcement were positively associated with children's healthier eating and physical activity whereas, a controlling style was negatively associated with healthy eating (Arredondo, et al., 2006). The concepts defining the *reinforcement* and *monitoring* styles were analogous to the *demandingness* and *responsiveness* concepts in the CFSQ which related to an authoritative style. Furthermore, the authors found that older, employed and more acculturated parents used less of a controlling style and more reinforcement and monitoring styles (Arredondo, et al., 2006). These results were related to all caregivers and not just fathers. Based on these findings, an argument could be made for improved healthy behaviors with increased acculturation although, as noted previously, the majority of current research negates this view. Therefore, further longitudinal research is needed to determine the influence of assimilation on the BMI status of caregivers and their children, especially in this population.

State-subsidized preschools provide parenting classes and nutritional education to family participants for the purpose of improving the health and development of the child. There was no statistical significance between the number of years the family participated in a state-subsidized preschool or a Head Start program and the child's BMI. The findings may be related to the instrument and the wording of the question. Parents appeared to answer the question as it applied to the targeted child only (mean of 1.3 years) and may not have included the years of participation with other children in the

family. Also, the preschools offer educational programs to the parents on a voluntary basis. It is unknown the rate of participation, the content of the programs or the frequency of the programs offered. The purpose of the question was to ascertain if parents received increased health or nutritional knowledge while attending the preschool but the wording of the question may have been confusing and failed to elicit the intended information.

Participation in the Women, Infants and Children's Food and Nutrition Service Program (WIC) is intended to safeguard the health of low income children. There was statistical significance between the number of years the family participated in a WIC program and the child's BMI. Length of time in the WIC program positively correlated with an increase in the child's BMI. These findings are in contrast to a study which found a reduced risk of overweight in Mexican-American children whose parents participated in the WIC program (Melgar-Quinonez & Kaiser, 2004). Though the WIC program offers nutritional classes, food vouchers and free formula to low income pregnant mothers and their children until the age of five, the types of foods provided to this population has been shown to contribute to obesity rather than preventing it.

In the WIC program, mothers are encouraged to breastfeed their infants and are allocated a larger percentage of food vouchers than mothers who accept formula and bottle feed. Food vouchers are used to attain high protein foods (tuna, legumes, etc.), whole grains and dairy products. A possible explanation for the current findings may be due to protein intake during the early postnatal months. Increased protein within the first 3-6 months of life has been associated with increased adiposity and body size due to higher plasma insulin levels and insulin-like growth factor (Moreno & Rodriguez, 2007). Furthermore, formula contains more protein and calories than breast milk. Research has

shown that children with increased adiposity at a young age were more likely to have been formula-fed or mixed-fed or were offered solid foods at an early age (Moreno & Rodriguez, 2007).

However, the findings could also be attributed to the limitations of the instrument. The instrument only asked the length of time the parents participated in the program but did not inquire as to the extent the parents participated in the services offered by the program. Specifically, the instrument did not ask when solid foods were introduced, if the availability of formula discouraged exclusive breastfeeding or if it shortened the length of time the child was breastfed. Further research is needed to determine which aspects of the WIC program correlates to the child's BMI.

Breastfeeding has been shown to have a protective effect against childhood overweight (Grummer-Strawn & Mei, 2004; Harder, Bergmann, Kallischnigg & Piagemann, 2005) and breastfeeding is associated with a lower risk of the child becoming overweight later in life (Taveras, Rifas-Shiman, Scanlon, Grummer-Strawn, Sherry & Gillman, 2006). Conversely, other research has demonstrated inconclusive results (Hediger, Overpeck, Kuczmarski, Ruan, 2001). In the current study, no statistical significance between the length of time the child was breastfed and the child's BMI was found. Thirty-six percent of the children were either overweight or obese, yet within the overweight group of children 76% were breastfed.

Once again, these finds may be related to the limitations of the instrument and the phrasing of the question. Parents who stated they breastfed their child were not queried about formula supplementation. Nor were parents asked about the early introduction of solid foods. Although the effects of breastfeeding on the risks of childhood overweight

have shown inconsistent results, further research is needed to determine the longitudinal effects of exclusive breastfeeding and mixed feeding in the Mexican or Mexican-American population.

Parental weight status has both a biological and environmental influence on childhood overweight. Furthermore, there is evidence of a strong genetic factor to the high prevalence of overweight and subsequent comorbidities in Hispanic children (Fisler & Warden, 2006). In the current study, the correlation between the BMI of the child and the female caregiver's BMI was found to be statistically significant, while the correlation between the BMI of the child and the male caregiver's BMI was found to be statistically non-significant. These findings are consistent with previous studies.

In one study, the rate of overweight children nearly tripled when the mother was overweight and more than quadrupled when the mother was obese (Hediger, et al., 2001). In another study including Hispanic families, children of obese mothers had nearly twice the odds of being overweight or obese than did children of normal weight mothers (Kimbrow, Brooks-Gunn & McLanahan, 2007). Yet, in research involving both parents, the paternal BMI status was not found to be significant (Melgar-Quinonez & Kaiser, 2004).

Birth weight has also been identified as a strong predictor of the weight status of preschool-age children (Dietz, 1994) and may account for the association between maternal weight status and childhood overweight. Furthermore, the presence of obesity in the parents of a young child was the primary predictor of that child developing obesity as an adult (Whitaker, Wright, Pepe, Seidel & Dietz, 1997). Familial factors such as dietary habits, parental feeding practices and role modeling behaviors are recognized as

influencing the obeseogenic environment. But parental overweight status emphasizes the heritability of the obesity-related trait and needs to be considered in further research with this population.

Implications for Nursing Theory, Nursing Practice and Nursing Education

Nursing Theory

The Interdependence Theory was used to inform this study by providing a framework for understanding how influence and communication affect behavior in dyad relationships. Specifically, interdependence is the effect one person has on another person's motives, preferences, behaviors and outcomes (Lewis, et al.2002). Therefore, the concept of interdependence is important to understanding behavioral changes between individuals.

