

Associations Between Parent-Adolescent Health-Related Conversations and
the Mealtime Environment in Hispanic Families

by

Gabriela Martinez

A Thesis Presented in Partial Fulfillment
of the Requirements for the Degree
Master of Science

Approved August 2021 by the
Graduate Supervisory Committee:

Sonia Vega-Lopez, Chair
Meg Bruening
Stephanie Ayers

ARIZONA STATE UNIVERSITY

May 2022

ABSTRACT

Objectives. To determine how health-related conversations between parents and their adolescent children are associated with mealtime media device use by adolescents.

Methods. A sample of Hispanic parents ($n=344$; 40.4 ± 6.6 years; 89.2% female) of 6th, 7th, or 8th grade adolescents enrolled in a parenting intervention promoting healthy nutrition and substance use prevention. Parents completed baseline surveys to self-report the frequency with which they had health- or weight-related conversations with their adolescent child, and the frequency with which the adolescent used media devices during mealtimes (television/movie watching, cellphone use/texting, hand-held gaming devices, listening to music with headphones). Associations between health-related conversations and mealtime media devices were assessed with Spearman's rank correlations. Chi-square tests and crosstabs were used to identify differences in parents setting limits on media use during mealtime depending on adolescent gender. Independent sample t-tests were used to compare the frequency of health- and weight-related conversations and media device use during mealtime based on adolescent gender.

Results. Reported conversations about healthy eating, being physically active, and general weight of the adolescent were not associated with reported use of media devices by adolescents during mealtimes. Having conversations related to the adolescent weighing too much was positively and significantly correlated with television/movie watching ($r=0.213$; $p<0.001$), talking on a cellphone ($r=0.119$; $p=0.034$), using hand-held

gaming devices ($r=0.131$; $p=0.022$), and listening to music with headphones ($r=0.129$; $p=0.022$). Having conversations about exercising to lose weight was also significantly correlated with television/movie watching during mealtimes ($r=0.134$; $p=0.017$). Parents reported having more frequent conversations about weighing too much with males when compared to adolescent females (2.45 ± 1.43 vs. 1.93 ± 1.28 ; $t\text{-stat}= 3.58$; $p=0.005$). Parents also reported more frequent weight-related conversations overall (weight-related scale) with males when compared to female adolescents (2.73 ± 1.39 vs 2.52 ± 1.26 ; $t\text{-stat}=1.51$; $p=0.024$).

Conclusion. Findings suggest that higher frequency of weight-related conversation is associated with higher usage of media devices during mealtimes. Whether parenting practices, parental concerns about their children's weight, and the home mealtime environment play a role on adolescent weight status in Hispanic households warrants further investigation.

ACKNOWLEDGEMENTS

This thesis is supported by NIMHD/NIH, award 2U54 MD002316-13 (PI: Marsiglia) and by the HRSA of the U.S. Department of Health and Human Services as part of Maternal Child Health Bureau Nutrition Training Grant, The TRANSCEND Program in Maternal Child Health Nutrition and Childhood Obesity Prevention (T79MC31884; PI: Bruening). The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS or the U.S. Government.

TABLE OF CONTENTS

	Page
LIST OF TABLES	vi
CHAPTER	
1 INTRODUCTION	1
Purpose of Study	6
Research Aims and Hypotheses	6
Definition of Terms	8
Delimitations	9
2 THE REVIEW OF LITERATURE	10
Prevalence of Obesity in Hispanic Population	10
Child’s Dietary Intake and Parental Influence	11
Home Food Environment	11
Parenting Feeding Practices	11
Motivating and Encouraging Strategies	15
Family Meal Frequency	16
Screen Time Use	18
Food Accessibility and Availability	20
Mealtime Rules	23
Weight-Related Conversations	24
Gender Differences in Parenting Practices	27
Summary	28
3 METHODS	31

CHAPTER	Page
Study Design.....	31
IRB Approval and Consent.....	31
Participants and Recruitment	32
Data Collection	32
Measures	33
Statistical Analysis.....	34
4 RESULTS	36
Descriptive Statistics.....	36
5 DISCUSSION	46
Strengths and Limitations	64
Implications and Future Directions	65
Conclusions.....	67
REFERENCES	69
APPENDIX	
A IRB APPROVAL FORM.....	78
B PARENT CONSENT FORM.....	83
C PARENT PERMISSION FORM	87
D ADOLESCENT ASSENT FORM	89
E PARENT SURVEY.....	93

LIST OF TABLES

Table	Page
1. Characteristics of Study Participants	37
2. Parent-Reported Frequency of Health-Related Conversations with Their Adolescent Child.....	38
3. Parent-Reported Frequency of Media Use by Their Adolescent Child During Mealtimes.....	39
4. Differences In Frequencies of Health-Related Conversations Between Parents and Adolescents Based on Whether Parents Set Rules About Media Use During Mealtime	40
5. Correlation Coefficients for The Associations Between Frequency of Health- Related Conversations Between Parents and Adolescents and Parent-Reported Frequency of Media Use by Their Adolescents During Mealtime	42
6. Differences In Parents Reporting Setting Media Use Rule During Mealtime Based on Adolescent's Gender	43
7. Differences In Frequencies of Health-Related Conversations Between Parents and Adolescents Based on Adolescent's Gender.....	44
8. Differences Between Adolescent's Gender and Frequency of Media Use During Mealtime	45

CHAPTER 1

INTRODUCTION

Hispanics are the largest minority group in the United States (U.S.; 15% of the population) and are anticipated to double in size by the year 2050.¹ In the U.S., Hispanic individuals, both adults and children, have a higher probability of becoming obese when compared to non-Hispanic White individuals.²⁻³ In part, this is a result of social determinants of health such as education status, income level, food insecurity, and inadequate healthcare.²⁻³ U.S. Hispanic adolescents have the highest probability of becoming obese, with a prevalence rate of 25.6%, which is substantially higher when compared to the prevalence of obesity in non-Hispanic White groups (16.1%).⁴

Obesity is a major public health concern because it increases an individual's risk of developing multiple chronic conditions, including type 2 diabetes, stroke, hypertension, coronary heart disease, sleep apnea, and some cancers.⁵ Obesity was initially characterized as excessive body fat that results from excessive caloric intake and/or decreased energy expenditure. However, more recent research is revealing that the etiology and pathophysiology of obesity are complex and can involve inflammatory and neuroendocrine processes.⁶ Obesity is a multifactorial condition that can be influenced by an individual's genetic makeup, psychological state, lifestyle, dietary intake, hormones, and environment.⁶ This is especially concerning in adolescents because obese children are more likely to become obese adults, which increases their risk of experiencing adverse health outcomes earlier in their life such as high blood pressure, type 2 diabetes,

asthma, anxiety, and depression.⁶⁻⁷ Obese children are also more likely to be bullied and have low self-esteem, which could further contribute to poor health status.⁸⁻⁹

The combination of increased sedentary activity and consumption of unhealthy, energy-dense foods are the main contributing factors to the rise in childhood obesity.¹⁰ As early as 5 years old, a child's taste preferences are established.² Children are greatly influenced by their peers and family and will model behaviors and attitudes demonstrated by them.¹¹ It is crucial during these formidable years that parents role model healthy behaviors and provide a home environment that complements them. Parents are considered the gatekeepers of the food environment; they shape the environment through parenting styles, feeding practices, food modeling, and what foods are being offered at home, which ultimately impacts a child's overall dietary intake and health status.^{2,12}

The connection between parenting feeding practices, parental concerns, and a child's health status has been demonstrated in reviews and multiple cross-sectional and cohort studies.¹²⁻¹⁸ There are a variety of parenting feeding practices that parents utilize to influence their child's eating habits.¹² Restrictive feeding and pressure to eat practices seem to be less effective at promoting adequate dietary intake among adolescents, however, these strategies are most commonly used when a parent is concerned about their child's weight status.¹² Both feeding practices have been significantly associated with a child's BMI status, as well as parental concerns.^{12,13} More specifically, restrictive feeding and parental concern have been shown to be correlated with higher BMI scores over time in a child, while pressure to eat practices are inversely related to BMI status.¹³⁻¹⁸

Research has also demonstrated greater health outcomes for children whose parents practiced motivating and encouraging feeding practices, as well as modeling fruit

and vegetable consumption.¹⁹⁻²⁰ Cross-sectional studies have revealed significant, positive associations between a child's fruit and vegetable intake and parents motivating children to eat fruits and vegetables.¹⁹⁻²⁰ In addition, more frequent family meals have been correlated with positive eating behaviors in children and weight status into adulthood.²¹⁻²³ Most promising of these findings was a 10-year longitudinal study that correlated family meal frequency with an adolescent's weight status; 60% of adolescents who reported no family meals at baseline were overweight while 29% were obese.²³ Family meals and positive eating practices seem to benefit a child's dietary intake and decrease their risk of higher weight status.²¹⁻²³

The availability and accessibility of food also play a significant role in a child's overall dietary intake.^{12,19,21,24-25} Parents are responsible for providing food to their children and the foods that are more accessible seem to be more consumed by adolescents.^{12,19,21,24-25} Multiple cross-sectional studies have revealed positive correlations between higher adolescent fruit and vegetable intake in the presence of higher fruit and vegetable availability; higher sugar-sweetened beverage intake and higher junk food availability; and inverse relationships between higher junk food availability and lower HEI and fruit and vegetable intake.^{19,21,24,25}

The mealtime environment is an area of opportunity in the literature because the majority of existing reports look at the overall food environment, not the specific rules or environment that occur during a family meal. Only a few studies have found associations between rules and an adolescent's dietary intake. Rules pertaining to snacks, limiting fast food intake, and no meals while watching TV were associated with both child and adolescent dietary intake.^{19,26-27} Screen time use rules have also been correlated with

decreased screen time use, however, the types of devices or how they relate to parenting practices have yet to been assessed.²⁶ Eating in front of the television has been consistently associated with poor dietary intake in adolescents such as lower fruit and vegetable consumption, higher consumption of energy-dense snacks, and lower HEI scores.^{16, 26,28-30} However, minimal studies have considered the latest media devices that children use such as tablets, smartphones, gaming consoles, and computers. Given the mobility and growing availability and access of those devices among children and adolescents, future research needs to look into the associations between media use at mealtime and what parents are willing to permit during mealtime. They also need to consider the types of devices being used by adolescents because that could provide additional insight into what alterations need to be made to the food environment. More studies need to assess the mealtime structure to determine the types of rules that could be beneficial to a child's dietary intake.

The conversations between a parent and adolescent could provide additional insight to better understand the dynamic relationship between parenting and a child's dietary intake. Health-related conversations could be another way for parents to promote healthy behaviors and prevent obesity. Research surrounding health-related conversations is minimal in a family setting. The types of conversations that seem to be the most beneficial with adolescents emphasize healthy eating habits rather than weight loss.³¹⁻³³ Conversations that are focused on weight loss are potentially associated with increased psychological distress, disordered eating behavior, and higher BMIs in adolescents.³¹⁻³³ Upcoming studies need to investigate what other parent-adolescent conversations (e.g., physical activity and healthy eating) could positively influence a child's dietary intake.

Lastly, the potential associations between an adolescent's gender and parenting feeding practices, rules, and conversations could contribute to the literature greatly. Current research suggests that specific feeding practices, types of conversations being held, parental concerns, and weight status differ by gender.^{32,34-35} Girls have more significant associations with parents using weight-controlling methods and less encouraging and instrumental practices when the girls are overweight or obese when compared to boys.^{32,34-35} However, research is still naïve in this realm, especially, in Hispanic adolescents. Also, the majority of these studies focus on preschoolers rather than adolescents aged 10 years and older. Furthermore, no studies have analyzed the associations between gender differences in health-related conversations (not limited to weight) and mealtime rules.

The literature is well-established when it comes to identifying associations between the overall home food environment and a child's dietary intake and/or weight status.⁵⁻¹⁸ However, many of these studies are not representative of U.S. Hispanic populations. Instead, they focused on non-Hispanic groups and mixed-demographic populations in the U.S, U.K, and Canada, which does not take into consideration the culturally different feeding practices and family dynamics of a Hispanic family in the U.S.⁴⁻¹⁸ Associations between dietary intake and feeding practices with weight-related conversations and weight concerns are also profound in the literature. However, the literature is lacking insight on the associations between parental feeding practices and parent-adolescent conversations on healthy eating, physical activity, and weight. It would be beneficial to find associations between other topics of conversation with parenting practices and the mealtime rules parents have regarding media device use because it adds

depth to the research of the home food environment. Given the strong associations with television viewing and an adolescent's dietary intake, it would be also beneficial to know what current devices adolescents are utilizing and what parents allow during mealtime. In addition, it could be advantageous to explore the potential associations between gender differences, types of conversations, and mealtime rules specific to media use. Parents seem to partake in different feeding practices if their child is a girl and overweight/obese when compared to boys. This would be the first study to investigate the associations between gender differences and mealtime rules related to media use among Hispanic families. Establishing correlations between the mealtime environment, health-related conversations, and gender differences could lead to the development of more effective communication strategies and family-based interventions to aid in childhood obesity in U.S. Hispanic populations.

Purpose of Study

The goal of the current study is to assess if Hispanic parent-adolescent health-related conversations are associated with setting rules for media use during mealtime and frequency of media devices used by their adolescents during mealtime.

Research Aims and Hypotheses

- **Research Aim 1:** To assess the association between parent-adolescent health-related conversations, setting rules for media use during mealtime, and frequency of media devices used by their adolescents during mealtime.

Research question: Are health-related conversations between parents and adolescents associated with setting rules for media use and frequency of media devices used by their adolescents during mealtime?

- **H1:** Parents who have more health-related conversations with their adolescents will set rules for media use.
- **H2:** Greater frequency of health-related conversations between parents and their adolescents will be associated with parents reporting fewer media devices being used by their adolescents during mealtime.

• **Research Aim 2:** To assess the associations between an adolescent's gender, parent-adolescent health-related conversations, setting rules for media use, and frequency of media device use during mealtime.

Research question 1: Do setting rules for media use during mealtime differ by an adolescent's gender?

- **H1:** Parents of male adolescents will set more rules for media use during mealtime than female adolescents.

Research question 2: Do parent-adolescent health-related conversations and frequency of media device use during mealtime differ between an adolescent's gender?

- **H1:** Female adolescents will have more weight-related conversations with their parents when compared to male adolescents.

- **H2:** Male adolescents will use media devices during mealtime more than female adolescents.

Definition of Terms

Adolescents: Young people aged 10-19 years old.

Health-Related Conversations: Conversations that involve parents discussing healthy eating, physical activity, and weight with their adolescents.

Hispanic: Individuals that are Mexican, Mexican American, or a part of another Latino group.

Media Use: Refers to the act of watching television or movies, playing hand-held games (e.g., Nintendo Switch), talking or texting on the phone, and listening to music with headphones.

Obesity: A condition characterized by excess body fat and increased risk of morbidities; also refers to a body mass index of ≥ 30 kg/m².

Overweight: A body mass index between 25 to 29.99 kg/m².

Weight-Related Conversations: Conversations that involve parents discussing ways to change their adolescent's weight status. Refers to topics such as weighing too much, eating differently to lose weight, and exercising to lose weight.

Delimitations

Participants were of Hispanic descent or origin and currently reside in the greater Phoenix Metropolitan area of Arizona, United States. Parent-adolescent dyads consisted of (1) adolescent in 6th, 7th, or 8th grade. The population presented in the study is not reflective of the entire United States population, however, it provides insight particularly important for Hispanic families residing in the United States. The cross-sectional nature of the study is desirable in the instance of finding associations between mealtime environment and types of conversations.