Interdependence Theory model (see Figure 3) illustrates the need to understand what part of health behavior is influenced by the individual's own characteristics (horizontal lines), what part is attributed to the influence of the interacting partner's characteristics (diagonal lines) or what part is related to their mutual or reciprocal influences (vertical lines). Authoritative parenting uses influence and communication that is bidirectional, developmentally appropriate and responsive to the child. Authoritative parenting influences health behavior in the child by developing self confidence and mutual trust in their ability to make positive health choices (Lewis, et al., 2002).

The theory asserts that *influence* is a characteristic of the social environment that is external to the target or the recipient (Lewis, et al. 2002). In the current study, the

theoretical framework provided support for exploring the social variables that influence parental feeding practices and subsequently the health outcome of overweight. There was evidence to support an authoritative feeding style were associated with lower child BMI results as compared to the other three styles. Furthermore, the results emphasize the need to explore the social environmental and behavioral factors which may prevent caregivers from adopting this form of communication.

The theory also asserts that influence and communication are most effective in changing health behavior within relationships characterized by mutual trust, respect, and shared power and decision-making (Lewis, et al, 2002). Authoritative parenting illustrates this assumption within the context of a parent-child relationship. For example, the caregiver provides the structure and boundaries for the child to make healthy food choices which in turn empowers the child; the child exercises trust and control to make healthy choices, the caregiver responds appropriately to the child's choices, and the child develops self-confidence and internalizes the behavioral change.

The study utilized the Theory of Interdependence to frame the concept of authoritative parenting and to examine the influencing factors on authoritative feeding practices. The model was expanded to include additional concepts (previously identified in the literature) which explained the findings and set the foundation for future research. For example, the relationship characteristics of *trust* and *control* were included to clarify the association of *mutuality* to the positive influence between the parent-child dyad and the positive influence on the desired health behavior. Furthermore, external influences were modified to include variables identified in the literature which are associated with childhood overweight yet fit within the context of the original model. In the end, the

modified model identifies the external influences associated with parental feeding practices which influence the communication of desired behaviors to the child and consequently affect the child's health outcome. In the future, this model can be used to assist nurses in developing affective family interventions aimed at producing positive behavioral changes.

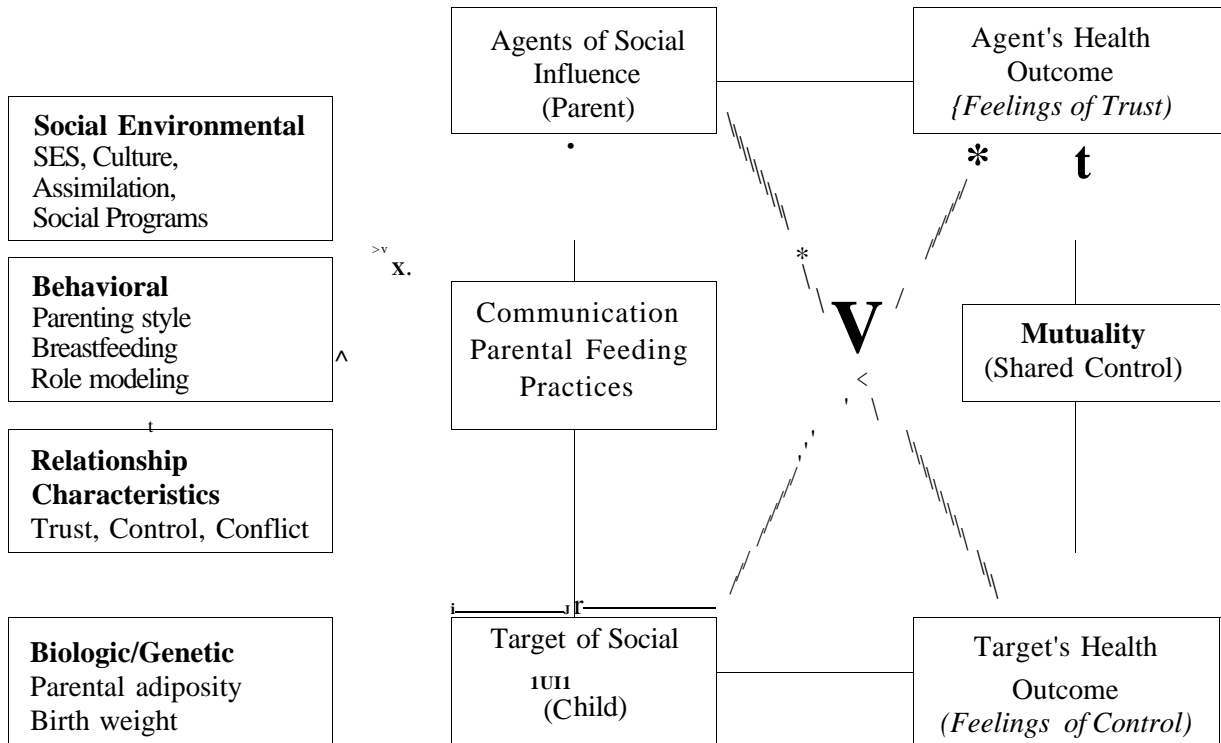


Figure 3. An adaptation of the Interdependence Model applied to childhood OW.

Nursing Practice

The correlation between childhood overweight and parental feeding practices in the Mexican and Mexican-American population is complex. Previous studies have shown contradictory results making the implementing of evidence-based nursing practice a challenge. Fortunately, nurses understand the significance of cultural diversity and

because nurses practice in diverse settings, they are well positioned to have a significant impact on childhood overweight. The results from the current study offer direction and support for nursing practice particularly related to identification, prevention and intervention strategies.

The Caregiver's Feeding Style Questionnaire (CFSQ) was developed to be used as both a research tool and a clinical tool. In the clinical setting, the CFSQ assesses caregiver feeding practices and thereby provides a basis for identifying parenting styles. Primary care nurses and nurses in schools and community settings can use this tool to guide family interventions regarding the health benefits associated with an authoritative style. Nurses play a pivotal role in educating parents and other healthcare providers regarding the relationship between normal child developmental, parenting styles and health outcomes. However, further evaluation of the CFSQ is warranted to substantiate its value in a clinical setting and in this ethnic population. Additional information relevant to nursing clinical practice was identified.

The study suggests feeding styles were similar in both male and female caregivers and that an authoritative feeding style may be related to improved health outcomes in both caregivers and children. These findings support the Interdependence Model and further emphasize the need for nurses to develop interventions that support affective caregiver-child communications. Furthermore, the findings suggest that nursing interventions target both caregivers especially when a child is found to be at risk and when change in feeding practices is necessary. It is imperative health behavior strategies involve both caregivers since parents have been identified as the central agents of change in childhood overweight (Golan & Crow, 2004).

Significant caregiver demographics and influential variables were found to demonstrate an association to overweight. Assimilation, as determined by the length of time the male caregiver lived in the U.S. was associated with a decrease in the child's BMI. Although this result is in contrast with previous research, assimilation with the dominate culture needs to be explored as a possible influencing factor on the caregiver's feeding practices. Nursing assessments should include, the length of time the parent has lived in the dominate culture, language limitations, income status and education as possible assimilation influences affecting health outcomes. Secondly, a positive correlation was demonstrated between the child's BMI and the length of time the family participated in the WIC program. A family history should contain information regarding WIC participation such as, the length of time the family participated, the services they received, the foods they purchased with the vouchers and the possible impact those services had on tangential behaviors such as breastfeeding, formula feeding and nutritional knowledge. Nursing interventions, as supported by the research, should highlight social services that promote healthy weight outcomes.

Thirdly, a positive correlation was seen in the weight status of the female caregiver and the child's BMI. The weight association between mother and child is consistent across the literature and accentuates the importance of preventive care. Nurses in primary cares settings need to educate mothers about healthy prenatal weight gain and healthy infant weight gain and to identify at-risk families for overweight. School nurses have the benefit of interacting with large groups of parents and children and identifying community-wide issues related to overweight. Furthermore, in low income areas where children often receive two meals a day on campus, school nurses can be instrumental in

lobbying for healthy balanced meals served in school cafeterias. Finally, all nurses need to be actively involved in policy development whenever a potential risk is identified that endangers the health and well-being of children. Nurses should take a lead role in educating parents, school administrators, community leaders and elected officials on the importance of implementing intervention aimed at preventing childhood overweight and advocating policy development.

Nursing Education

Health promotion and disease prevention is at the core of nursing and is the foundation of nursing education. Overweight and obesity, like diabetes and cardiac disease should be fundamental to nursing curricula. Childhood overweight challenges nurses to utilize basic nursing skills to assess and identify the overweight problem, and utilize advanced training to incorporate research into clinical practice, and to conduct research to develop appropriate interventions. Furthermore, nurses are challenged to confront childhood overweight from all levels of care; the individual, the family, the community and the nation.

Thorough nursing assessments are critical to understanding complicated health problems. Results from the current study emphasize the importance of understanding cultural variations in parenting styles and the influences these styles have on feeding practices. Educating nurses regarding cultural diversity in the U.S. is not enough. Nurses need to identify cultural stereotypes and then have the knowledge and skills to assess variations within each individual family. Likewise, nurses need to identify external influences and then understand how these influences impact the family, their culture and

their feeding practices. The skills to perform a focused but comprehensive nursing assessment are imperative before prevention or interventional strategies can be developed and implemented.

Utilizing a theoretical framework to guide our understanding of complex health issues is an important aspect of nursing education. The overweight discourse in low income ethnic minority families was multifaceted and necessitated a theoretical framework to understand the intricate relationship between influencing variables on the caregiver-child communication style and the consequential health outcomes. The findings from this study supported and enhanced the Interdependence model and offered direction for further research involving additional variables which may impact feeding practices.

Nursing education programs at all levels can encourage students to conduct research directed at the overweight epidemic. Participation in community action projects at the undergraduate level to developing descriptive research studies at the graduate level allow nurses the opportunity to add to the current body of knowledge and to enrich clinical practice. Furthermore, nursing education should emphasize the importance for nurses to be active in making public policy changes. Affective interventions in reducing the overweight problem are not possible unless policy changes can occur at all levels of government. It is vital for nurses to bring the appropriate leaders to the table and to be present at the table when those decisions are made.

Finally, nursing education should encourage nurses to examine our rich history in order to gain insight and understanding into our current health dilemmas. Childhood overweight within the last 30 years was preceded by childhood malnutrition just 50 years prior. During the first decades of the 20th century when poverty and food scarcity was a

major health concern, it was the public health nurses and school nurses who were charged with the responsibility to work with the community to solve the existing health dilemma. Public health nurses played an important role in resolving the undernourishment problems by assisting families with maximizing food budgets and educating women on the purchasing of inexpensive nutrient-rich foods (Anderson, 1947; Fisher, 1935; Schawe, 1939). Likewise, school nurses were influential in implementing mid-day snacks and hot lunch programs with the goal of reducing the incidents of malnutrition, decreasing absenteeism and improving the overall health of the child (Eckhardt, 1923; Wood, 1921). Nursing has a long history of providing care with diverse populations, in diverse settings and in diverse roles. Nurses need to embrace our rich history, our unique health perspective and continue to apply those principles to contemporary health problems.