CHAPTER 2

THE REVIEW OF LITERATURE

Prevalence of Obesity in Hispanic Populations

Hispanics account for 15% of the United States' population (42.9 million) and are the largest and fastest-growing minority group in the United States.¹ Hispanic groups are at an increased risk of obesity due to factors such as socioeconomic status, education status, and food insecurity.³ The growing rate of childhood obesity in U.S. Hispanic populations is of great concern due to the complications and comorbidities associated with obesity.² Obese children are more likely to become obese adults.² Individuals who are obese have an increased risk of type 2 diabetes, stroke, hypertension, coronary heart disease, sleep apnea, and specific cancers.⁵ According to the National Center of Health Statistics (NCHS), the prevalence of childhood obesity in the United States is 19.3%, which impacts approximately 14.4 million children and adolescents.⁴ Hispanic and Mexican-American children and adolescents have the highest prevalence rates of obesity (25.6% and 26.9% respectively) in the United States when compared to Non-Hispanic white, black, and Asian groups.⁴ Research suggests that the consumption of energy-dense, unhealthy foods (e.g., fried foods, sugar-sweetened beverages), and sedentary behavior (e.g., electronic devices and television) are the main contributing factors for the increasing rate of overweight and obese children.¹⁰

Child's Dietary Intake and Parental Influence

At a young age, a child's dietary habits are already being molded by the influence of family and peers; behaviors such as fussiness and poor variety in food choices can persist into adulthood and lead to an increased risk of obesity and other comorbidities.¹¹ It is the role of the parent to cultivate and promote a positive, healthy food environment for their children. The home food environment has demonstrated both protective and risk factors for childhood obesity.² The parent dictates the overall home food environment through being the sole provider of it; parenting styles, feeding practices, and modeling influence the food landscape and dynamic during mealtime, which greatly impacts a child's dietary intake and health status.²

Home Food Environment

Parenting Feeding Practices

The parent's influence on a child's dietary intake and lifestyle behaviors is well-established in the literature.^{11-28,31,33-37} In a narrative review by Larsen et. al, two main parenting feeding practices prevalent in the research are food restriction and pressure to eat.¹² The motives behind food restriction feeding practices seem to stem from parental concerns regarding their child's weight.¹³⁻¹⁶ Multiple studies have found positive, significant associations between food restriction, parental concerns, discouraging eating behaviors, and weight status in preschoolers and adolescents alike.¹³⁻¹⁸

Parental concerns about a child's weight have been observed in as early as preschool aged children and been positively associated with a child's BMI status. In a cross-sectional study that analyzed parent feeding practices of 478 Swedish parents of

preschool children, higher levels of restrictive eating practices were significantly associated with increased concerns for their child's weight status.¹³ The study also identified that the BMI of a child was a significant predictor of a parent's level of concern, which further demonstrates the relationship between weight status and parental concern.¹³ Another cross-sectional study found significant correlations between BMI z-scores and parenting feeding practices in 161 U.S. parent-child dyads. Pressure-to-eat and restrictive feeding practices were significantly associated with BMI z-scores.¹⁴ More specifically, restrictive feeding practices were positively associated with BMI z-scores while pressure-to-eat was inversely related to them, however, they were not significant with a child's dietary intake.¹⁴

Parental concern seems to focus more on restrictive feeding practices than positive health behaviors. Seburg et. al found significant correlations between parental concern and restrictive and monitoring feeding practices in 421 U.S. parent-child dyads, whose 5-10-year-old children were at risk for obesity.¹⁵ More interesting though was the lack of significant findings between parental concern and parental practices to support positive health behaviors in their children. Despite a higher level of concern for their child's weight, no associations were found between parenting practices that promoted weight management such as limited media use and physical activity.¹⁵ A secondary-data analysis by Mais et. al discovered comparative, significant findings regarding parental concerns and feeding practices in 659 Brazilian parents and their 5-9-year-old children.¹⁶ The study assessed parenting feeding practices through the Brazilian version of the Comprehensive Feeding Questionnaire (CFPQ) and dietary intake of children through a food frequency questionnaire.¹⁶ Parents who had a higher level of concern about their

child being overweight reported using both restrictive and pressure-to-eat parenting practices while parents who were concerned about their child's low weight-status reported using pressure-to-eat practices.¹⁶ Furthermore, there was a significant association between parents who perceived that their child was overweight and restrictive feeding practices.¹⁶ Since research is limited on parental concerns in other realms of the mealtime environment (e.g., mealtime media use), it is important that future studies investigate whether parental concern and an adolescent's weight status are associated with mealtime specific feeding practices.

The long-term effects of weight status and feeding practices (excluding parental concern) have also been observed in a longitudinal study of UK moms and their preschoolers. One of the aims of this study was to determine whether maternal restrictive feeding practices could be a predictor of a child's BMI 2 years later.¹⁷ To assess this relationship, an observation was conducted on a mother and her 3-5-year-old child during mealtime. Maternal restriction (verbal and/or physical) was measured by a trained research associate using the Family Mealtime Coding System (FMCS), a tool to assess feeding practices.¹⁷ The study found a significant correlation between maternal restrictive feeding practices at the age of 3-5 years old and a child's BMI z-score at the age of 5-7.¹⁷ Greater maternal restrictive feeding practices observed at 3-5 years of age were associated with a higher BMI z-score for children at the age of 5-7 years, which demonstrates the long-term effects of parenting practices on a child's weight status.¹⁷ However, one of the limitations of the study was the retention rate. Out of the 62 mother-child dyads recruited, follow-up was only achieved with 39 dyads.¹⁷

One of the most notable parental feeding practice studies is a 2-year longitudinal study on Mexican American families that included 382 children (8-10 years of age) and both their mothers and fathers.¹⁸ Weight status and parental feeding practices were assessed at 1 and 2-year markers and BMI (not z-scores) and waist-height ratios (WHtR) were used to assess a child's weight status. Parental feeding practices were a predictor of a child's weight status after two years: the use of food restriction yielded higher weight gain in both girls and boys.¹⁸ It is one of the few studies that has analyzed feeding practices of U.S. Hispanic groups and weight status. This is important to note because most studies for parenting feeding practices focus on non-Hispanic groups, which does not take into consideration the culturally different feeding practices and family dynamic of a Hispanic family in the United States. However, more studies need to be conducted on the Hispanic population to better understand these differences. Future studies should also consider family meal frequency, parenting practices at the dinner table, and weight-related conversations between a parent and child to better explain the relationship between parental concern and a child's dietary intake. Studies have established a correlation between parental concern and feeding practices, however, they have not investigated the correlation between parenting feeding practices and the conversations being had between a child and parent about their weight status. Additional research needs to be conducted to further assess the correlation between a child's dietary intake and parent feeding practices.

Motivating and Encouraging Strategies

Not all parenting feeding practices lead to negative health outcomes; specific parenting feeding practices have been suggested to protect against obesity.^{19-23,37} Motivating and encouraging practices have been associated with improved health outcomes such as higher fruit and vegetable intake.¹⁹⁻²⁰ The effects of these practices on children are further strengthened through parental modeling or engaging in healthy food behavior such as fruit and vegetable intake.¹⁹⁻²⁰ In a cross-sectional study by Couch et. al, parental feeding practices and a child's dietary intake were assessed in 699 U.S. parent-child dyads. Dietary intake data consisted of (3) 24-hr dietary recalls reported by children unless they were under the age of 8 years old (parents reported instead).¹⁹ A DASH analysis was conducted on the dietary intake to better assess the quality of the diet. The findings from the study suggested significant correlations between encouraging feeding practices and higher fruit and vegetable intake and family rules with overall higher diet quality DASH scores in children.¹⁹ A larger-scale cross-sectional, internet-based survey of 1,859 U.S. parent-adolescent dyads supported similar findings in positive feeding practices and positive dietary health outcomes for their children. Increased fruit and vegetable intake in children were strongly correlated with encouraging feeding practices and parents' consumption of fruits and vegetable intake.²⁰

Contrastingly, a secondary data analysis of a 12-week randomized control trial suggested that restrictive feeding practices encouraged healthier eating behaviors in children. The study consisted of 133 children aged 4-13 years old and tested the efficacy of nutrition education on changing the food environment. Parents from the intervention group received nutrition education from a dietitian that focused on the promotion of

reduced-fat dairy intake in children to improve the family's health. An inverse relationship was discovered between restrictive feeding practices and saturated fat intake.³⁶ Parents who reported lower levels of restriction at the beginning of the study reported higher levels of restrictive practices during the intervention, which led to an overall decreased saturated fat dietary intake in children at the end of the study.³⁶ These findings demonstrate that restrictive feeding practices might be effective in a different context (e.g., if health is the motive rather than a parent's concern of their child being overweight). More studies need to be done though to identify the efficacy of restrictive feeding practices in promoting positive health-related behaviors. It appears that restrictive feeding practices are more often used when a parent is concerned about their child's overall weight, but research is limited when it comes to restrictive feeding practices in marginalized populations, who are more susceptible to obesity and poorer health outcomes. Future research needs to investigate the types of practices that are prevalent in underrepresented, minority populations and how they impact an adolescent's overall health.

Family Meal Frequency

Family meal frequency, rules, and the types of food available in the home food environment have been significantly associated with a child's dietary intake and health outcomes as well.²¹⁻³⁰ In a cross-sectional study by Watts et. al, family meal frequency and dietary intake were assessed in 2,491 U.S. adolescents in middle school and high school.²¹ Both EAT 2010 survey and a food frequency questionnaire (FFQ) data were utilized to determine fruit and vegetable intake, family meal frequency, whether parents

modeled and/or encouraged fruit and vegetable intake, and the availability/accessibility of fruits and vegetables at home.²¹ Family meal frequency was associated with greater adolescent fruit and vegetable intake; the more family meals reported, the higher the percentage of fruit and vegetable intake.²¹ Furthermore, the combination of fruit and vegetable encouragement and parent modeling of these foods were correlated with increasing fruit and vegetable intake in adolescents and meal frequency.²¹ Another cross-sectional study reported similar findings with family meal frequency and adolescent dietary intake in 103 U.S. minority adolescents. The study design included data from questionnaires that assessed variables such as depression symptoms, food frequency, and family meal frequency, as well as anthropometrics. There were significant associations revealed between family meal frequency (5-7 meals together/week) and higher breakfast and fruit consumption in adolescents.²² The analysis also suggests a correlation between family meal frequency, depression, and obesity risk in adolescents. There was a significant, inverse relationship identified between family meal frequency and adolescent depressive symptoms.²² Another interesting finding was that adolescents were ~3 times as likely to be overweight if they reported no family dinners in the past week when compared to adolescents who ate more frequent meals with their family.²²

A longitudinal 10-year study by Berge et al. further supports the associations between family meal frequency and obesity risk in 2,117 adolescents. The purpose of the study was to assess if family meal frequency was associated with protecting adolescents against adulthood obesity through the analysis and comparison of Project EAT data from academic years of a student (1998-1999) to adulthood years (2008-2009).²³ The Project EAT survey consisted of questions about factors related to health and obesity outcomes;

more specifically, family meal frequency and self-reported height and weight data were utilized to determine associations between long-term weight outcomes.²³ After a 10-year follow-up, baseline family meal frequency data was significantly related to weight status; among adolescents who did not partake in family meals 60% were overweight and 29% were obese, while adolescents who participated in any frequency of family meals (e.g., 1-2, 3-4, ≥ 5 meals) were only 47-51% overweight and 19-22% obese.²³ There were no significant associations found in the number of meals spent with family and obesity risk; 1-2 frequent meals alone was associated with a 45% decreased chance of becoming overweight after 10 years.²³ These findings are important because they suggest that frequent family meals are protective against obesity.

Screen Time Use

Screen time use is another aspect of the food environment that has been linked with a child's dietary intake.^{16,26, 28-30} There have been positive, significant associations between screen time use and a child's consumption of energy-dense snacks and junk food.^{16,28-30} The food environment and junk food consumption were analyzed in 847 Lithuanian parent-child dyads in a cross-sectional design study by Jusiene et. al.²⁸ The study revealed that the consumption of junk food was significantly correlated with overall screen time use, as well as screen time use during mealtime.²⁸ The strength of this study was that it assessed various forms of screen time use such as television, tablet, PC, and smartphone use, unlike precedent studies that focused solely on television screen time use. Mais et. al also reported additional findings that correlated ultra-processed food intake and screen device use. Lower scores on healthy eating guidance (a measure of

parents directing children to healthy dietary behaviors) were notably correlated with ultra-processed food intake and greater than 2 hrs./day screen time use.¹⁶ However, a limitation of this study was that screen time use was generalized and did not specify what devices were being utilized.

Another cross-sectional study revealed similar behaviors in screen time use and junk food consumption. In a study by Pearson et. al, 126 U.K. parent-child dyads were recruited from their children's schools to partake in a survey regarding child screen time use (specific to television viewing), child eating behaviors, behavioral factors, and physical environmental factors.²⁹ Based on parent-reported data (e.g., child's screen time use, eating behaviors, etc.), the children were separated into 3 groups: Low Fruit/Vegetable Intake/High Energy-Dense Snack Intake (Low FV/High ED), High Screen time/Low Fruit/Vegetable intake (High ST/Low FV), and (High ST/High ED).²⁹ Children from the Low FV/High ED group participated in higher screen time use and energy-dense snack consumption.²⁹ Also, children from both the High ST/Low FV and High ST/ High ED groups consumed breakfast while watching TV.²⁹ Ultimately, energy-dense snack consumption while watching TV was strongly associated with children who displayed all 3 risk behaviors (high screen time use, high energy-dense snack consumption, and low fruit/vegetable intake).²⁹

Further inverse relationships between screen time and a child's fruit, vegetable, and fiber intake were identified in a study by Shang et. al. A secondary data analysis was conducted on dietary intake and screen time use of 521 Canadian children with obese parents. Trained dietitians conducted (3) 24- dietary recalls with the children and the Healthy Eating Index (HEI) was utilized to further assess the dietary quality of these

children.³⁰ Children's height and weight were also assessed, as well as children's self-reported data of physical activity and screen time use. Regardless of BMI status, all children who participated in 2 or more hours of screen time reported lower consumption of fruit, vegetable, and fiber and higher consumption of calories.³⁰ More frequent screen time use was also significantly associated with a lower HEI score, especially, in overweight children.³⁰ Pyper et. al bridged additional associations between screen time use and eating behavior in 3,206 Canadian parent-child dyads. Parents who reported not watching television during mealtime were 1.67 times more likely to report their children meeting the dietary guidelines for fruit and vegetables, as well as 5 times more likely to offer raw fruits/vegetables as snacks to children.²⁶ Future research needs to investigate the relationship between screen time use during mealtime and other elements of the food environment such as family rules, feeding practices, and food availability. It is also essential that upcoming studies stay relevant and explore screen time use in the latest electronic devices such as tablets and smartphones during mealtime.

Food Accessibility and Availability

Another component of the home food environment is the parent's role as the gatekeeper of food. Parents can dictate what foods are made available to the child within the household, which impacts what foods the child will consume.^{11-20,36} The foods made available at home are primarily driven by the parent's motives, concerns, and personal preferences.^{11-20,36} Factors such as acculturation and food insecurity can also impact the type and number of foods that are made available to children at home.^{2-3,25} Research has consistently identified associations between the availability of foods and a child's dietary

intake.^{12,19,21,24-25} Inverse relationships have been observed in the obesogenic food environment, fruit and vegetable intake, and overall diet quality in children while positive relationships between fruit and vegetable intake and fruit and vegetable availability have been identified.^{19,21,24-25}

The cross-sectional study by Watts et al. found that the availability of fruits/vegetables was significantly correlated with the child's dietary intake of fruits and vegetables. Adolescents reported ½ additional servings of fruit and vegetables if they had accessibility to fruits and vegetables.²¹ Associations were also found between infrequent family mealtimes and fruit and vegetable availability; despite adolescents not participating in frequent family meals, if there was a higher availability of fruit and vegetables, they reported consuming more when compared to adolescents who had low availability of fruits and vegetables.²¹ These findings suggest that the availability of fruits and vegetables alone can lead to a more positive intake of fruit and vegetables in adolescents.