REFERENCES

- Allen, J.P. (2006). How successful are recent immigrants to the United States and their children? *Association of Pacific Coast Geographers Yearbook*, 68, 9-32.
- Anderson, L. (1947). Better nutrition for everyone. *Public Health Nursing*, 39(10), 495-497.
- Antecol, H. & Bedard, K. (2006). Unhealthy assimilation: Why do immigrants converge to American health status levels? *Demography*, 43(2), 337-360.
- Arredondo, E.M., Elder, J.P., Ayala, G.X., Campbell, N., Baquero, B., & Duerksen, S. (2006). Is parenting style related to children's healthy eating and physical activity in Latino families? *Health Education Research*, 21(6), 862-871.
- Baker, S., Barlow, S., Cochran, W., Fuchs, G., Klish, W., Krebs, N., et al. (2005). Overweight children and adolescents: A clinical report of the North American Society for Pediatric gastroenterology, hepatology and nutrition. *Journal of Pediatric Gastroenterology and Nutrition*, 40(5), 533-543.
- Barton, A.J., Gilbert, L., Baramée, J. & Granger, T. (2006). Cardiovascular risk in Hispanic and Non-Hispanic preschoolers. *Nursing Research*, 55(3), 172-179.
- Baumrind, D. (1971). Rearing Competent Children. In W. Damon (Ed.), *Child Development Today and Tomorrow*. San Francisco: Jossey-Bass.
- Baumrind, D. (1996). The discipline controversy revisited. *Family Relations*, 45, 405-411.
- Baughcum, A.E., Powers, S.W., Johnson, S.B., Chamberlin, L.A., Deeks, C.M., Jain, A., et al. (2001). Maternal feeding practices and beliefs and their relationship to

- overweight in early childhood. *Developmental and Behavioral Pediatrics*, 22(6), 391-408.
- Behnke, A.O., Taylor, B.A., Parra-Cardone, J.R. (2008). "I hardly understand English, but...":Mexican origin fathers describe their commitment as fathers despite the challenges of immigration. *Journal of Comparative Family Studies*, 39(2), 187-205.
- Birch, L.L. & Fisher, J.O. (1998). Development of eating behaviors among children and adolescents. *Pediatrics*, 101, 539-549.
- Birch, L.L., Fisher, J.O. & Davison, K.K. (2003). Learning to overeat: Maternal use of restrictive feeding practices promotes girls' eating in the absence of hunger. *American Journal of Clinical Nutrition*, 78, 215-220.
- Burrows, J.D. (2007). Nutrition for a lifetime: Childhood nutrition. *Nutrition Today*, 42(4), 160-167.
- Calle, E. E., Thun, M. J., Petrelli, J. M., Rodriguez, C, & Heath, C. W. (1999). Body-mass index and mortality in a prospective cohort of U.S. adults. *The New England Journal of Medicine*, 341(15), 1097-1105.
- Cardona, P.G., Nicholson, B.C., & Fox, R.A. (2000). Parenting among Hispanic and Anglo-American mothers with young children. *The Journal of Social Psychology*, 140(3), 357-365.
- Centers for Disease Control and Prevention. Children and teen BMI. Retrieved November 29, 2009 from www.cdc.gov/healthvweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

Centers for Disease Control and Prevention. National Health and Nutrition Examination Survey. Retrieved January 30, 2008 from

<http://www.cdc.gov/nchs/products/pubs/pubd/hestats/overweight.pdf>

Devaney, V. & Fox, M.K. (2008). Dietary intakes of infants and toddlers: Problems start early. In L.B. Birch & W. Dietz (Eds.), *Eating behaviors of the young child: prenatal and postnatal influences on healthy eating*, East Grove Village, IL: American Academy of Pediatrics.

Dietz, W.H. (1994). Critical periods in childhood for the development of obesity. *American Journal of Clinical Nutrition*, 59, 955-959.

Dietz, W.H. (1997). Periods of risk in childhood for the development of adult overweight-What do we need to learn? *Journal of Nutrition*, 127, 1884S-1886.

Eckhardt, B. (1923). A hot lunch plan that worked. *The Public Health Nurse*, 15(10), 502-504.

Esteinou, R. (2005). Parenting in Mexican society. *Marriage and Family Review*, 36(3/4), 7-29.

Faith, M.S., Berkowitz, R., Stallings, V.A., Kerns, J., Storey, M., & Stunkard, A.J. (2004). Parental feeding attitudes and styles and child body mass index: Prospective analysis of a gene-environment interaction. *Pediatrics*, 114, e429-e436.

Fisher, R.W. (1935). What shall a public health nurse tell families about buying food? *Public Health Nursing*, 27(1), 11-16.

- Fisher, J.O. & Birch, L.L. (1999). Restricting access to palatable foods affects children's behavioral response, food selection, and intake. *American Journal of Clinical Nutrition*, 69, 1264-1272.
- Fisher, J.O. & Birch, L.L. (2008). *Feeding children in an environment of plenty: Lessons from the laboratory*. In L.B. Birch & W. Dietz (Eds.), *Eating behaviors of the young child: prenatal and postnatal influences on healthy eating*, East Grove Village, IL: American Academy of Pediatrics.
- Fisler, J.S. & Warden, C.H. (2006). Viva la familia study: Genetic and environmental contributions to childhood obesity and its comorbidities in the Hispanic population *American Journal of Clinical Nutrition*, 84, 646-654.
- Golan, M. & Weizman, A. (2001). Familial approach to the treatment of childhood obesity: Conceptual model. *Society for Nutrition Education*, 33(2), 102-107.
- Golan, M. & Crow, S. (2004). Parents are the key players in the prevention and treatment of weight-related problems. *Nutrition Review*, 62(1), 39-50.
- Golan, M. (2006). Parents as agents of change in childhood obesity - From research to practice. *International Journal of Pediatric Obesity*, 1(2), 66-76.
- Grummer-Strawn, L.M. & Mei, Z. (2004). Does breastfeeding protect against pediatric overweight? Analysis of longitudinal data from the centers of disease control and prevention pediatric nutrition surveillance system. *Pediatrics*, 133(2), e81-e86.
- Harder, T., Bergmann, R., Kallischnigg, G., & Piagemann, A. (2005). Duration of breastfeeding and risk of overweight: A meta-analysis. *American Journal of Epidemiology*, 162(5), 397-403.

- Hawkes, G.R. & Taylor, M. (1975). Power structure in Mexican and Mexican-American farm labor families. *Journal of Marriage and the Family*, November, 807-811.
- Hediger, M.L., Overpeck, M.D, Kuczarski, R.J. & Ruan, W.J. (2001). Association between infant feeding and overweight in young children. *The Journal of the American Medical Association*, 285(19), 2453-2460.
- Hughes, S.O., Power, T.G., Fisher, J.O., Muller, S. & Nicklas, T.A. (2005). Revisiting a neglected construct: parenting styles in a child-feeding context. *Appetite*, 44, 83-92.
- Institute of Medicine. (2004). Childhood obesity in the United States: Facts and figures. Retrieved May 9, 2008 from <http://www.iom.edu/Obiect.File/Master/22/606/FrNALfactsandfigures2.pdf>
- Julian, T.W., McKenry, P.C., & McKelvey, M.W. (1994). Cultural variations in parenting: Preceptions of Caucasians, African-American, Hispanic and Asian-American parents. *Family Relations*, 43, 30-37.
- Kimbro, R.T., Brooks-Gunn, J., & McLanahan, S. (2007). Racial and ethnic differentials in overweight and obesity among 3-year-old children. *American Journal of Public Health*, 97(2), 298-305.
- Krebs, N.F., Baker, R.D., Greer, F.R., Heyman, M.B., Jaksic, T., & Lifshitz, F. (2003). Prevention of pediatric overweight and obesity. *Pediatrics*, 112(2), 424-430.
- Lewis, M.A., DeVillis, B.M., & Sleath, B. (2002). *Social Influence and interpersonal communication in health behavior*. In K. Glanz, B.K. Rimer & F.M. Lewis, (Eds.). *Health behavior and health education: Theory research, and practice*. (3rd ed.). San Francisco: Jossey-Bass.

- Lutfiyya, M.N., Garcia, R., Dankwa, C.M., Young, T., & Lipsky, M. (2008). Overweight and obesity prevalence rates in African American and Hispanic children: An analysis of data from the 2003-2004 national survey of children's health. *Journal of the American Board of Family Medicine*, 21(3), 191-199.
- Luther, B. (2007). Looking at childhood obesity through the lens of Baumrind's parenting typologies. *Orthopedic Nursing*, 26(5), 270-278.
- Maccoby, E.E. & Martin, J. A. (1983). *Socialization in the context of the family: Parent-child interaction*. In P.H. Mussen (Ed.), *Handbook of child psychology*, Vol. IV, (4thed.). New York: John Wiley & Sons.
- Matheson, D.M. & Robinson, T.N. (2008). Obesity in young children. In L.B. Birch & W. Dietz (Eds.), *Eating behaviors of the young child: prenatal and postnatal influences on healthy eating*, East Grove Village, IL: American Academy of Pediatrics.
- McDowell, M.A., Fryar, C.D., Hirsch, R., & Ogden, C.L. (2005). Anthropometric reference data for children and adults: U.S. population, 1999-2002. *Advanced Data from Vital and Health Statistics*, 361, 1-31.
- Melgar-Quinonez, H.R. & Kaiser, L.L. (2004). Relationship of child-feeding practices to overweight in low-income Mexican-American preschool children. *Journal of the American Dietetic Association*, 104, 1110-1119.
- Moreno, L.A. & Rodriguez, G. (2007). Dietary risk factors for development of childhood obesity. *Current Opinion in Clinical Nutrition and Metabolic Care*, 10, 336-341.

- Ogden, C, Carroll, M.D., Curtin, L.R., McDowell, M.A., Tabak, C.J., Flegal, K.M. (2006). Prevalence of overweight and obesity in the United States, 1999-2004. *Journal of American Medical Association*, 295(13), 1549-1555
- Patrick, H., Nicklas, T.A., Hughes, S.O., Morales, M. (2005). The benefits of authoritative feeding style: Caregiver feeding styles and the children's food consumption patterns. *Appetite*, 44, 243-249.
- Perreira, K.M., Chapman, M.V. & Stein, G.L. (2006). Overcoming challenges and finding strength in a new immigrant Latino community. *Journal of Family Issues*, 27(10), 1383-1414.
- Polit, D.F. & Beck, C.T. (2004). *Nursing Research: Principles and Methods*. (4th ed.). Philadelphia: Lippincott.
- Powers, T.G., McGrath, M.P., Hughes, S.O. & Manire, S.H. (1994). Compliance and self-assertion: Young children's responses to mother versus father. *Developmental Psychology*, 30(6), 980-989.
- U.S. Department of Health and Human Services (2009). Obesity prevalence among low-income, preschool-aged children - United States, 1998-2008. *Morbidity and Mortality Weekly Report: July, 24, 2009*, 58(28), 769-797.
- Rhee, K.E., Lumeng, J.C., Appugliese, D.P., Kaciroti, N., & Bradley, R.H. (2006). Parenting styles and overweight status in first grade. *Pediatrics*, 117(6), 2047-2054.
- Schawe, W. (1939). Nutrition service to the family. *Public Health Nursing*, 31(8), 426-435.