Couch et al. detected a similar phenomenon between food availability and an adolescent's dietary intake in the previously mentioned cross-sectional study of 699 U.S. parent-child dyads. The availability of healthy food resulted in significant, positive associations with healthier food intake while unhealthy food availability was significantly, inversely associated with healthy food intake.¹⁹ More specifically, high-calorie beverage intake (e.g., soda, sports drinks, etc.) was positively associated with the availability of high-calorie nutrient-poor food and inversely associated with fruit and vegetable intake, as well as DASH score.¹⁹ Contrastingly, the availability of low-calorie,

nutrient-dense foods was positively associated with DASH score and fruit and vegetable intake.¹⁹

A secondary data analysis by Poulsen et al. strived to find additional associations between food availability, food insecurity, and a child's BMI in 408 Pennsylvania parent-child dyads. The home food environment was measured with two scales from the Active Where Parent-Adolescent Survey that ranked types of food available as healthy or obesogenic based on the Dietary Guidelines for Americans 2015-2020.²⁴ Fruit and vegetable intake was not associated with food insecurity; however, higher adolescent BMI-z scores were significantly associated with food insecure households when compared to food-secure households.²⁴ Regardless of food security status, youth reported higher daily fruit and vegetable intake if their household had a higher healthy home food availability score while youth reported lower daily fruit and vegetable intake if their household had a higher obesogenic food availability score.²⁴

Santiago-Torres et al. further evaluated the correlations between a child's dietary intake and the availability of foods, exclusively in Hispanic populations. The cross-sectional study consisted of 187 Hispanic adolescents aged 10-14 years old. The overall quality of the adolescent's dietary intake was analyzed via the HEI scale; the overall food environment was measured with a scale created by the community and university involved, which included previously validated items for the home environment.²⁵ Adolescent HEI scores were significantly lower in households that reported higher availability of fruit juice and soda, however, the difference in HEI scores were minimal.²⁵ For example, the HEI scores for adolescents with soda availability was 57.7 versus 60.9 when compared to adolescents who did not have soda available at home.²⁵ Overall, the

households reported high availability of fruits (97%) and vegetables (91%), however, these findings suggest that fruit and vegetable availability alone cannot promote healthy eating.²⁵ The availability of unhealthy food items such as sugar-sweetened beverages could potentially interfere with an adolescent's overall dietary intake.

Mealtime Rules

Significant associations between a parent's feeding practices and a child's overall dietary intake are prevalent in the literature, however, minimal research has been done to explore the associations between mealtime rules and a child's overall dietary intake.^{12-28-30,37} Screen time use limits have been briefly discussed by parents but are not specific to the mealtime environment. For example, Pyper et al. found that 75.8% of parents enforced overall screen time rules with their children, and those who did were 2.03 times more likely to meet the screen time recommendations for children.²⁶ Except Pyper et al., the previously mentioned screen time use studies did not assess screen time rules. Also, only a few studies have assessed the correlations between mealtime rules and an adolescent's dietary intake.

The cross-sectional study by Couch et al. revealed significant associations between a child's overall dietary intake and their parent's enforcement of rules about snack intake (e.g., types and size of snacks permitted and when they are allowed to be consumed).¹⁹ More specifically, higher DASH scores in adolescents were positively correlated with adolescents whose parents placed "allow/limit" rules on snacks.¹⁹ Bailey-Davis et al. conducted another secondary data analysis on the Active Where Survey (previously analyzed by Poulsen et al.), but focused on the "Rules for eating at home"

scale.²⁷ The cross-sectional study found significant, positive associations between the rules “No dessert until the plate is clean,” “Must help with meal preparation at home,” and “Must eat dinner with family at home,” and higher daily fruit and vegetable intake in the children.²⁷ Additional significant, inverse associations were revealed between weekly fast food intake and the following rules: “No meals while watching TV/DVDs,” “No sweet snacks,” “No fried snacks,” and “Limited fast food.”²⁷ The combination of these findings suggests that rules can have a place at the dinner table because they might improve a child’s overall dietary intake. However, more research needs to be conducted to find associations between both mealtime and screen time rules (at mealtime).

Weight-Related Conversations

Parental concerns about a child’s weight have been significantly associated with a parent’s feeding practices and styles, the types of foods being offered and mealtime rules, and a child’s weight status.¹²⁻¹⁸ However, little is known regarding the associations between conversations parents have with their children about their weight and the overall mealtime environment. Weight-related conversations are an important area to explore because the type of communication and language used by a parent has been shown to influence a child’s dietary intake and health status.³¹⁻³³ Previous research has revealed that when parent-adolescent conversations are driven by weight messages instead of healthy eating messages, adolescents partake in disordered eating behaviors, experience psychological distress, or have a higher BMI.³¹⁻³³ Contrastingly, if the messages are centered around healthy eating behaviors, fruit and vegetable intake in adolescents has been positively associated with health status.³²

One of the most insightful studies was conducted by Berge et. al, who utilized a validated survey for measuring weight-related conversation. The large-scale cross-sectional study consisted of 3,424 parents and 2,182 adolescents from 2 population-based studies known as EAT 2010 and Project F-EAT.³² Previous cross-sectional studies have been done comparatively on Project EAT data, however, this design differs because it includes an analysis of the home food environment, both parent and adolescent data from 2009-2010, and weight-related conversation questions. A major finding of this study was that weight-focused conversations were positively associated with higher BMIs in children.³² However, when parents had conversations that focused on both weight and healthy eating, there were significant associations found in both positive and negative health behaviors in adolescents.³² For example, the combined forms of conversations were associated with increased adolescent fruit and vegetable intake, as well as higher adolescent BMI.³¹ The study also revealed that 2/3 of Hispanic/Latino and Asian/ Hmong parents discussed healthful eating and physical activity with their children significantly more than other ethnicities involved in the study.³² It is important to note though that the majority of participants were African American or Black (29.0%) while Asians/Hmong and Hispanic/Latinos only comprised 19.9% and 16.9% respectively.³²

Berge et al. also conducted another secondary data analysis on EAT 2010 and Project F-EAT to see if there were any associations between parent-adolescent weight-related conversations and disordered eating behaviors in adolescents.³³ The study found positive associations between parent-adolescent weight-related conversations and disordered eating and inverse associations between parent-adolescent healthy eating conversations and dieting behaviors.³³ More specifically, healthy eating conversations

between parents and both non-overweight and overweight adolescents led to a significantly lower prevalence of them reporting dieting behaviors while weight-related conversations were associated with disordered eating behaviors such as dieting and binge eating.³³

A longitudinal study by Roach et. al, provided a different perspective of parent-adolescent conversations outside of mealtime in 61 mother-child dyads. The study's goal was to establish associations between food talk outside of mealtime, a child's weight status, and dietary intake. LENA devices were utilized to record conversations between mothers and their children. For three days straight, a LENA device was attached to the children's clothing when they arrived home from school and kept on until bedtime.³⁷ Recording was halted if dinner was transpiring or about to occur in the hour. Food talk codes were assigned and based on a previous study that utilized LENA devices as well. Both the Children's Eating Behavior Questionnaire (CEBQ) and Children Feeding Questionnaire (CFQ) were also incorporated in this study to measure a child's eating behaviors and parents' feeding practices. Lastly, heights and weights were taken for both mother and child by trained staff, followed by BMI calculations.³⁷ The study discovered associations between the type of talk, feeding practices, eating behavior, and BMI status. Conversations about meal preparation and planning were inversely associated with a child's BMI and positively associated with a child's enjoyment of food.³⁷ Food talk centered around monitoring was associated with mothers reporting restrictive feeding practices.³⁷ Furthermore, mother overt restriction food talk and child food enjoyment talk was associated with emotional over-eating behaviors.³⁷ These findings suggest that food

talk, outside of mealtime, could be another area to investigate because it was associated with both positive and negative outcomes.

Gender Differences in Parenting Practices

Limited studies have investigated adolescent gender differences in weight-related communication and parenting practices. Historically, female adolescents have been more susceptible to fat shaming and restrictive feeding practices due to the strict societal norms placed onto women, social media, peers, and family influences.^{31,33-35,38} It seems that males are not subjected to these negative messages and parenting practices as frequently as females. Significant associations have been revealed in types of health-related conversations being had and an adolescent's gender. Berge et. al discovered that parents discuss different topics with their sons and daughters.³² Findings suggest that parents are more concerned about discussing positive health-related topics with their sons when compared to their daughters. Weight-related topics were more frequently had in daughters when compared to sons.

Weight-related conversations, weight labeling, and “fat talk” are of great concern because they can lead to long-term poor health outcomes such as disordered eating, depression, low self-esteem, and obesity.^{31-33,38} A longitudinal study that followed female adolescents over a 10-year span revealed that weight labeling is a significant predictor of obesity. If an adolescent was labeled “too fat” at the age of 10 years old, there was a higher, significant risk of becoming obese at 19 years old.³⁸ The odds were slightly higher of becoming obese if the fat labeling came from family members (1.66 odds ratio) when compared to non-family members (1.40 odds ratio).³⁸ This study further

demonstrates how important is for parents to take into consideration the types of communication being had with their daughters.

Parenting feeding practices have also been shown to differ by a child's gender. Lipowska et. al assessed the associations between nutritional knowledge, eating behaviors, and appetite attributes in 387 Polish children, as well as parental feeding styles and body-fat status.³⁴ One of the main findings was that encouraging feeding styles were less likely to be used in overweight girls when compared to normal weight girls.³⁴ Instrumental feeding styles (e.g., using food as a reward) were also less likely to occur with girls when compared to boys.³⁴ It appears that females have a higher likelihood of being subjected to negative weight-related messages and feeding practices when compared with males; however, more research needs to be conducted to determine if it is gender and/or weight.

Summary

Despite the pre-existing literature available on parenting feeding practices, the food environment, and a child's dietary intake, there are still gaps in the literature when it comes to U.S. Hispanic populations, overall mealtime environment, and health-related conversations. The majority of studies that focus on parenting feeding practices, screen time use, food availability, and mealtime rules were conducted in predominately white populations in the United States, Canada, and Europe.^{14-17,19-20,26-30,34} Some of the studies include diverse populations, however, minimal studies have exclusively focused on U.S. Hispanic populations.^{16,18,21-23,25,32-33} For example, Project EAT data that was utilized in multiple cross-sectional studies was reflective of low-income, minority populations that

consist of African Americans or Blacks, Non-Hispanic Whites, Hispanic/Latinos, Asian/Hmong, Native Americans, and Mixed ethnicities.^{21,23,32-33} While it is important to research minority groups in low-income settings, it would be more insightful to exclusively investigate Hispanic families to determine what types of feeding practices, rules, and media devices are prevalent in this population.

The most relevant studies were conducted by Santiago-Torres et al. and Tschann et al. because they consisted of U.S. Hispanic populations and established associations between the food environment, parental feeding practices, and adolescent dietary intake, as well as parental feeding practices and adolescent BMI-z scores.^{18,25} More research must be conducted with U.S. Hispanic populations because they are the largest and fastest-growing group and Latino children are predominately overweight and obese.² The family food environment of white populations has some similar themes regarding food availability and parental feeding practices, however, cultural differences need to be taken into account when assessing the factors that influence the family food environment.

Other areas of opportunity in the literature are media use, mealtime rules, and weight-related conversations. There have been significant associations found between media use and adolescent dietary intake, however, associations have yet to be made between media rules at mealtime and what types of media are being used during mealtime.^{16,26,28-30} Furthermore, whether these variables are associated with health-related conversations is to be determined. Research has also revealed significant correlations between weight-related conversations and adolescent dietary intake, but minimal studies have been conducted.³¹⁻³⁴ However, the association between health-related conversations, media rules, and media use during mealtime has yet to be established in U.S. Hispanic

populations. These variables must be measured because they could lead to the cultivation of successful strategies to prevent childhood obesity in U.S. Hispanic populations.

CHAPTER 3

METHODS

Study Design

This study is a cross-sectional analysis of baseline data from a randomized controlled trial assessing the efficacy of *Families Preparing the Next Generation Plus (FPNG Plus)*, a parenting intervention program that focuses on the promotion of healthy nutrition and substance use prevention delivered in middle schools to parents of Hispanic families residing in the Phoenix Metropolitan area. The original study design is a 3-arm group cluster randomized controlled trial that compares the outcomes of nutrition and substance use in adolescents in three conditions/programs.³⁹ Schools were eligible to participate if their population consisted of at least 60% of Hispanic students.³⁹ The three conditions randomized at a school level are FPNG plus, a program that addresses both nutrition and substance use prevention, FPNG, the original program that addresses substance use prevention exclusively, and Realizing the American Dream (RAD), a program geared towards academic success.³⁹ In the current study, a secondary data analysis will be conducted on baseline self-reported data from participating parents. Only methods pertaining to this analysis will be described.

IRB Approval and Consent. The Institutional Review Board of Arizona State University's approved this study (STUDY00006797, Appendix A). Parents gave written consent to participate in the study (Appendix B) and provided permission for their

adolescent child to participate. Adolescents gave written assent to participate in the study (Appendices C and D).

Participants and Recruitment

Schools were eligible to participate if they met the following requirements: 1) public school that offered grades 6th-8th with a minimum of 65 students for each grade level; 2) located in Maricopa County, AZ; 3) student population of at least 60% Hispanic; 4) Title I fund recipient; and 5) willing to offer one of the three programs at the school.³⁹ Fliers were distributed at eligible middle schools to recruit participants. Parents were eligible to participate if they were 18 years and older and had a child enrolled in the school in any grade level. Adolescents were eligible if they participated in 6th-8th grade. For purposes of this analysis, parent data were excluded if their adolescent child had not participated in the study.

Data Collection

Parents completed a self-administered electronic survey at baseline on a Lenovo tablet using a Qualtrics platform. The survey was available in English and Spanish.³⁹ The survey included questions pertaining to the mealtime environment, dietary intake, family involvement, and demographics (Appendix E). For purposes of this analysis, only parent's responses to survey questions related to demographics (age and gender), health-related conversations, and media limits at mealtime; and only adolescent's responses to demographics (age and gender) survey questions were used.

Measures

Health-Related Conversations (Independent Variable)

Questions related to health-related conversations derived from the Project F-EAT (Families and Eating and Activity Among Teens) survey.³² Parents were asked, “How often in the past year have you had a conversation with your child about healthy eating habits?,” “How often in the past year have you had a conversation with your child about being physically active?,” and “How often in the past year have you had a conversation with your child about his/her weight or size?” The frequency of conversations was ranked from 1 to 5; one representing the least frequency of “Never or rarely” and five representing “Almost every day.”

Weight-Related Conversations (Independent Variable)

Questions related to weight-related conversations derived from the Project F-EAT (Families and Eating and Activity Among Teens) survey.³² Parents were asked, “How often in the past year have you mentioned to your child that he/she weighs too much?,” “How often in the past year have you mentioned to your child that he/she should eat differently in order to lose weight or keep from gaining weight?,” and “How often in the past year have you mentioned to your child that he/she should exercise in order to lose weight or to keep from gaining weight?” The frequency of conversations was ranked from 1 to 5; one representing the least frequency of “Never or rarely” and five representing “Almost every day.”

Adolescent's Gender (Independent variable)

Question identifying adolescent's gender as either male or female were included in adolescent's survey.

Setting Rules for Media Use During Mealtime (Dependent variable)

Whether or not parents have rules on media use during mealtime was assessed based on a mealtime question derived from the Project F-EAT survey.³² Parents were asked, "Do you set limits (have rules, including no use) on your child's media use (TV, cell phone, texting, etc.) at family meals?" Parents responded with "yes" or "no."

Frequency of Media Used During Mealtime (Dependent variable)

Questions related to the frequency of media use during mealtime was based on questions previously used in the Project F-EAT survey by Berge et al.³² Parents were asked, "How often does your child do the following at family meals?" Parents had to answer this question for each of the following responses: "Watch television or movies," "Play with hand-held games (e.g., DS, PSP, Game Boy, etc.)," "Talk on the phone (cell or other)," "Text message," and "Listen to music with headphones (e.g., with iPod, MP3 player, or other devices)." The frequency of media use was ranked from 1 to 4; one representing "Never or Rarely" and four representing "Always."