- Spruijt-Metz, D., Lindquist, C.H., Birch, L.L., Fisher, J.O., & Gorman, M.I. (2002).
Relation between mothers' child-feeding practices and children's adiposity.
American Journal of Clinical Nutrition, 75, 581-586.
- Strauss, R.S. (2000). Childhood obesity and self-esteem. *Pediatrics*, 105(1), 1-5.
- Taveras, E.M., Rifas-Shiman, S.L., Scanlon, K.S., Grummer-Strawn, L.M., Sherry, B. &
Gillman, M.W. (2006). To what extent is the protective effect of breastfeeding on
future overweight explained by decreased maternal feeding restriction?
Pediatrics, 118(6), 2341-2348.
- United States Census Bureau. County and State Quick Facts: Hispanic Origin 2000.
Retrieved November 8, 2009 from
http://quickfacts.census.gov/qfd/meta/long_68188.htm.
- Varela, R.E., Vernberg, E.M., Sanchez-Sosa, J.J., Riveros, A., Mitchell, M., &
Mashunkashey, J. (2004). Parenting style of Mexican, Mexican American, and
Caucasian- Non Hispanic families: Social context and cultural influences. *Journal
of Family Psychology*, 18(4), 651- 657.
- Wake, M., Nicholson, J.M., Hardy, P. & Smith, K. (2007). Preschooler obesity and the
parenting styles of mothers and fathers: Australian national population study.
Pediatrics, 120(6), e1520-e1527.
- Whitaker, R.C., Wright, J.A., Pete, M.S., Seidel, K.D. & Dietz, W.H. (1997). Predicting
obesity in young adulthood from childhood and parental obesity. *The New
England Journal of Medicine*, 337(13), 869-873.
- Whitaker, R.C., Pepe, M.S., Wright, J.A., Seidel, K.D. & Dietz, W.H. (1998). Early
adiposity rebound and the risk of adult obesity. *Pediatrics*, 101(3), 1-6.

Wilkins, S.C., Kendric, O.W., Stitt, K.R., Stinett, N., & Hammerlund, V.A. (1998).

Family functioning is related to overweight in children. *Journal of the American Dietetic Association*, 98(5), 572-574.

Wood, A.H. (1921). Building up the mal-nourished child. *The Public Health Nurse*, 13(11), 617-620.

Wu, F-L., Yu, S., Wei, I-L., & Yin, T.J.C. (2003). Weight-control behavior among obese children: Association with family related factors. *Journal of Nursing Research*, 11(1), 19-29.

Yperman, A.M. & Vermeersch, J.A. (1979). Factors associated with children's food habits. *Journal of Nutrition Education*, 11(2), 72-76.

Zive, M.M., Frank-Spohrer, G.C., Sallis, J.F., McKenzie, T.L., Elder, J.P., Berry, C.C., et al. (1998). Determinates of dietary intake in a sample of white and Mexican-American children. *Journal of the American Dietetic Association*, 98(11), 1282-1289.

APPENDICES

APPENDIX A: QUESTIONNAIRE (ENGLISH)

Caregiver's Feeding Style Questionnaire

<p><i>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.</i></p> <p><i>How often during the dinner meal do YOU...</i></p>		Never	Rarely	Some times	Most of the time	Always
1.	Physically 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).	1	2	3	4	5
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").	1	2	3	4	5
3.	Encourages the child to eat by arranging the food to make it more interesting (for example, making smiley faces on the pancakes).	1	2	3	4	5
4.	Ask the child questions about the food during dinner.	1	2	3	4	5
5.	Tell the child to eat at least a little bit of food on his or her plate.	1	2	3	4	5
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").	1	2	3	4	5
7.	Say something to show your disapproval of the child for not eating dinner.	1	2	3	4	5
8.	Allow the child to choose the foods he or she wants to eat for dinner from foods already prepared.	1	2	3	4	5
9.	Compliment the child for eating food (for example, "What a good boy! You're eating your beans").	1	2	3	4	5
10.	Suggest to the child that he or she eats dinner, for example by saying, "Your dinner is getting cold".	1	2	3	4	5

11.	Say to the child "Hurry up and eat your food".	1	2	3	4	5
12.	Warn the child that you will take away 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").	1	2	3	4	5
13.	Tell the child to eat something on the plate (for example, "Eat your beans").	1	2	3	4	5
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").	1	2	3	4	5
15.	Say something positive about the food the child is eating during dinner.	1	2	3	4	5
16.	Spoon-feed the child to get him or her to eat dinner.	1	2	3	4	5
17.	Help the child to eat dinner (for example, cutting the food into smaller pieces).	1	2	3	4	5
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").	1	2	3	4	5
19.	Beg the child to eat dinner.	1	2	3	4	5

APPENDIX B: QUESTIONNAIRE (SPANISH)

Caregiver's Feeding Style Questionnaire

Estas preguntas se tratan de SUS interacciones con su niño pre-escolar durante la cena. Circule la respuesta que mejor describe cuan a menudo estas cosas ocurren. Si no está segura, escoge su mejor alternativa.

Durante la cena, cuan a menudo...

NUNCA RARA
 SIEMPRE ALGUNA
 SIEMPRE SUECES O SEGUID

1. Físicamente lucha usted con el niño(a) para que el o ella coma. (Por ejemplo, pone el niño físicamente en la silla)
- 2- Le promete al niño(a) algo que no son alimentos si el o ella come. (Por ejemplo, "si te comes los frijoles, podemos jugar pelota después la cena.")
3. Le anima al niño(a) a comer arreglando los alimentos para que luzcan más interesantes (Por ejemplo, adornas los pan queques con caras sonrientes.)
4. Le hace preguntas al niño acerca de la comida durante la cena.
- 5- Le dice al niño(a) que coma por lo menos un poco de la comida servida en su plato.
6. Razona con el niño(a) para que coma. (Por ejemplo, "La leche es buena para tu salud, porque te ayudara a crecer más fuerte.")
7. Critica al niño(a) por no comerse la cena.
8. Le permite que el niño(a) escoja los alimentos que desea comer para la cena de los alimentos que fueron preparados.
9. Le complementa al niño(a) por comerse los alimentos. (Por ejemplo, "Que niño(a) más bueno(a)! Te estas comiendo tus frijoles.")
10. Le sugiere al niño(a) que se coma la cena. (por ejemplo diciendo, "Tu cena se esta enfriando").
11. Le dice al niño(a), "Apurate y come tus alimentos."

12. Le advierte al niño(a) que le va quitar algo que no son alimentos si no come. (Por ejemplo, "Si no terminas la carne, no podras jugar despues de la cena.") ^
13. Le dice al niño(a) que coma algun alimento del plato (Por ejemplo, "Comete los frijoles.") <
14. Advierte al niño(a) que le vas a quitar algun alimento si no come. (Por ejemplo, "Si no terminas los vegetales, no comeras fruta.") .
15. Le comenta algo positivo acerca de la comida que el niño(a) esta comiendo durante la cena. 1
16. Le da la comida al niño(a) con la cuchara para que el o ella coma la cena. 1
17. Le ayuda al niño(a) a comer la cena (por ejemplo, cortando los alimentos en pedazos mas pequefios). .
18. Le anima al niño(a) para que coma algo usando comida como recompensa. (Por ejemplo, "Si terminas los vegetales, te voy a dar frutas.") .
19. Le ruega al niño(a) a comer la cena. 1

APPENDIX C: DEMOGRAPHIC QUESTIONNAIRE (ENGLISH)

Parent's Demographic and Health Profile Questionnaire

Code _____

1. What is your child's date of birth? _____
2. What is your child's gender? Male or Female
3. What is your age? _____
4. Are you the mother or female caregiver? YES
Are you the father or male caregiver? YES
5. What is your race or ethnicity? Mexican _____ Mexican-American _____
Hispanic _____ Latino _____
6. How many years have you lived in the United States? _____
7. How many years have you had children at this preschool? _____
8. Are you currently in a WIC program? YES NO
9. How many years or months have you participated in a WIC program? _____
10. How long was your child breastfed? _____ months _____ years _____ never

Staff Only: Ht: Wt: BMI:

APPENDIX D: DEMOGRAPHIC QUESTIONNAIRE (SPANISH)

Numero clave

Cuestionario de datos personales de los padres

1. ¿Que edad tiene su hij(a)o? _____
2. ^Sexo de su nina(o)? Hombre _____ o Mujer _____
3. ^Que edad tiene usted? _____
4. ^Es usted la madre o quien cuida a los nifios? Si ^ _____ No

^Es usted el padre o quien cuida a los ninos? Si _____ No
5. ^A que raza o etnicidad pertenece? Mexicano _____

Mexico-Americano _____ Hispano _____ Latino _____
6. <?,Cuantos afios ha vivido en EEUU? _____
7. ^Cuantos anos llevan sus hijos en esta guarderia / escuela? _____
8. ^Actualmente esta en el programa WIC? SI NO
9. ^Cuantos meses o anos ha participado en el programa WIC? _____
10. ^Cuanto tiempo fue amamantado a su hija(o)? _____ meses _____ anos
nunca

Staff Only: Ht: ____ Wt: _____ BMI:

APPENDIX F: APPROVAL FROM PRESCHOOL DIRECTOR

Letter of Support



CHILD DEVELOPMENT DEPARTMENT
Pomona Unified School District

166A E. Holt Avenue, Suite 130, Pomona, CA 91767
 (951) 397-4740, F.x. 5221 | Fax: (951) 6LV5158
 Patricia Lariviere, Administrative Director

December 3, 2018

To: Patricia Lariviere -Counselor:

I have the honor to inform you that the Pomona Unified School District (PUSD) is currently conducting research on the impact of the California State Office of Education (CDE) on the district's operations. This research is being conducted in order to determine the best way to support the district's operations and to ensure that the district is providing the highest quality of education for all students. The research will be conducted over the next several months and will involve a number of activities, including interviews with district staff, a review of district documents, and a site visit to the district's facilities. The results of the research will be used to inform the district's operations and to ensure that the district is providing the highest quality of education for all students.

- Arroyo
- Alton
- San Anionki

Sincerely,

Patricia Lariviere
 Administrative Director
 • Patricia.Lariviere@pucniac.org

APPENDIX G: CONSENT FORM (ENGLISH)

Research Participant Consent Form

Parenting Style and Preschoolers' Risk of Overweight

Introduction

Darlene McPherson-Ventura is a doctoral student in nursing at the Hahn School of Nursing and Health Science at the University of San Diego. You are invited to participate in a dissertation study she is conducting for the purpose of exploring the feeding styles of Mexican or Mexican-American parents.

Procedures

The research project will involve one meeting that will take about 60 minutes. Darlene will ask you to fill out 2 questionnaires that will ask you information about how you interact with your child during the dinner meal. A typical question on these questionnaires is, "Do you ask your child questions about the food during dinner?" You will also be asked general questions about yourself such as age, how long you have lived in the United States, and how long your child was breastfed? About a month after you fill out these questionnaires, Darlene might be telephoning you again to ask if you would like to be in a discussion (focus) group regarding feeding your child. If she does call you, she will be giving you additional information about what that part of the study will involve. If you don't want to be considered for the focus group, just let her know.

Risks

There may be a risk that you may feel tired or fatigued while filling out the questionnaires. You can stop at any time to rest, decide not to fill out all the forms, or withdraw from the study anytime.

Sometimes when people are asked to think about their feelings, they feel sad or anxious. If you would like to talk to someone about your feelings at any time, you can call toll-free 24 hours a day:

Tri-City Mental Health at 909-623-6131

Mental Health Emergency Hotline at 1 -800-854-7771

Benefits

The benefit to participating will be in knowing that you helped nurses learn how to better help people with feeding their preschool-aged children.

Participant Costs and Payment

The only cost to you is 60 minutes of your time.

APPENDIX H: CONSENT FORM (SPANISH)

Research Participant Consent Form
Autorizacion para el proyecto de investigacion

Estilo de crianza y el riesgo de sobrepeso en ninos pre-escolares

Introduction

Darlene McPherson-Ventura es una estudiante avanzada de enfermeria en la *Facultad Hahn de enfermeria y ciencias de salud de la Universidad de San Diego*. Queda invitado a participar en un estudio para una disertacion que ella conduce con el proposito de explorar los estilos de alimentacion de padres mexicanos o mexico americanos.