Statistical Analysis

SPSS Software, Version 26 was utilized to conduct statistical analyses. For the analysis, scales were created for health-related conversations, weight-related

conversations, and frequency of media devices used during mealtime to test the associations of the responses collectively with the other variables. The scales calculate the mean for each question within the scale and reflect an overall value based on the question's original responses. Both the Health-Related Conversations and the Weight-Related Conversations scales range from 1-5 (lowest to highest frequency) while the Frequency of Media Use Scale range from 1-4 (lowest to highest frequency). An overall higher mean within the Health-Related and Weight-Related Conversations Scales represents higher frequency of conversations within each scale while an overall higher mean within the Frequency of Media Use Scale reflects a higher frequency of overall media use. Spearman's rank correlations were used to assess the associations between health-related conversations and media use frequency during mealtime. Chi-square tests and crosstabs were utilized to identify differences between the adolescent's gender and if the parent's set limits on their child's media use at mealtime. Independent sample t-tests were conducted to measure the differences between the adolescent's gender and the three scales (Health-Related Conversations, Weight-Related Conversations, and Frequency of Media Use). Descriptive analyses for ethnicity, gender, sociodemographic status, and highest level of education were also carried out. Statistical significance was set at p-value < 0.05. Data is presented in mean \pm standard deviation and or as a frequency (percentages).

CHAPTER 4

RESULTS

Participant characteristics are outlined in Table 1. Mean age of parents was 40.4 ± 6.6 and the mean age of adolescents was 12.4 ± 0.9 . The parent-adolescent dyads consisted of 307 female parents (89.2%), 37 male parents (10.8%), 154 female adolescents (44.8%), and 190 male adolescents (55.2%). Most parents and adolescents considered themselves as Mexican or Mexican American (69.5% and 91% respectively). The rest of the participants identified with another Latino group (29.4% and 4.9% respectively). The most frequently reported annual income level from parents was between \$15,000-\$24,999 (30.8%).

Table 1. Characteristics of Study Participants

Variable	Mean ± SD	Frequency n (%)
<i>Parents (n=344)</i>		
Gender		
Female		307 (89.2)
Male		37 (10.8)
Age (years)	40.4±6.6	
Ethnicity		
Mexican or Mexican American		239 (69.5)
Other Latino ethnicity		101 (29.4)
Income		
Categories		
<\$14,999		93 (27.1)
\$15,000-\$24,999		106 (30.8)
\$25,000-\$49,999		105 (30.5)
\$50,000 or more		30 (8.7)
Education		
Categories		
Highschool or less		263 (79.7)
Some college or higher		67 (20.3)
<i>Adolescents (n=344)</i>		
Gender		
Female		154 (44.8)
Male		190 (55.2)
Age (years)	12.4± 0.9	
Ethnicity		
Mexican or Mexican American		313 (91.0)
Other Latino ethnicity		17 (4.9)

The parent-reported frequency of having health-related conversations with their adolescent child is outlined in Table 2. The most frequently reported conversations were healthy eating habits (44.2%) while the least frequently reported conversations were about their adolescent weighing too much (48.3%).

Table 2. Parent-reported frequency of health-related conversations with their adolescent child

Conversation topic	Number of parents n (%)				
	Never/Rarely	Few times/yr.	Few times/mo.	Few times/wk.	Almost every day
Healthy eating habits	3 (0.9)	20 (5.8)	50 (14.5)	118 (34.3)	152 (44.2)
Being physically active	3 (.9)	23 (6.7)	53 (15.4)	130 (37.8)	134 (39.0)
Weight/size	21 (6.1)	25 (7.3)	75 (21.8)	100 (29.1)	122 (35.5)
Weighing too much	166 (48.3)	42 (12.2)	57 (16.6)	50 (14.5)	28 (8.1)
Eat differently to lose weight	109 (31.7)	47 (13.7)	51 (14.8)	76 (22.1)	59 (17.2)
Exercise to lose weight	98 (28.5)	51 (14.8)	47 (13.7)	77 (22.4)	70 (20.3)

* Frequencies reported as n (%).

Results of parent-reported frequency of media use by their adolescent child during mealtimes is presented in Table 3. Most parents reported that their adolescents never or rarely listened to music with headphones (50%), text messaged (54%), played with hand-held games (58%), and talked on the phone (61%) during mealtime. The most frequent parent-reported media use by adolescents during mealtime was watching television or movies (sometimes; 35%).

Table 3. Parent-reported frequency of media use by their adolescent child during mealtimes

Conversation topic	Number of parents n (%)			
	Never/Rarely	Sometimes	Usually	Always
Watch television or movies	103 (29.9)	120 (34.9)	63 (18.3)	28 (8.1)
Play with hand-held games	201 (58.4)	56 (16.3)	34 (9.9)	19 (5.5)
Talk on the phone (cell or other)	208 (60.5)	65 (18.9)	31 (9.0)	12 (3.5)
Text message	187 (54.4)	76 (22.1)	33 (9.6)	16 (4.7)
Listen to music with headphones	171 (49.7)	77 (22.4)	44 (12.8)	22 (6.4)

* Frequencies reported as n (%).

Differences in frequencies of health-related conversations between parents and adolescents based on whether parents set rules about media use during mealtime are presented in Table 4. There were statistically significant differences in the frequency of conversations related to weighing too much ($p=.013$) depending on whether parents reported setting rules about media use during mealtime. Relative to parents who reported setting rules about media use, those who reported not setting rules about media use reported more frequent conversations with their adolescents about weighing too much (2.12 ± 1.32 vs. 2.64 ± 1.64 ; $p=0.013$).

Table 4. Differences in frequencies of health-related conversations between parents and adolescents based on whether parents set rules about media use during mealtime

Conversation topic	Parent sets rules		t-test	P-value
	M ± SD No	M ± SD Yes		
Health-related scale	3.96 ± 0.99	4.01 ± 0.86	-.289	.372
Healthy eating habits	4.04 ± 1.17	4.16 ± 0.90	-.694	.123
Being physically active	3.96 ± 1.04	4.09 ± 0.93	-.693	.690
Weight/size	3.89 ± 1.13	3.78 ± 1.17	.467	.800
Weight-related scale	2.92 ± 1.44	2.55 ± 1.30	1.437	.452
Weighing too much	2.64 ± 1.64	2.12 ± 1.32	1.633	.013
Eat differently to lose weight	3.25 ± 1.48	2.68 ± 1.50	1.939	.673
Exercise to lose weight	2.89 ± 1.55	2.86 ± 1.51	.106	.886

[**Bold significant values ≥ 0.05**] Scale is measured as follows (1-5): 1- Never/rarely, 2- Few times/yr. 3-Few times/mo. 4- Few times/wk. 5-Almost every day

Correlations between frequency of health-related conversations between parents and adolescents and parent-reported frequency of media use by their adolescents during mealtime are outlined in Table 5. There were significant, positive correlations between the weight-related scale and frequency of media use ($r=.131$; $p=.023$). The frequency of conversations about weighing too much were significantly and positively associated with the frequency of adolescents watching television or movies ($r=.213$; $p<.001$), playing with hand-held games ($r=.131$; $p=.022$), talking on the phone ($r=.119$; $p=.034$), and listening to music during mealtime ($r=.129$; $p=.022$). The frequency of conversations about exercising to lose weight were significantly and positively associated with the frequency of adolescents watching television or movies during mealtime ($r=.134$; $p=.017$). There were also negative correlations between the frequency of healthy-related conversations and frequency of adolescents watching television or movies during mealtime, however, these were not significant findings (healthy eating habits: $r= -.018$, $p= .757$; being physically active: $r= -.068$, $p=.231$).

Table 5. Correlation coefficients for the associations between frequency of health-related conversations between parents and adolescents and parent-reported frequency of media use by their adolescents during mealtime

Media use	Conversation topic							
	Health-related scale	Healthy eating habits	Being physically active	Weight/size	Weight-related scale	Weighing too much	Eat differently to lose weight	Exercise to lose weight
Freq. media use scale	.045 (p=.442)				.131 (p=.023)			
Watch television or movies		-.018 (p=.757)	-.068 (p=.231)	.105 (p=.063)		.213 (p<. .001)	.055 (p=.334)	.134 (p=.017)
Play with hand-held games		.059 (p=.304)	.034 (p=.553)	.052 (p=.359)		.131 (p=.022)	.085 (p=.136)	.048 (p=.398)
Talk on the phone		.018 (p=.756)	.005 (p=.923)	.013 (p=.819)		.119 (p=.034)	.042 (p=.453)	.084 (p=.135)
Text message		.001 (p=.992)	.041 (p=.466)	.035 (p=.543)		.095 (p=.095)	.044 (p=.443)	.069 (p=.226)
Listen to music		-.016 (p=.779)	.031 (p=.587)	.044 (p=.437)		.129 (p=.022)	.026 (p=.646)	.047 (p=.411)

*All correlations reported as r (p value). [Bold significant values ≥ 0.05]

Results of the comparison of parents reporting setting media use rules during mealtime depending on adolescent's gender are outlined in Table 6. There were no significant differences in parents reporting setting media use rules during mealtime based on their adolescent's gender ($p=0.159$).

Table 6. Differences in parents reporting setting media use rule during mealtime based on adolescent's gender

Adolescent gender	Rules for media use		Chi-square	P-value
	No	Yes		
Male	19 (10.9)	156 (89.1)		
Female	9 (6.3)	133 (93.7)		
Total	28 (8.8)	289 (91.2)	1.988	0.159

* Frequencies reported as n (%). [**Bold significant values ≥ 0.05**]

Differences in frequencies of health-related conversations between parents and adolescents based on adolescent's gender are displayed in Table 7. Parents of male adolescents reported having more frequent conversations about their adolescent weighing too much when compared to female adolescents (2.45 ± 1.43 vs. 1.93 ± 1.28 ; $p=0.005$). Male adolescents also had more frequent weight-related conversations overall (weight-related scale) when compared to female adolescents (2.73 ± 1.39 vs 2.52 ± 1.26 ; $p=0.024$).

Table 7. Differences in frequencies of health-related conversations between parents and adolescents based on adolescent's gender

Conversation topic	Adolescent gender		t-test	P-value
	M ± SD	M ± SD		
	Male	Female		
Health-related scale	4.03 ± 0.89	3.98 ± 0.87	.613	.676
Healthy eating	4.17 ± 0.97	4.13 ± 0.91	.439	.459
Being physically active	4.07 ± 0.95	4.08 ± 0.93	-.038	.667
Weight/size	3.87 ± 1.18	3.73 ± 1.17	1.049	.895
Weight-related scale	2.73 ± 1.39	2.52 ± 1.26	1.506	.024
Weighing too much	2.45 ± 1.43	1.93 ± 1.28	3.581	.005
Eat differently to lose weight	2.81 ± 1.52	2.76 ± 1.51	.304	.806
Exercise to lose weight	2.94 ± 1.54	2.88 ± 1.51	.399	.595

* All correlations reported as r (p value). [**Bold significant values ≥ 0.05**] Scale is measured as follows (1-5): 1- Never/rarely, 2- Few times/yr. 3-Few times/mo. 4- Few times/wk. 5-Almost every day

Differences between adolescent’s gender and frequency of media use during mealtime are outlined in Table 8. Parents of male adolescents reported greater frequency of playing with hand-held games during mealtime when compared to parents of adolescent females (1.76 ± 1.01 vs. 1.36 ± 0.71 ; $p < 0.001$).

Table 8. Differences between adolescent’s gender and frequency of media use during mealtime

Media use	Adolescent gender		t-test	P-value
	M ± SD	M ± SD		
	Male	Female		
Media use scale	1.73 ± 0.70	1.61 ± 0.64	1.483	.103
Watch television or movies	2.09 ± 0.96	2.00 ± 0.92	.860	.279
Play with hand-held games	1.76 ± 1.01	1.36 ± 0.71	4.204	<.001
Talk on the phone (cell or other)	1.52 ± 0.82	1.50 ± 0.82	.309	.930
Text message	1.56 ± 0.84	1.65 ± 0.92	-.910	.135
Listen to music with headphones	1.73 ± 0.93	1.73 ± 0.98	.087	.378

[Bold significant values ≥ 0.05] Scale is measured as follows (1-4): 1- Never/rarely, 2- Sometimes, 3- Usually, 4- Always

CHAPTER 5

DISCUSSION

The purpose of the current study was to determine if health-related conversations between Hispanic parents and their adolescent children were associated with setting rules for media use during mealtime and frequency of media devices used by adolescents during mealtime. This topic is of importance because weight-related conversations and media use during mealtime are both home food environment factors that could contribute to an increased risk of obesity in Hispanic adolescents. Understanding how Hispanic parents communicate with their adolescents about health and weight-related issues can pave the way for future interventions to be created in efforts to diminish the prevalence of obesity within Hispanic populations. Study findings suggest there are no significant associations between overall health-related conversations between parents and their adolescent child and media use during mealtimes. However, when focusing specifically on weight-related conversations, the following significant associations were revealed: (1) the frequency of weight-related conversations was associated with the frequency of the adolescent's media use during mealtime; (2) parents who did not set rules for media use during mealtime reported more weight-related conversations than parents who did set rules during mealtime; and (3) parents of male adolescents reported having more frequent conversations about weight than parents of female adolescents. Findings from this study also suggested that parents of adolescent males reported more hand-held game use during mealtime than parents of adolescent females.

Frequency of Health-Related Conversations

Most participants reported having health-related conversations with their adolescent about healthy eating (98.7%) and being physically active (98.9%) almost every day, few times/week, few times/month, and few times/year. About 50% of the participants reported having weight-related conversations with their adolescents with some degree of frequency; 48.3% of participants reported never/rarely having conversations with their adolescents about weighing too much. Research suggests that healthy eating and physical activity parent-adolescent conversations are more frequently had in comparison to weight-related conversations.^{32-33,40} Results from a previous study that included 2,182 adolescents and 3,424 parents living in the United States suggested that parents across different ethnic groups tend to report more conversations with their adolescent children about healthful lifestyle behaviors (e.g., healthy eating and being physically active), than weight-related conversations.³² It has been suggested that weight-related conversations are more often reported by parents with concerns about their child's weight.^{32-33,40} A mixed methods study of 110 parent-adolescent dyads also revealed that parents who had more weight-related conversations with their adolescents, were more likely to have an overweight child.⁴⁰ In the present study, it is possible that some of the participating adolescents are already overweight or obese, which resulted in higher frequencies of weight-related conversations. Although adolescent weight was not collected as part of the current study, Hispanic/Mexican American adolescents (25.6% and 26.9% respectively) have the highest rates of obesity when compared to non-Hispanic whites (16.1%) in the United States.⁴ In Arizona, over 30% of Hispanic adolescents aged 10-17 are either overweight or obese.⁴¹ Parents from minority groups,

including Hispanics, and African Americans, who also tend to have higher rates of obesity than whites, have reported higher frequency of weight-related conversations with their adolescent children.^{4,32} This is important to note because overweight and obesity seem to be perpetuated in marginalized groups, which could explain the higher frequencies of these types of conversations specific to them. Whether repeated exposure to weight-related conversations results in the adolescent becoming overweight/obese is still to be determined.

The topics of conversations between parents and adolescents are of great importance because those that focus on weight loss and weight-shaming could negatively impact an adolescent's health.^{31-33,38,43} Several studies have reported significant, positive associations between weight-related conversations and weight-shaming and an adolescent's BMI, risk of disordered eating, depression, and low self-esteem. Furthermore, the risks for negative health consequences are higher in adolescents whose parents have parent-adolescent weight-related conversations when compared to parents who do not.^{31-33,38,43} In contrast, one study reported health-related conversations to be inversely correlated with an adolescent's risk of disordered eating and positively correlated with adolescent fruit and vegetable intake.³² Encouragement, a different form of communication characterized by positive, motivating dialect, has been associated with positive adolescent eating behaviors such as increased fruit and vegetable intake.¹⁹⁻²⁰

Regarding health-related conversations, families in previous studies reported focusing primarily on healthy eating, physical activity, and nutrition.^{32-33,40,42} In the previously mentioned mixed methods study, portion control, moderation and unhealthy foods were common themes in both weight and health related conversations.⁴⁰ In another

study that analyzed how 445 parents interpret and communicate nutrition information with their 4–12-year-old children, 82% of the parents found that it was extremely important for parents to teach their children about nutrition.⁴² Parents from this study also felt that they were the best source of nutrition information for their children, followed by their teachers, and other family members.⁴² Additionally, parents who discussed nutrition labeling with their children more strongly agreed that their nutrition beliefs influenced their children when compared to parents who not discuss nutrition labeling with their child.⁴²

A parent's level of confidence, nutrition knowledge, and role modeling seem to be contributing factors to improving the overall mealtime environment for a child.^{10-12,19-21} If parents are provided with guidance on nutrition education and what types of conversations are most beneficial, adolescents could be more receptive to the messages, especially, if they are consistent and modeled by the parents as well. Previous cross-sectional studies have exemplified the positive associations between parents modeling positive eating behaviors and adolescent's reciprocating them.¹⁹⁻²¹ Research has also revealed the positive associations between parents modeling poor health behaviors such as consuming junk foods and their adolescents' health behaviors.^{10-11,19-20} Based on these findings, it can be speculated that if parents are discussing the importance of healthy eating or physical activity, in addition to modeling them, the adolescent might be more receptive to partaking in the same behaviors. However, more research is needed to confirm whether this occurs. The location of where these conversations are held could be an area of opportunity for research and intervention as well. Both health and weight-

related conversations seem to occur primarily during mealtimes but have also been shown to occur in other environments such as the grocery store.^{40,42}

In summary, health-related conversations seem to be a better strategy than focusing on weight-related topics when parents are promoting more positive health behaviors and discussing health with their adolescent children. However, there is a need for more research to investigate the associations and potential effects of health-related conversations on an adolescent's dietary intake, physical activity, and other lifestyle behaviors. Qualitative research would be beneficial to better understand the adolescent's perceptions in response to health-related conversations and what topics resonate with them the most. Lastly, interventions that incorporate healthy eating conversations with encouraging attributes could provide additional insight of the benefits of positive messaging.

Frequency of Media Use During Mealtime

Most participants from the current study reported that their adolescents never/rarely played with hand-held games (58%), talked on the phone (61%), text messaged (54%), and listened to music with headphones (50%) during mealtimes. Previous studies have revealed that adolescent daily screen time use consists of talking/texting with friends on the phone, listening to music with headphones, and playing on the computer and/or videogames.^{26,44-46,47} However, research is limited on whether these media devices are used by adolescents during mealtime. Research is also outdated in this realm because it does not consider the latest technological advances of media devices such as tablets, hand-held gaming devices, smart phones, etc.

Over 61% of current study participants reported that their adolescents watched some form of frequency of television or movies during mealtime. This is consistent with research suggesting that the majority of adolescents and children engaged in television viewing during mealtime.^{26,28,44-48} Across all demographics, watching television is a reoccurring theme in the home food environment that has been linked to poor dietary intake and obesity in adolescents and children.^{44,47} The latest report from the Kaiser Family Foundation indicates that children aged 8-18 years partake in approximately 7.5 hours/day in screen time use (4.5 hours of this daily amount in front of a television), which places them at greater risk of obesity.⁴⁹

Previous research has identified positive correlations between junk food consumption and watching television and negative correlations between healthy food consumption and watching television.^{16, 26, 28-30,48} Greater than 2 hours of screen time use per day has been associated with lower consumption of fruit, vegetable and fiber intake, lower HEI scores, and higher junk food consumption in adolescents.^{16,26, 28-30,48} Current literature has also revealed significant, positive associations with an adolescent's BMI, body fat percentage, and adiposity and screen time use.^{30,44,47} Higher screen time use, and number of screen time devices used per day are positively associated with an adolescent's risk of becoming overweight or obese, higher waist circumference, and body fat percentage.^{44,47} An explanation for this phenomenon could be that adolescents who partake in high amounts of sedentary behavior are less likely to be physically active and as a result consume more energy-dense foods with poor nutritional value. Findings specific to Hispanic populations are limited and focus primarily on parenting practices and styles rather than adolescent dietary intake and media use. It is also important to note

that most studies conducted in Hispanic populations are outdated (over 10 years old) and only investigate television watching in children, which does not even begin to consider the vast shift in media device technology. However, a couple of cross-sectional studies have revealed correlations between watching television and poor dietary intake in Hispanic, Mexican-American, Mexican, and Latino adolescents.⁵⁰⁻⁵¹ One cross-sectional study of 794 U.S. Hispanic, Mexican-American, and Latino parent-child dyads found that children who often or always watched television during mealtime consumed chips and soda 5 times/week, compared to 2 times/week for children who never or rarely watched television during mealtime.⁵⁰ Another cross-sectional study further supports these findings among 1,698 Mexican children in 3rd, 4th, and 5th grade. The study found that watching television, playing videogames, and using the computer were positively associated with unhealthy eating habits.⁵¹ Furthermore, watching television was negatively associated with healthy eating habits.⁵¹ Studies might be minimal in Hispanic populations, but a common theme of poorer dietary intake and screen time use has been revealed in them, which raises the concern of screen time use in Hispanic adolescents.

In regards to mealtime media use behaviors, a previous study with Latino, Brazilian, and Haitian parent-adolescent dyads (n=387) documented mealtime media use behaviors among adolescents comparable to those of the current study; 58% of the mothers in the study reported that their children watched television during mealtime a lot/sometimes.⁵² Of relevance, 54% of mothers who reported that their child never/rarely watched television during mealtime also reported having 5 or more family meals per week, relative to only 33% of mothers who reported that their children a lot/sometimes watched television during mealtime (p<0.0001).⁵² Family meal frequency could be a

possible way to deter unhealthful mealtime behaviors, including media use. Research has demonstrated that higher frequency of family meals is associated with higher consumption of fruits and vegetables and normal weight status in adolescents while lower frequency or lack of family meals altogether is associated with overweight/obesity in adolescents, decreased consumption of fruits and vegetables, and increased fast food consumption.^{21-23,53}

Media use during mealtime could be a result of parents using media as a tool to prevent conflict during mealtime with their adolescents and encourage desired eating behaviors. Multiple studies revealed that parents allow their children to watch television due to convenience and as a means to keep them occupied.^{2,54-59} Parents might not be aware of the importance of limiting their adolescent's screen time use.^{2,54-57} Results from focus groups with 21 Hispanic mothers suggested that participants did not feel that their television viewing had any impact on their adolescent and used it as an educational tool and/or distraction.⁵⁹ If anything, Hispanic/Mexican American parents find television as a beneficial tool for their children to learn (at all ages), which could explain why they do not view television negatively.^{2,58-60} Another common theme in the literature is the lack of confidence or ability parents have to limit their adolescent's screen time, a phenomenon that seems to be more present in parents with lower socioeconomic status and have diverse/ethnic backgrounds.^{47,61-64} Parents might not have tools necessary to promote physical activity due to their work schedule or unsafe neighborhoods they live in, nor possess the skills to handle the demands of their child. Lastly, parental behaviors may be a contributing factor for adolescent media use as well. Previous studies have demonstrated positive associations between parental screen time use and adolescent

screen time use, which could be indicative of the impact role modeling has on adolescent's behavior and pose as a possible strategy to decrease screen time use and increase physical activity for their adolescents.^{55,65-66}

Associations Between Frequency of Weight-Related Conversations and Frequency of Adolescent's Media Use During Mealtime

The current study is the first known to investigate the associations between parent-adolescent conversations and adolescent's media use during mealtime among Hispanics. When combining weight-related and health-related conversations into scales, the weight-related scale was positively and significantly associated with adolescent media use during mealtimes. More specifically, watching television/movies, talking on the phone, listening to music with headphones, and playing with hand-held games were positively and significantly associated with the frequency of weight-related parent-adolescent conversations about their adolescent "weighing too much."

There is an overwhelming body of evidence linking overweight/obesity in adolescents with screen time use.^{30,44,47} However, research is still limited when it comes to linking weight status to media use exclusively during mealtime. Findings from the few existing studies, most of which were conducted outside the United States are mixed. A cross-sectional study that investigated correlations between mealtime behaviors and weight status in 6,316 adolescents aged 10-12 years old in 9 European countries revealed split findings between watching television during dinner and obesity in adolescents.⁶⁷ In Northern Europe, there were positive, significant correlations between an adolescent being overweight and watching television during mealtime, whereas those associations

were not observed in Southern and Eastern Europe.⁶⁷ Further conflicting results were noted in a cross-sectional study that investigated correlations between watching television and weight status in a diverse sample of children aged 5-7 years old in the United States.⁶⁸ The study revealed no correlations between a child's weight status and watching television during dinner.⁶⁸ Lastly, an Iranian cross-sectional study of 607 children aged 6-10 years old found mixed associations as well. Children who watched television while eating breakfast had a higher risk of being overweight/obese when compared to children who didn't watch television during breakfast; however, when it came to watching television during lunch or dinner, there were no significant associations with overweight/obesity risk.⁶⁹

Despite the link between weight status and media use, there is not enough research to determine whether the frequency of weight-related conversations and media use are the result of the adolescent's weight status; or whether the home food environment and the types of conversations being had led to the adolescent's overweight/obese weight status. However, there is a chance that the varying frequencies of media use in the current study could not be related to an adolescent's weight status, rather the state of family communication and adhesiveness. Previous research has shown family meals strengthen relationships and overall family functioning.⁷⁰⁻⁷² Studies have also revealed that parents feel that watching television together could be a chance to bond and spend time with their children, as well as a more common activity with older children.^{59,63,72-73} Results from the current study could suggest that watching television is not a barrier to communication, but a vehicle to drive communication in Hispanic families. Watching television could be a family meal activity that has the potential to act

as a vehicle for communication in Hispanic families, while devices such as listening to music with headphones could be problematic in communication. Future research needs to clarify the discrepancies between communication, mealtime use, and an adolescent's weight status, as well as explore the relationship between more recent media devices such as smartphones, tablets, and hand-held games and weight status of adolescents.

In the current study, over half of parent participants reported an annual income of \$24,999 or less and not having completed high school. Both parental education and socioeconomic status have been associated with higher media device use in adolescents and higher prevalence of adolescents being overweight or obese.^{2,24,29,44,48,62,64} Parental confidence in parenting skills could be a potential factor as to why there is a higher prevalence of media use and obesity within this population. A cross-sectional analysis of 596 parent-child dyads revealed that parents with both lower education and income status were less likely to feel confident about limiting their child's television watching and being able to keep them busy with other activities when compared to higher income and educated families.⁶⁴ Low-income/less-educated parents also reported 272.7 minutes more of weekly television and DVD watching than higher income/medium educated parents.⁶⁴ Parents might be lacking the tools or knowledge with how to limit media use with their children. Exploring methods to help parents feel more confident about media rules could help minimize the chances of their child becoming obese.

Research has found a direct relationship between an adolescent's weight status and weight-related conversations, however, whether there is a relationship between weight-related conversations and media use during mealtime is still to be determined. Only two known studies support the current study's findings.^{32,40} One cross-sectional

study revealed positive, significant correlations between weight-related conversations and overall screen time use in middle school and high school aged adolescents, but no specific media devices were mentioned. A mixed-methods study revealed that parents of both overweight and normal weight adolescents discussed health- and weight-related topics, including healthy eating, weight/size, and eating differently to lose weight, not only during family meals, but also while watching television.⁴⁰ Moreover, parents of normal weight adolescents had a higher frequency of both health-related and weight-related conversations during a family meal when compared to parents of overweight children.⁴⁰ It is possible that the family meal environment could be a safe realm for parents to discuss health-related concerns, especially, given the positive effects associated with family meal frequency and a child's dietary intake and BMI status.^{21-23,50,52} One cross-sectional study even revealed that higher family meal frequency was associated with less screen time in adolescents.⁷⁴ Future studies are needed to assess the correlations between family meal frequency, media use during mealtime, and the types of conversations being had. Qualitative research should also be conducted to better understand the conversations parents are having with their children during mealtime and pinpoint if media plays a role in the mealtime environment as well. Since previous studies have found correlations between weight-related conversations and poor health outcomes in adolescents such as increased risk of disordered eating and obesity, it is possible that high screen time use could be another poor health outcome correlated with it.^{31-33,38,43} It is important that more research is conducted to better understand the correlation between weight-related conversations and media use because it might have more of a negative effect than positive on an adolescent's media use.

Setting Media Rules During Mealtime

In the current study, parents who reported not setting rules for media use during mealtime reported a slightly higher frequency of conversations related to weighing too much than parents who did report setting rules. Nevertheless, 91% of parents reported setting rules for media use during mealtime, which is interesting considering over half of the parents reported their adolescent's watching television during mealtime, and 40% of them reporting their adolescents listening to music with headphones during mealtime. Parenting beliefs, parenting styles, types of rules (informal/formal), and a parent's level of efficacy to implement such rules could explain the discrepancies between parents reporting setting rules for media use and frequency of media devices being used. Research from multiple studies suggests that parents view television as a family activity and parents will co-watch shows or even play videogames with their children.^{59,63,73} Some qualitative studies have revealed that families feel that watching television together as a family is a positive experience and, in some instances, can promote harmony and bonding.^{59,63,73}

Whenever media use rules are implemented in the home environment, reinforcement and resistance from children are common obstacles that parents report struggling with, and adolescents agree that media rules are not always enforced.^{49,64,73,75} Research has even shown that parents tend to exhibit permissive behavior when it comes to media use.^{45,76-77} A cross-sectional study of 431 parent-child dyads revealed that children from families with permissive parenting styles (e.g., low restriction of media use) were twice as likely to watch 2-4 hours of television and five times as likely to watch greater than 4 hours of television in comparison to families who practice more

authoritative parenting practices.⁷⁶ In addition, parents have reported giving in and allowing children to use media in response to them acting out, as well as not enforcing these rules further due to their own mixed feelings.^{59,73} Another explanation for the discrepancy between the presence of rules and prevalent adolescent media use in the current study could be the formality of the rules. For example, one qualitative study that consisted of 6 focus groups with parents revealed that rules for watching television were more informal because parents did not feel that they needed them to be otherwise.⁷⁸ The study also revealed that parents of low socioeconomic status did not set rules at all for television for their children.⁷⁸

Lastly, a parent's level of efficacy plays a huge role in reinforcing media rules. Parents who have a higher level of self-efficacy when it comes to media rules have shown to be successful in reducing screen time use in their children.^{61,64} For example, a cross-sectional analysis of 954 parents found that the odds of children to watch television decreased as a parent's level of efficacy increased.⁶¹ Another cross-sectional study further supported this finding and revealed that parents with lower efficacy have children who partake in more screen time when compared to parents with higher efficacy.⁶⁴ Studies have also shown that inconsistency or lack of rules can impact the amount of media use adolescents partake in. A cross-sectional study including 63,145 adolescents aged 6-17 years old suggested that adolescents were at an increased risk of higher screen time use if there were no rules about television.⁷⁴ In addition, previous research has revealed that the more rules that are presented to adolescents, the less likely they are to commit the behavior.^{27,45-46,49,61,74} There have been significant, inverse correlations between the amount/and or presence of screen time rules and an adolescent's hours spent watching

television.^{45-46,74} In addition, the implementation of rules limiting screen time use have been associated with healthier eating behaviors in adolescents such as decreasing their overall fast-food intake.²⁷ This is important to note because it seems that rules can be a strategy to decrease media use during mealtime. Future interventions need to provide parents with positive strategies to strengthen their efficacy when it comes to setting and enforcing rules during mealtime.