Procedimientos

El proyecto de investigacion incluira una junta que durara aproximadamente 60 minutos. Darlene le pedira que conteste dos cuestionarios que le pidiran informacion acerca de como convive con su hijo durante la cena. Una pregunta tipica de estas encuestas es "<Le hace preguntas a su hijo acerca de los alimentos durante la cena?" Tambien le hard preguntas personales generates como su edad y cuanto tiempo ha vivido en los EEUU y cuanto tiempo fue amamantado su niia(o). Aproximadamente un mes despues de haber contestado estos cuestionarios, Darlene le podria hablar por telefono para preguntarle si le gustaria tomar parte en una platica en grupo acerca de la alimentacion de su hijo. Si le llama, ella le dara informacion adicional acerca de esa parte del proyecto. Si no desea participar en la platica, simplemente hagase lo saber.

Riesgos

Existe el riesgo de que se canse o se fatigue mientras contesta los cuestionarios. En cualquier momento puede detenerse y descansar, decidir que no quiere llenar todos los formularios o salirse del estudio. En algunas ocasiones cuando se les hacen preguntas acerca sus emociones, la gente siente tristeza o ansiedad. Si desea platicar con alguien acerca de sus emociones, puede llamar sin ningun costo las 24 horas del dia, al:

Tri-City Mental Health, 909-623-6131

Mental Health Emergency Hotline, 1-800-854-7771

Beneficios

El beneficio de participar sera en saber que ayudo a las enfermeras a aprender como mejor ayudar a la gente con la alimentacion de sus ninos.

Costos y pago para los participantes

El unico costo para usted es 60 minutos de su tiempo. Recibira \$20 en una tarjeta de regalo para una tienda local por haber participado en el proyecto de investigacion.

Darlene le otorgara el certificado de regalo aun si empieza la entrevista y decide no terminarla, o decide salirse del estudio por completo.

Confidencialidad

Cualquier information proveida y /o documentation que lo identifique permanecera confidencial y archivada bajo Have en la casa de Darlene McPherson-Ventura por un minimo de 5 afios. Toda la information que usted proporciono sera identificada por una clave y sin su nombre. Los resultados de este proyecto de investigation pueden hacerse piiblicos y la information citada en revistas o juntas profesionales, pero la information de este estudio sera reportada en grupo y no de forma individual.

Participation voluntaria v salida

La participation en este proyecto de investigation es absolutamente voluntaria y puede rehusarse a contestar cualquier pregunta y / o salirse del estudio en cualquier momento. Si decide salirse nadie se molestara con usted. Darlene le dara el certificado de \$20. El decidir que no participant o contestant algunas de las preguntas no tendra ningun efecto en sus servicios medicos o ningun otro servicio que reciba de doctores, enfermeras, servicios sociales o de la guarderia / escuela.

Mas information ,

Si tiene mas preguntas acerca de este proyecto de investigation, favor de comunicarse con Darlene McPherson-Ventura al (909) 469-9495. Tambien puede comunicarse con la Dra. Anita Hunter, la profesora quien supervisa la investigation de Darlene en la facultad de enfermeria de la Universidad de San Diego School al (619) 260-4548, para mas information.

He leido y entiendo esta forma, y accedo a la investigation que me describe. He recibido mi propia copia de esta autorizacion para mi archivo.

Firma del participante

Fecha

Nombre del participante (Escrito)

Firma del investigador

Fecha

APPENDIX I: FLYER (ENGLISH)



**WOULD YOU LIKE TO
PARTICIPATE IN A STUDY
ABOUT PARENTS AND HOW
THEY FEED THEIR
CHILDREN?**

**IF YOU ARE
A MEXICAN OR MEXICAN-AMERICAN
MOTHER AND FATHER
OF A PRESCHOOL-AGE CHILD**

- * YOU ARE INVITED TO SHARE YOUR EXPERIENCES ABOUT YOUR CHILD.
- * THE SURVEY WILL TAKE APPROXIMATELY 60 MINUTES TO COMPLETE.
- * A GRADUATE STUDENT RESEARCHER FROM THE UNIVERSITY OF SAN DIEGO, CALIFORNIA IS LOOKING FOR 80 MOTHER AND FATHER **COUPLES** TO TAKE PART IN THE STUDY.
- * EACH PARENT WILL RECEIVE A GIFT CERTIFICATE TO A LOCAL STORE FOR PARTICIPATING IN THE STUDY.

PLEASE CONTACT
DARLENE MCPHERSON
at
(909) 469-9495



APPENDIX J: FLYER (SPANISH)



¿LE GUSTARIA PARTICIPAR
EN UNA ENCUESTA ACERCA
DE LOS PADRES Y COMO
ALIMENTAN A SUS HIJOS?

SI USTEDES SON
MADRE Y PADRE
MEXICANOS 6 MEXICO-AMERICANOS
DE UN INFANTE DE ED AD PREESCOLAR

- * QUEDAN INVITADOS A COMPARTIR SUS EXPERIENCIAS ACERCA DE SU HIJO
- * LES TOMARA APROXIMADAMENTE 60 MINUTOS PARA COMPLETAR LA ENCUESTA
- * UNA ESTUDIANTE DE LA UNIVERSIDAD DE SAN DIEGO, CALIFORNIA BUSCA A **80 PAREJAS** DE MADRE Y PADRE PARA PARTICIPAR EN UN ESTUDIO
- * CADA PADRE RECIBIRA UNA TARJETA DE REGALO PARA UNA TIENDA LOCAL POR PARTICIPAR EN EL ESTUDIO

FAVOR DE COMUNICARSE
CON
DARLENE MCPHERSON
AL
(909) 469-9495