Differences in Frequencies of Health-Related Conversations Based on Adolescent's Gender

The present study found that parents of adolescent males had more weight-related conversations when compared to parents of adolescent females. These findings are in contrast to previous research suggesting parents have more concerns about their daughters' weight status than their sons'.^{32,34-35,79-82} Prior research has also found that parents are more likely to discuss weight-related issues, implement weight controlling feeding practices, and have more concerns about their daughters' weight status when compared to their sons.^{32,34-35,79-82} Female adolescents have also reported receiving more negative comments about their weight status from their parents than their male counterparts.⁸¹ One cross-sectional study even revealed that parents still had concerns about their daughters' weight despite being of healthy weight status.⁸² In part, it is possible for parents to be more concerned about their female children's image than their male children due to the harsher societal norms of body image standards when compared to boys.^{34-35,43,79} However, there have been some reported instances of parents being more

concerned about their son's weight, as well as fat shaming their overweight sons more when compared to parents with daughters.^{43,82}

One cross-sectional study revealed that male pre-adolescents (9-11 years old) and adolescents (aged 12-15 years old) received more "fat talk" when compared to females. It also utilized an eating disorder examination questionnaire to further determine if "fat talk" was associated with an adolescent's eating behaviors. Findings revealed that disordered eating patterns were more prevalent in adolescents that received more fat talk and were of overweight/obese weight status.⁴³ In addition, both genders had positive correlations between disordered eating patterns, fat talk, and weight status.⁴³ Another cross-sectional study of 339 parent-child dyads (aged 2-6 years old) builds upon the current study's with findings that suggest gender as a marginal, yet significant predictor of parental concern in overweight children.⁸² The study found that parents with boys had a higher concern about their child's weight when compared to females, but these marginal findings could have occurred because of the sample's characteristics.⁸²

A further explanation for the higher frequency of weight-related conversations with male adolescents versus female adolescents could be in part due to the higher rates of obesity in Hispanic male adolescents. The prevalence rate for obesity in Hispanic adolescent males is 57.3%, compared to females with a rate of 47.9%.⁴ In addition, previous studies have linked parents reporting more frequent weight-conversations, fat talk, controlling feeding practices, and more concerns with weight status if their child is overweight/obese.^{32-33,40}

There is a need for future research to investigate gender differences in weight-related communication, as well as correlations between male adolescents and weight-

related communication. Females are at an increased risk of disordered eating, stress, depression, and obesity in response to weight-related conversations and fat shaming, but little is known about the male's perspective and their level of risk.^{8,32,43,48,79-80} More research needs to be conducted to better understand the effects of weight-related communication with male adolescents and if it has the same negative effects on adolescent females. It also is important to investigate the associations and impacts of these types of conversations in Hispanic populations.

Differences Between Adolescent's Gender and Frequency of Media Use During Mealtime

Findings from the present study suggest that adolescent males play with hand-held games more during mealtime when compared to adolescent females, which is consistent with previous research implicating that males participate in more overall screen time use when compared to females.^{44,47-49,79} Few studies have suggested that females have higher screen time use than males.^{44,48-49} For instance, one cross-sectional study investigated 1,858 parent-adolescent dyads using the same scale utilized in the present study and discovered that female adolescents had higher odds of participating in hand-held games, talking on the phone, texting, and listening to music with headphones during mealtime.⁴⁸ However, given that most studies only emphasize television watching during mealtime and overall screen time use outside of the mealtime environment there is a need for more research in order to provide more targeted recommendations and strategies to reduce device use as part of the strategies to encourage more healthful home food environments. It is important to determine what types of devices are used because

different devices might be harder to limit versus other. For example, if the media device is a smartphone, parents might need to use more restrictive feeding practices to limit smartphone usage during mealtime use versus when it comes to watching television. Future interventions could investigate different parenting practices for different devices to determine which is more effective. It is also important to investigate whether the parent or other family members are partaking in the media use as well since parental modeling of specific behaviors has been associated with adolescents replicating comparable behavior.^{10-11,19-21,66}

The present study is the first to compare the differences between setting rules during mealtime and an adolescent's gender. The lack of significant differences in parents of male or female adolescents reporting setting media rules during mealtime suggests that gender specific approaches for rule-setting might not be necessary, despite some research suggesting that parents use different feeding practices depending on their child's gender and weight status.^{18,34-35,83-84} Limits on screen time use seem to vary by a parental factors and child's age more so than a child's gender. It is possible that screen time rules are not gender-specific rather a construct that seems to be determined by a parent's parenting style, level of efficacy, and socioeconomic status/education status, as well as age-specific for adolescents.^{61,64,76,85} A cross-sectional study of 4,047 parents of children aged 8-11 years old revealed that regardless of gender, children of parents who had a neglectful parenting style, had higher screen time usage.⁸⁵ However, it is important to mention that sons of parents who had a neglectful parenting style did partake in a slightly higher amount of screen time when compared to daughters of parents with the same parenting style.⁸⁵ Also, an authoritative parenting style was significantly associated

with lower screen time use in males, but not in females.⁸⁵ Both of these findings support previous research that suggests that males partake in more screen time than females.^{44,47-49,51,85}

Regardless of gender, child's age seems to be a more relevant factor associated with setting media rules.^{49,51,74} According to a recent report, enforcement and likelihood of rules decrease as adolescents get older.⁴⁹ Adolescents aged 11-14 years old reported having more media rules and enforcement of rules when compared to adolescents aged 15-18 years old.⁴⁹ The highest percentage of adolescents who reported not having rules were 15-18 years old (30%) in comparison to adolescents aged 11-14 years old (11%) and children aged 8-10 years old (3%).⁴⁹ They also were the group with the lowest percentage of rules being enforced all of the time when compared to age groups 11-14 years old and 8-10 years old.⁴⁹ In addition, a cross-sectional study of Mexican children in 3rd, 4th, and 5th grade reported significant, positive associations between a boy's age and screen time use.⁵¹ Future interventions should look into different strategies to reinforce and set media rules in older children, as well as the associations between parenting styles to better understand the discrepancies in reporting for media use and devices being used.

Strengths and Limitations

The present study has several strengths and limitations worth discussing. Strengths of the study include the sample size, as well as its homogeneity regarding participants' ethnic background: most of the participants identified as Mexican American, Latino or Hispanic, which builds upon the limited research in the food environment and media use in these populations. Another strength of the study is that the survey questions were

available in both English and Spanish to better accommodate the participant's preferences. Limitations of the study include the cross-sectional design because it can only draw associations between the variables and cannot prove causality. The findings are also not generalizable to the United State population since most participants are of Hispanic descent or origin. Another limitation of the study is that the data were subjective and self-reported by participants, both of which can result in increased bias and impact the integrity of the results. For example, social desirability bias could occur because parents feel they need to report a better mealtime environment. There is also a component of self-selection bias because not all parents agreed to participate in the intervention. The lack of adolescent anthropometric data is an additional limitation because only speculations can be made regarding whether weight status influenced the associations between media use during mealtime and health-related conversations. The media device scale used does not include more current devices such as tablets and laptops, not to mention, the gaming capabilities available on smartphones nowadays. In addition, because the scale only asks about media use during family mealtime, it is unknown whether adolescents may have different media use patterns when meals are not consumed together as a family. Lastly, the current study didn't account for family meal frequency or family communication; these variables could have further explained the prevalence of specific media devices being used by adolescents during mealtime.

Implications and Future Directions

Findings from the current study can be applied to future interventions conducted in Hispanic populations. Insights regarding media device use in mealtime demonstrate the

prevalence of watching television in Hispanic families and how other media devices such as listening to music with headphones aren't as frequently used by adolescents during mealtime. It provides a more updated perspective of the current types of media devices used by adolescents during mealtime. Prior studies conducted in Hispanic populations had only focused on watching television for media use, however, it seems that it is still an important theme to investigate in Hispanic families. Gender specific findings from this study also contradict previous data that suggests that females are more susceptible to weight-related conversations than males. The higher frequencies of parents reporting weight-related conversations in male adolescents could provide context for the higher rates of obesity in Hispanic male adolescents. It also could be reflective of the possibility that weight-related conversations aren't gender specific, but weight specific.

Given the vast shift in technological advances, it is imperative that strategies are developed to address the various types of media devices on the market. Future qualitative research needs to investigate not only a parent's perspective of media use during mealtime, but an adolescent's perspective as well. More studies also need to explore the context of parent-adolescent conversations being had during mealtime. Both perspectives on media use and communication are crucial to better understand the correlations between adolescent media use and weight-related conversations. Future studies should also investigate the associations between adolescent weight status, parent-adolescent conversations, and latest media devices being used during mealtime to further validate the current study's findings. The types of rules parents are setting is another important area to explore because it could better explain why adolescents partake in more media use during mealtime. Rather than exploring gender differences in setting rules, parenting

styles should be the target for future interventions to come. Determining the effects of specific parenting styles on an adolescent's media use during mealtime and dietary intake could lead to the development of strategies that could improve the overall mealtime environment.

From a public health perspective, education on screen time use recommendations needs to be disseminated by health care providers and teachers to parents. Within these recommendations, the daily allotment of screen time use, the disadvantages of excessive screen time use (especially, during mealtime), and alternative activities to media use should be included. Education should also be provided to parents on weight stigma. Given the high prevalence rates of obesity in the United States, it is imperative that parents, teachers, healthcare providers, etc. are well-informed on the adverse consequences associated with "fat talk," weight-related conversations, and fat shaming.

To implement more effective practices in a home food environment, parents need to remain consistent with the rules they set and take into consideration the level of influence their actions have on their child. Parents should also consider the effects that different types of conversations could have on their child's well-being. Focusing on positive, health-related conversations with their child rather than negative conversations that focus on weight loss could pave the way for healthier behaviors without compromising an adolescent's self-esteem.

Conclusions

Findings from the current study suggest that higher frequency of weight-related conversation is associated with higher usage of media devices during mealtimes. This is

the first known study to investigate the associations between specific media devices and parent-adolescent health-related conversations. It is also the first known study to investigate these associations exclusively in U.S. Hispanic populations. Our findings suggest that watching television is still a reoccurring theme in Hispanic families, which can be worrisome, given the association between obesity and obesogenic behaviors in adolescents and watching television. Frequency of weight-related conversations differed by an adolescent's gender in the current study, however, it is possible that the adolescent's weight status was more of a factor. These findings are important because they provide context for the rising rates of obesity in Hispanic populations. It is imperative that future studies continue to explore the home food environment in Hispanic populations to better understand factors influencing the high rates of obesity in Hispanic adolescents. Parenting styles, parent-adolescent conversations, and media use rules seem to have the potential to shape a home food environment, which ultimately could improve an adolescent's overall health outcome for years to come.

References

1. Branscum P, Sharma M. A systematic analysis of childhood obesity prevention interventions targeting Hispanic children: lessons learned from the previous decade. *Obesity Reviews*. 2011;12(5):e151-e158. doi:[10.1111/j.1467-789X.2010.00809.x](https://doi.org/10.1111/j.1467-789X.2010.00809.x)
2. Ochoa A, Berge JM. Home Environmental Influences on Childhood Obesity in the Latino Population: A Decade Review of Literature. *J Immigr Minor Health*. 2017;19(2):430-447. doi:[10.1007/s10903-016-0539-3](https://doi.org/10.1007/s10903-016-0539-3)
3. Cuy Castellanos D. Dietary Acculturation in Latinos/Hispanics in the United States. *American Journal of Lifestyle Medicine*. 2015;9(1):31-36. doi:[10.1177/1559827614552960](https://doi.org/10.1177/1559827614552960)
4. Fryar CD, Carroll MD, Afful J. Prevalence of overweight, obesity, and severe obesity among children and adolescents aged 2–19 years: United States, 1963–1965 through 2017–2018. NCHS Health E-Stats. 2020.
5. Apovian CM. Obesity: Definition, Comorbidities, Causes, and Burden. *THE AMERICAN JOURNAL OF MANAGED CARE*. 2016;22(7):10.
6. Sanyaolu A, Okorie C, Qi X, Locke J, Rehman S. Childhood and Adolescent Obesity in the United States: A Public Health Concern. *Glob Pediatr Health*. 2019;6. doi:[10.1177/2333794X19891305](https://doi.org/10.1177/2333794X19891305)
7. CDC. Causes and Consequences of Childhood Obesity. Centers for Disease Control and Prevention. Published September 2, 2020. Accessed January 18, 2021. <https://www.cdc.gov/obesity/childhood/causes.html>
8. Farhat T. Stigma, obesity and adolescent risk behaviors: current research and future directions. *Current Opinion in Psychology*. 2015;5:56-66. doi:[10.1016/j.copsyc.2015.03.021](https://doi.org/10.1016/j.copsyc.2015.03.021)
9. Palad CJ, Yarlagadda S, Stanford FC. Weight stigma and its impact on paediatric care. *Curr Opin Endocrinol Diabetes Obes*. 2019;26(1):19-24. doi:[10.1097/MED.0000000000000453](https://doi.org/10.1097/MED.0000000000000453)
10. Mazarello Paes V, Ong KK, Lakshman R. Factors influencing obesogenic dietary intake in young children (0–6 years): systematic review of qualitative evidence. *BMJ Open*. 2015;5(9). doi:[10.1136/bmjopen-2014-007396](https://doi.org/10.1136/bmjopen-2014-007396)
11. Scaglioni S, De Cosmi V, Ciappolino V, Parazzini F, Brambilla P, Agostoni C. Factors Influencing Children’s Eating Behaviours. *Nutrients*. 2018;10(6). doi:[10.3390/nu10060706](https://doi.org/10.3390/nu10060706)

12. Larsen JK, Hermans RCJ, Sleddens EFC, Engels RCME, Fisher JO, Kremers SPJ. How parental dietary behavior and food parenting practices affect children's dietary behavior. Interacting sources of influence? *Appetite*. 2015;89:246-257. doi:[10.1016/j.appet.2015.02.012](https://doi.org/10.1016/j.appet.2015.02.012)
13. Ek A, Sorjonen K, Eli K, et al. Associations between Parental Concerns about Preschoolers' Weight and Eating and Parental Feeding Practices: Results from Analyses of the Child Eating Behavior Questionnaire, the Child Feeding Questionnaire, and the Lifestyle Behavior Checklist. Chen Y-C, ed. *PLoS ONE*. 2016;11(1):e0147257. doi:[10.1371/journal.pone.0147257](https://doi.org/10.1371/journal.pone.0147257)
14. Loth K, Friend S, Horning M, Neumark-Sztainer D, Fulkerson J. Directive and non-directive food-related parenting practices. *Appetite*. 2016;107:188-195. doi:[10.1016/j.appet.2016.07.036](https://doi.org/10.1016/j.appet.2016.07.036)
15. Seburg EM, Kunin-Batson A, Senso MM, et al. Concern about Child Weight among Parents of Children At-Risk for Obesity. *Health Behav Policy Rev*. 2014;1(3):197-208. doi:[10.14485/HBPR.1.3.4](https://doi.org/10.14485/HBPR.1.3.4)
16. Mais LA, Warkentin S, Latorre M do RD de O, Carnell S, Taddei JAA de C. Parental Feeding Practices among Brazilian School-Aged Children: Associations with Parent and Child Characteristics. *Front Nutr*. 2017;4:6. doi:[10.3389/fnut.2017.00006](https://doi.org/10.3389/fnut.2017.00006)
17. Farrow CV, Haycraft E, Blissett JM. Observing Maternal Restriction of Food with 3–5-Year-Old Children: Relationships with Temperament and Later Body Mass Index (BMI). *Int J Environ Res Public Health*. 2018;15(6). doi:[10.3390/ijerph15061273](https://doi.org/10.3390/ijerph15061273)
18. Tschann JM, Martinez SM, Penilla C, et al. Parental feeding practices and child weight status in Mexican American families: a longitudinal analysis. *Int J Behav Nutr Phys Act*. 2015;12. doi:[10.1186/s12966-015-0224-2](https://doi.org/10.1186/s12966-015-0224-2)
19. Couch SC, Glanz K, Zhou C, Sallis JF, Saelens BE. Home Food Environment in Relation to Children's Diet Quality and Weight Status. *Journal of the Academy of Nutrition and Dietetics*. 2014;114(10):1569-1579.e1. doi:[10.1016/j.jand.2014.05.015](https://doi.org/10.1016/j.jand.2014.05.015)
20. Fleary SA, Ettienne R. The relationship between food parenting practices, parental diet and their adolescents' diet. *Appetite*. 2019;135:79-85. doi:[10.1016/j.appet.2019.01.008](https://doi.org/10.1016/j.appet.2019.01.008)
21. Watts AW, Loth K, Berge JM, Larson N, Neumark-Sztainer D. No Time For Family Meals? Parenting Practices Associated With Adolescent Fruit And Vegetable Intake When Family Meals Are Not An Option. *J Acad Nutr Diet*. 2017;117(5):707-714. doi:[10.1016/j.jand.2016.10.026](https://doi.org/10.1016/j.jand.2016.10.026)

22. Fulkerson JA, Kubik MY, Story M, Lytle L, Arcan C. Are there nutritional and other benefits associated with family meals among at-risk youth? *J Adolesc Health*. 2009;45(4):389-395. doi:[10.1016/j.jadohealth.2009.02.011](https://doi.org/10.1016/j.jadohealth.2009.02.011)
23. Berge JM, Wall M, Hsueh T-F, Fulkerson JA, Larson N, Neumark-Sztainer D. The Protective Role of Family Meals for Youth Obesity: 10-Year Longitudinal Associations. *The Journal of Pediatrics*. 2015;166(2):296-301. doi:[10.1016/j.jpeds.2014.08.030](https://doi.org/10.1016/j.jpeds.2014.08.030)
24. Poulsen MN, Bailey-Davis L, Pollak J, Hirsch AG, Schwartz BS. Household Food Insecurity and Home Food Availability in Relation to Youth Diet, Body Mass Index, and Adiposity. *Journal of the Academy of Nutrition and Dietetics*. 2019;119(10):1666-1675. doi:[10.1016/j.jand.2019.01.001](https://doi.org/10.1016/j.jand.2019.01.001)
25. Santiago-Torres M, Adams AK, Carrel AL, LaRowe TL, Schoeller DA. Home food availability, parental dietary intake, and familial eating habits influence the diet quality of urban Hispanic children. *Child Obes*. 2014;10(5):408-415. doi:[10.1089/chi.2014.0051](https://doi.org/10.1089/chi.2014.0051)
26. Pyper E, Harrington D, Manson H. The impact of different types of parental support behaviours on child physical activity, healthy eating, and screen time: a cross-sectional study. *BMC Public Health*. 2016;16(1). doi:[10.1186/s12889-016-3245-0](https://doi.org/10.1186/s12889-016-3245-0)
27. Bailey-Davis L, Poulsen MN, Hirsch AG, Pollak J, Glass TA, Schwartz BS. Home food rules in relation to youth eating behaviors, body mass index, waist circumference, and percent body fat. *J Adolesc Health*. 2017;60(3):270-276. doi:[10.1016/j.jadohealth.2016.09.020](https://doi.org/10.1016/j.jadohealth.2016.09.020)
28. Jusienė R, Urbonas V, Laurinaitytė I, et al. Screen Use During Meals Among Young Children: Exploration of Associated Variables. *Medicina (Kaunas)*. 2019;55(10). doi:[10.3390/medicina55100688](https://doi.org/10.3390/medicina55100688)
29. Pearson N, Biddle SJH, Griffiths P, Johnston JP, Haycraft E. Clustering and correlates of screen-time and eating behaviours among young children. *BMC Public Health*. 2018;18(1):753. doi:[10.1186/s12889-018-5698-9](https://doi.org/10.1186/s12889-018-5698-9)
30. Shang L, Wang J, O'Loughlin J, et al. Screen time is associated with dietary intake in overweight Canadian children. *Preventive Medicine Reports*. 2015;2:265-269. doi:[10.1016/j.pmedr.2015.04.003](https://doi.org/10.1016/j.pmedr.2015.04.003)
31. Gillison FB, Lorenc AB, Sleddens EFC, Williams SL, Atkinson L. Can it be harmful for parents to talk to their child about their weight? A meta-analysis. *Preventive Medicine*. 2016;93:135-146. doi:[10.1016/j.ypmed.2016.10.010](https://doi.org/10.1016/j.ypmed.2016.10.010)
32. Berge JM, MacLehose RF, Loth KA, Eisenberg ME, Fulkerson JA, Neumark-Sztainer D. Parent-adolescent conversations about eating, physical activity and weight: prevalence across sociodemographic characteristics and associations with adolescent

weight and weight-related behaviors. *J Behav Med.* 2015;38(1):122-135.
doi:[10.1007/s10865-014-9584-3](https://doi.org/10.1007/s10865-014-9584-3)

33. Berge JM, Maclehose R, Loth KA, Eisenberg M, Bucchianeri MM, Neumark-Sztainer D. Parent conversations about healthful eating and weight: associations with adolescent disordered eating behaviors. *JAMA Pediatr.* 2013;167(8):746-753.
doi:[10.1001/jamapediatrics.2013.78](https://doi.org/10.1001/jamapediatrics.2013.78)

34. Lipowska M, Lipowski M, Jurek P, Jankowska AM, Pawlicka P. Gender and Body-Fat Status as Predictors of Parental Feeding Styles and Children's Nutritional Knowledge, Eating Habits and Behaviours. *International Journal of Environmental Research and Public Health.* 2018;15(5). doi:[10.3390/ijerph15050852](https://doi.org/10.3390/ijerph15050852)

35. Chae S-M, Ra JS. Maternal Weight Control Behaviors for Preschoolers Related to Children's Gender. *J Child Fam Stud.* 2018;27(2):547-558. doi:[10.1007/s10826-017-0902-6](https://doi.org/10.1007/s10826-017-0902-6)

36. Hendrie G, Sohonpal G, Lange K, Golley R. Change in the family food environment is associated with positive dietary change in children. *Int J Behav Nutr Phys Act.* 2013;10:4. doi:[10.1186/1479-5868-10-4](https://doi.org/10.1186/1479-5868-10-4)

37. Roach E, Viechnicki GB, Retzliff LB, Davis-Kean P, Lumeng JC, Miller AL. Family food talk, child eating behavior, and maternal feeding practices. *Appetite.* 2017;117:40-50. doi:[10.1016/j.appet.2017.06.001](https://doi.org/10.1016/j.appet.2017.06.001)

38. Hunger JM, Tomiyama AJ. Weight Labeling and Obesity: A Longitudinal Study of Girls Aged 10 to 19 Years. *JAMA Pediatr.* 2014;168(6):579.
doi:[10.1001/jamapediatrics.2014.122](https://doi.org/10.1001/jamapediatrics.2014.122)

39. Vega-López S, Marsiglia FF, Ayers S, et al. Methods and rationale to assess the efficacy of a parenting intervention targeting diet improvement and substance use prevention among Latinx adolescents. *Contemporary Clinical Trials.* 2020;89:105914.
doi:[10.1016/j.cct.2019.105914](https://doi.org/10.1016/j.cct.2019.105914)

40. Trofholz AC, Tate AD, Berge JM. An exploration of the frequency, location, and content of parents' health- and weight-focused conversations with their children and associations with child weight status. *Eating Behaviors.* 2018;29:137-143.
doi:[10.1016/j.eatbeh.2018.03.007](https://doi.org/10.1016/j.eatbeh.2018.03.007)

41. National Survey of Children's Health, Health Resources and Services Administration, Maternal and Child Health Bureau. Child and Adolescent Health Measurement Initiative. 2018-2019 National Survey of Children's Health (NSCH) data query.
<https://www.childhealthdata.org/browse/survey/results?q=7618&r=4&g=794>.

42. Menendez D, Jiang MJ, Edwards KM, Rosengren KS, Alibali MW. Evaluating and communicating about the healthiness of foods: Predictors of parents' judgments and parent-child conversations. *Cognitive Development*. 2020;55:100913. doi:[10.1016/j.cogdev.2020.100913](https://doi.org/10.1016/j.cogdev.2020.100913)
43. Lydecker JA, Riley KE, Grilo CM. Associations of Parents' Self, Child, and Other "Fat Talk" with Child Eating Behaviors and Weight. *Int J Eat Disord*. 2018;51(6):527-534. doi:[10.1002/eat.22858](https://doi.org/10.1002/eat.22858)
44. Tripathi M, Mishra SK. Screen time and adiposity among children and adolescents: a systematic review. *J Public Health (Berl)*. 2020;28(3):227-244. doi:[10.1007/s10389-019-01043-x](https://doi.org/10.1007/s10389-019-01043-x)
45. Veldhuis L, Grieken A van, Renders CM, HiraSing RA, Raat H. Parenting Style, the Home Environment, and Screen Time of 5-Year-Old Children; The 'Be Active, Eat Right' Study. *PLOS ONE*. 2014;9(2):e88486. doi:[10.1371/journal.pone.0088486](https://doi.org/10.1371/journal.pone.0088486)
46. Ramirez ER, Norman GJ, Rosenberg DE, et al. Adolescent Screen Time and Rules to Limit Screen Time in the Home. *Journal of Adolescent Health*. 2011;48(4):379-385. doi:[10.1016/j.jadohealth.2010.07.013](https://doi.org/10.1016/j.jadohealth.2010.07.013)
47. Furthner D, Ehrenmueller M, Lanzersdorfer R, Halmerbauer G, Schmitt K, Biebl A. Education, school type and screen time were associated with overweight and obesity in 2930 adolescents. *Acta Paediatrica*. 2018;107(3):517-522. doi:[10.1111/apa.14149](https://doi.org/10.1111/apa.14149)
48. Fulkerson JA, Loth K, Bruening M, Berge J, Eisenberg ME, Neumark-Sztainer D. Time 2 tlc 2nite: Use of Electronic Media by Adolescents during Family Meals and Associations with Demographic Characteristics, Family Characteristics, and Foods Served. *Journal of the Academy of Nutrition and Dietetics*. 2014;114(7):1053-1058. doi:[10.1016/j.jand.2013.10.015](https://doi.org/10.1016/j.jand.2013.10.015)
49. Rideout VJ, Foehr UG, Roberts DF. *Generation M2 - Media in the Lives of 8-to 18-Year-Olds*. January 2010. Accessed at: <https://www.kff.org/wp-content/uploads/2013/01/8010.pdf>
50. Andaya AA, Arredondo EM, Alcaraz JE, Lindsay SP, Elder JP. The Association between Family Meals, TV Viewing during Meals, and Fruit, Vegetables, Soda, and Chips Intake among Latino Children. *Journal of Nutrition Education and Behavior*. 2011;43(5):308-315. doi:[10.1016/j.jneb.2009.11.005](https://doi.org/10.1016/j.jneb.2009.11.005)
51. Soltero EG, Jáuregui A, Hernandez E, et al. Associations between Screen-Based Activities, Physical Activity, and Dietary Habits in Mexican Schoolchildren. *IJERPH*. 2021;18(13):6788. doi:[10.3390/ijerph18136788](https://doi.org/10.3390/ijerph18136788)

52. Tovar A, Hennessy E, Must A, et al. Feeding styles and evening family meals among recent immigrants. *Int J Behav Nutr Phys Act.* 2013;10:84. doi:[10.1186/1479-5868-10-84](https://doi.org/10.1186/1479-5868-10-84)
53. Larson N, Fulkerson JA, Berge JM, Eisenberg ME, Neumark-Sztainer D. Do Parents Perceive That Organized Activities Interfere with Family Meals? Associations between Parent Perceptions and Aspects of the Household Eating Environment. *J Acad Nutr Diet.* 2020;120(3):414-423. doi:[10.1016/j.jand.2019.11.008](https://doi.org/10.1016/j.jand.2019.11.008)
54. del Rio Rodriguez B, Hilmers A, O'Connor TM. Hispanic Parents of Overweight and Obese Children and Their Outcome Expectations for Children's Television Viewing: A Qualitative Study. *Journal of Nutrition Education and Behavior.* 2013;45(6):718-722. doi:[10.1016/j.jneb.2013.04.263](https://doi.org/10.1016/j.jneb.2013.04.263)
55. Asplund KM, Kair LR, Arain YH, Cervantes M, Oreskovic NM, Zuckerman KE. Early Childhood Screen Time and Parental Attitudes Toward Child Television Viewing in a Low-Income Latino Population Attending the Special Supplemental Nutrition Program for Women, Infants, and Children. *Child Obes.* 2015;11(5):590-599. doi:[10.1089/chi.2015.0001](https://doi.org/10.1089/chi.2015.0001)
56. Nikken P. Parents' Instrumental use of Media in Childrearing: Relationships with Confidence in Parenting, and Health and Conduct Problems in Children. *J Child Fam Stud.* 2019;28(2):531-546. doi:[10.1007/s10826-018-1281-3](https://doi.org/10.1007/s10826-018-1281-3)
57. Haines J, O'Brien A, McDonald J, et al. Television Viewing and Televisions in Bedrooms: Perceptions of Racial/Ethnic Minority Parents of Young Children. *J Child Fam Stud.* 2013;22(6):749-756. doi:[10.1007/s10826-012-9629-6](https://doi.org/10.1007/s10826-012-9629-6)
58. Thompson DA, Polk S, Cheah CSL, et al. Maternal beliefs and parenting practices regarding their preschool child's TV viewing: An exploration in a sample of low-income Mexican-origin mothers. *Clin Pediatr (Phila).* 2015;54(9):862-870. doi:[10.1177/0009922815574074](https://doi.org/10.1177/0009922815574074)
59. Barroso CS, Springer AE, Ledingham CM, Kelder SH. A qualitative analysis of the social and cultural contexts that shape screen time use in Latino families living on the U.S.-Mexico border. *Int J Qual Stud Health Well-being.* 15(1):1735766. doi:[10.1080/17482631.2020.1735766](https://doi.org/10.1080/17482631.2020.1735766)
60. Duch H, Fisher EM, Ensari I, et al. Association of Screen Time Use and Language Development in Hispanic Toddlers: A Cross-Sectional and Longitudinal Study. *Clin Pediatr (Phila).* 2013;52(9):857-865. doi:[10.1177/0009922813492881](https://doi.org/10.1177/0009922813492881)
61. Jago R, Wood L, Zahra J, Thompson JL, Sebire SJ. Parental Control, Nurturance, Self-Efficacy, and Screen Viewing among 5- to 6-Year-Old Children: A Cross-Sectional Mediation Analysis To Inform Potential Behavior Change Strategies. *Child Obes.* 2015;11(2):139-147. doi:[10.1089/chi.2014.0110](https://doi.org/10.1089/chi.2014.0110)

62. Mansor E, Ahmad N, Raj D, Mohd Zulkefli NA, Mohd Shariff Z. Predictors of Parental Barriers to Reduce Excessive Child Screen Time Among Parents of Under-Five Children in Selangor, Malaysia: Cross-sectional Study. *J Med Internet Res*. 2021;23(4):e25219. doi:[10.2196/25219](https://doi.org/10.2196/25219)
63. Thompson DA, Schmiege SJ, Johnson SL, et al. Screen-related parenting practices in low-income Mexican American families. *Acad Pediatr*. 2018;18(7):820-827. doi:[10.1016/j.acap.2018.05.002](https://doi.org/10.1016/j.acap.2018.05.002)
64. Njoroge WFM, Elenbaas LM, Garrison MM, Myaing M, Christakis DA. Parental Cultural Attitudes and Beliefs Regarding Young Children and Television. *JAMA Pediatr*. 2013;167(8):739. doi:[10.1001/jamapediatrics.2013.75](https://doi.org/10.1001/jamapediatrics.2013.75)
65. Watanabe E, Lee JS, Mori K, Kawakubo K. Clustering patterns of obesity-related multiple lifestyle behaviours and their associations with overweight and family environments: a cross-sectional study in Japanese preschool children. *BMJ Open*. 2016;6(11):e012773. doi:[10.1136/bmjopen-2016-012773](https://doi.org/10.1136/bmjopen-2016-012773)
66. Abbott G, Hnatiuk J, Timperio A, Salmon J, Best K, Hesketh KD. Cross-sectional and Longitudinal Associations Between Parents' and Preschoolers' Physical Activity and Television Viewing: The HAPPY Study. *J Phys Act Health*. 2016;13(3):269-274. doi:[10.1123/jpah.2015-0136](https://doi.org/10.1123/jpah.2015-0136)
67. Roos E, Pajunen T, Ray C, et al. Does eating family meals and having the television on during dinner correlate with overweight? A sub-study of the PRO GREENS project, looking at children from nine European countries. *Public Health Nutrition*. 2014;17(11):2528-2536. doi:[10.1017/S1368980013002954](https://doi.org/10.1017/S1368980013002954)
68. Trofholz AC, Tate A, Loth K, Neumark-Sztainer D, Berge JM. Watching Television while Eating: Associations with Dietary Intake and Weight Status among a Diverse Sample of Young Children. *J Acad Nutr Diet*. 2019;119(9):1462-1469. doi:[10.1016/j.jand.2019.02.013](https://doi.org/10.1016/j.jand.2019.02.013)
69. Ghobadi S, Zepetnek JOT de, Hemmatdar Z, et al. Association between overweight/obesity and eating habits while watching television among primary-school children in the city of Shiraz, Iran. *Public Health Nutrition*. 2018;21(3):571-579. doi:[10.1017/S1368980017003251](https://doi.org/10.1017/S1368980017003251)
70. Fulkerson JA, Pasch KE, Stigler MH, Farbakhsh K, Perry CL, Komro KA. Longitudinal associations between family dinner and adolescent perceptions of parent-child communication among racially-diverse urban youth. *J Fam Psychol*. 2010;24(3):261-270. doi:[10.1037/a0019311](https://doi.org/10.1037/a0019311)

71. Utter J, Larson N, Berge JM, Eisenberg ME, Fulkerson JA, Neumark-Sztainer D. Family meals among parents: Associations with nutritional, social and emotional wellbeing. *Prev Med*. 2018;113:7-12. doi:[10.1016/j.ypmed.2018.05.006](https://doi.org/10.1016/j.ypmed.2018.05.006)
72. Pratt KJ, Skelton JA, Lewis KH, Taylor CA, Spees C, Brown CL. Family Meal Practices and Weight Talk Between Adult Weight Management and Weight Loss Surgery Patients and Their Children. *Journal of Nutrition Education and Behavior*. 2020;52(6):579-587. doi:[10.1016/j.jneb.2020.04.001](https://doi.org/10.1016/j.jneb.2020.04.001)
73. Lindsay AC, Arruda CAM, Machado MM, Greaney ML. “If You Let Them, They Will Be on It 24 Hours a Day”: Qualitative Study Conducted in the United States Exploring Brazilian Immigrant Mothers’ Beliefs, Attitudes, and Practices Related to Screen Time Behaviors of Their Preschool-Age Children. *JMIR Pediatrics and Parenting*. 2019;2(1):e11791. doi:[10.2196/11791](https://doi.org/10.2196/11791)
74. Gingold JA, Simon AE, Schoendorf KC. Excess Screen Time in US Children: Association With Family Rules and Alternative Activities. *Clin Pediatr (Phila)*. 2014;53(1):41-50. doi:[10.1177/0009922813498152](https://doi.org/10.1177/0009922813498152).
75. Arcan C, Culhane-Pera KA, Pergament S, Rosas-Lee M, Xiong MB. Somali, Latino and Hmong parents’ perceptions and approaches about raising healthy-weight children: a community-based participatory research study. *Public Health Nutr*. 2018;21(6):1079-1093. doi:[10.1017/S1368980017001719](https://doi.org/10.1017/S1368980017001719)
76. Jago R, Davison KK, Thompson JL, Page AS, Brockman R, Fox KR. Parental Sedentary Restriction, Maternal Parenting Style, and Television Viewing Among 10- to 11-Year-Olds. *Pediatrics*. 2011;128(3):e572-e578. doi:[10.1542/peds.2010-3664](https://doi.org/10.1542/peds.2010-3664)
77. Detnakintra K, Trairatvorakul P, Pruksananonda C, Chonchaiya W. Positive mother-child interactions and parenting styles were associated with lower screen time in early childhood. *Acta Paediatrica*. 2020;109(4):817-826. doi:[10.1111/apa.15007](https://doi.org/10.1111/apa.15007)
78. Decker ED, Craemer MD, Bourdeaudhuij ID, et al. Influencing factors of screen time in preschool children: an exploration of parents’ perceptions through focus groups in six European countries. *Obesity Reviews*. 2012;13(s1):75-84. doi:<https://doi.org/10.1111/j.1467-789X.2011.00961.x>
79. Bauer KW, Bucchianeri MM, Neumark-Sztainer D. Mother-reported parental weight talk and adolescent girls’ emotional health, weight control attempts, and disordered eating behaviors. *J Eat Disord*. 2013;1(1):45. doi:10.1186/2050-2974-1-45
80. Neumark-Sztainer D, Bauer KW, Friend S, Hannan PJ, Story M, Berge JM. Family Weight Talk and Dieting: How Much Do They Matter for Body Dissatisfaction and Disordered Eating Behaviors in Adolescent Girls? *Journal of Adolescent Health*. 2010;47(3):270-276. doi:10.1016/j.jadohealth.2010.02.001

81. Dahill L, Mitchison D, Morrison NMV, et al. Prevalence of Parental Comments on Weight/Shape/Eating amongst Sons and Daughters in an Adolescent Sample. *Nutrients*. 2021;13(1):158. doi:10.3390/nu13010158
82. Gomes AI, Barros L, Pereira AI. Predictors of parental concerns about child weight in parents of healthy-weight and overweight 2–6 year olds. *Appetite*. 2017;108:491-497. doi:10.1016/j.appet.2016.11.008
83. Shriver LH, Hubbs-Tait L, Harrist AW, Topham G, Page M. Child gender and weight status moderate the relation of maternal feeding practices to body esteem in 1st grade children. *Appetite*. 2015;89:62-69. doi:[10.1016/j.appet.2015.01.017](https://doi.org/10.1016/j.appet.2015.01.017)
84. Loth KA, MacLehose RF, Fulkerson JA, Crow S, Neumark-Sztainer D. Food-Related Parenting Practices and Adolescent Weight Status: A Population-Based Study. *Pediatrics*. 2013;131(5):e1443-e1450. doi:[10.1542/peds.2012-3073](https://doi.org/10.1542/peds.2012-3073)
85. Van der Geest KE, Mérelle SYM, Rodenburg G, Van de Mheen D, Renders CM. Cross-sectional associations between maternal parenting styles, physical activity and screen sedentary time in children. *BMC Public Health*. 2017;17(1):753. doi:[10.1186/s12889-017-4784-8](https://doi.org/10.1186/s12889-017-4784-8)

APPENDIX A
IRB APPROVAL FORM

APPROVAL FULL BOARD

Sonia Vega-Lopez
 SNHP: Nutrition
 602/827-2268
 Sonia.Vega.Lopez@asu.edu

Dear Sonia Vega-Lopez:

On 9/28/2017 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Multi-level effects of a parenting intervention for enhancing Latino youth health behaviors
Investigator:	Sonia Vega-Lopez
IRB ID:	STUDY00006797
Funding:	Name: HHS-NIH: National Center on Minority Health and Health Disparities (NIMHD), Grant Office ID: FP00011681
Grant Title:	FP00011681;
Grant ID:	FP00011681;
Documents Reviewed:	<ul style="list-style-type: none"> • Focus Group Consent, Category: Consent Form; • FPNG+Protocol-Version1-092117-CLEAN, Category: IRB Protocol; • Safety Net - List of resources-Tracked, Category: Resource list; • Home Food Inventory, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • FPNG+ Grant Proposal, Category: Grant application;• Survey for Youth, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Parent Permission-Tracked, Category: Consent Form; • Adult Consent Control-Clean, Category: Consent Form;

	<ul style="list-style-type: none"> • Food Frequency Questionnaire for Adults, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Parent Permission-Clean, Category: Consent Form; • Safety Net - List of resources-Clean, Category: Resource list; • Results Letter - Adult, Category: Participant materials (specific directions for them); • Focus Group Recruitment Script, Category: Recruitment Materials; • Food Frequency Questionnaire for Youth, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Survey for Parents, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Letter of Support ADA, Category: Other (to reflect anything not captured above); • Adult Consent FPNG+-Clean, Category: Consent Form; • ADA Call Center Information Session Script Control, Category: Recruitment Materials; • Williams LR CITI_11236361_120817.pdf, Category: Other (to reflect anything not captured above); • Child Assent-Tracked, Category: Consent Form; • ADA Call Center Information Session Script FPNG, Category: Recruitment Materials; • Adult Consent FPNG-Tracked, Category: Consent Form; • Response to Comments from IRB, Category: Other (to reflect anything not captured above); • Focus Group Guide, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);
--	---

	<ul style="list-style-type: none">• ADA Call Center Information Session Script FPNG+, Category: Recruitment Materials;• Adult Consent FPNG+-Tracked, Category: Consent Form;• FPNG+ Grant Proposal, Category: Sponsor Attachment;• Adult Consent FPNG-Clean, Category: Consent Form;• Child Assent-Clean, Category: Consent Form;• Adult Consent Control-Tracked, Category: Consent Form;• FPNG+Protocol-Version1-092117-Tracked, Category: IRB Protocol;• Results Letter - Youth, Category: Participant materials (specific directions for them);
--	---

The IRB approved the protocol from 9/15/2017 to 9/14/2018 inclusive. Before 9/14/2018, you are to submit a completed Continuing Review application and required attachments to request continuing approval or closure.

If continuing review approval is not granted before the expiration date of 9/14/2018 approval of this protocol expires on that date. When consent is appropriate, you must use final, watermarked versions available under the “Documents” tab in ERA-IRB

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Patricia Dustman
Mary Harthun
Stephanie Ayers
Anaid Gonzalvez
Lela Williams
Leopoldo Hartmann Manrique
Irma Vega de Luna
Patricia Dustman
Flavio Marsiglia
Gabriel Shaibi
Meredith Bruening

APPENDIX B
PARENT CONSENT FORM

Multi-level effects of a parenting intervention for enhancing Latino youth health behaviors

Dear Parent/Guardian:

We are from the School of Nutrition and Health Promotion and the School of Social Work at Arizona State University. We are studying 6th, 7th, and 8th graders' life experiences such as their diet habits and what happens when they encounter alcohol, tobacco, and other drugs, including personal drug use and their response at times when they get into situations that are risky. In partnership with the **American Dream Academy**, we are inviting families at many schools to help us. If you will be attending a workshop from the American Dream Academy and agreed to participate in our confidential surveys for parents, we are requesting your permission for your child to be part of this research as well.

Three times throughout the project, your child will be asked to fill out a confidential survey. Each survey takes about 45 minutes, and kids will be asked about their diet, what they know about alcohol, tobacco, and other drugs, as well as about personal life experiences with those drugs including whether they have used illegal drugs. All project surveys are voluntary, and youth will not be penalized for deciding not to participate or by withdrawing at any time. Your child will always have a choice to take a survey or not. There is no effect on your child's school work or records. The surveys are confidential. We will only be collecting contact information for tracking and follow-up purposes, **or to clarify your diet-related answers if we have questions**. Although the contact information form will be part of the survey, once your child has taken the survey and it has been uploaded to the main database, we will save your child's individual information into a separate database from all of the survey answers so that all is left on the survey is just an ID number. So, your child's name will not be included in reports or in any information that goes to teachers or schools. The survey asks questions about diet and attitudes, behaviors, anti-drug norms, and responses to offers of alcohol or drugs and risky behaviors. Your child will receive an incentive such as key chains and Frisbees for each survey completed.

A small number of families will be randomly selected (by chance) to participate in additional optional data collection in their home every time they complete a survey. If you and your child are selected to participate, a study staff member will visit your home at a time when both you and your child are available to measure your child's height, weight, and blood pressure, and to collect a small blood sample from your child's finger (finger prick to get three to four drops of blood) to measure indicators of diabetes and heart disease risk (HbA1c and cholesterol). This visit is optional and voluntary and will take about 90 minutes. Your child will receive \$10 for each visit for a possible total of \$30 (**may be paid in cash, physical gift card, or electronic gift card**). You do not have to give permission for your child to participate in this additional visit for your child to be part of the larger study. If desired, we will share blood pressure and finger prick results with your child and you during this visit. If we find values that may indicate high blood pressure or elevated risk for diabetes or heart disease, we will give you the values and recommend that you discuss those with your child's doctor. In addition, we will conduct two phone calls where we ask your child about the foods he/she ate the previous day.

By signing below and returning this letter to the school liaison you give your permission for your child to participate in the surveys. Your decision is entirely voluntary. If you choose not to have your child participate, or to withdraw your child at any time, there will be no penalty or negative effect for you or your child. Even if you give your child permission to participate in the program, your child's participation remains voluntary—he or she gets to choose whether or not to take the surveys or to withdraw at any time with no penalty. The results of the study may be published, but your child's name will not be used.

If you have any questions, please call us at 602-496-0700 and we will be happy to answer them. For more information about us, please visit our website at <http://sirc.asu.edu>. If you have any questions regarding your child's rights as a research subject, or if you feel that your child has been placed at risk, please contact the Chair of the Human Subjects Institutional Review Board, through the ASU Research Compliance Office, at (480) 965-6788.

Thank you for your consideration!

Sincerely,



Sonia Vega-López, Ph.D.
Principal Investigator,
ASU

Permission for my child

- YES, my child has permission to participate in the surveys.
- NO, my child does not have permission to participate in the surveys.

By signing below, you are giving your permission for **your child** to participate in the surveys.

Parent's signature: _Date: _

Additional data collection at home and by phone- Permission for my child

- YES, my child has permission to participate to participate in the collection of additional data inthe home and by phone to measure their height, weight, and blood pressure, to collect a finger prick blood sample, and to complete two phone calls about the foods he/she eats.
- NO, my child does not have permission to participate in the collection of additional data.

By signing below, you are giving your permission for **your child** to participate in the additional data collection at your home and by phone.

Parent's signature:

Contact Information

Please print the following:

Parent Name:

FirstMiddleLast

Address: _

StreetCityZip

Phone: _

HomeCell

Email: _

Child in 6th, 7th, or 8th Grade Name:

FirstMiddleLast

Child's Date of Birth: _/_/_
MonthDayYear

Name of Child's School: _

APPENDIX C
PARENT PERMISSION FORM

Multi-level effects of a parenting intervention for enhancing Latino youth health behaviors

Dear Parent/Guardian:

We are from the School of Nutrition and Health Promotion and the School of Social Work at Arizona State University. We are studying 6th, 7th, and 8th graders' life experiences such as their diet habits and what happens when they encounter alcohol, tobacco, and other drugs, including personal drug use and their response at times when they get into situations that are risky. In partnership with the **American Dream Academy**, we are inviting families at many schools to help us. If you will be attending a workshop from the American Dream Academy and agreed to participate in our confidential surveys for parents, we are requesting your permission for your child to be part of this research as well.

Three times throughout the project, your child will be asked to fill out a confidential survey. Each survey takes about 45 minutes, and kids will be asked about their diet, what they know about alcohol, tobacco, and other drugs, as well as about personal life experiences with those drugs including whether they have used illegal drugs. All project surveys are voluntary, and youth will not be penalized for deciding not to participate or by withdrawing at any time. Your child will always have a choice to take a survey or not. There is no effect on your child's school work or records. The surveys are confidential. We will be collecting contact information for tracking and follow-up purposes only. Although the contact information form will be part of the survey, once your child has taken the survey and it has been uploaded to the main database, we will save your child's individual information into a separate database from all of the survey answers so that all is left on the survey is just an ID number. So, your child's name will not be included in reports or in any information that goes to teachers or schools. The survey asks questions about diet and attitudes, behaviors, anti-drug norms, and responses to offers of alcohol or drugs and risky behaviors. Your child will receive an incentive such as key chains and Frisbees for each survey completed.

A small number of families will be randomly selected (by chance) to participate in additional optional data collection in their home every time they complete a survey. If you and your child are selected to participate, a study staff member will visit your home at a time when both you and your child are available to measure your child's height, weight, and blood pressure, to collect a small blood sample from your child's finger (finger prick to get three to four drops of blood) to measure indicators of diabetes and heart disease risk (HbA1c and cholesterol), and to ask your child to complete a survey about the foods he/she eats. This visit is optional and voluntary and will take about 90 minutes. Your child will receive \$10 for each visit for a possible total of \$30. You do not have to give permission for your child to participate in this additional visit for your child to be part of the larger study. If desired, we will share blood pressure and finger prick results with your child and you during this visit. If we find values that may indicate high blood pressure or elevated risk for diabetes or heart disease, we will give you the values and recommend that you discuss those with your child's doctor.

By signing below and returning this letter to the school liaison you give your permission for your child to participate in the surveys. Your decision is entirely voluntary. If you choose not to have your child participate, or to withdraw your child at any time, there will be no penalty or negative effect for you or your child. Even if you give your child permission to participate in the program, your child's participation remains voluntary—he or she gets to choose whether or not to take the surveys or to withdraw at any time with no penalty. The results of the study may be published, but your child's name will not be used.

If you have any questions, please call us at 602-496-0700 and we will be happy to answer them. For more information about us, please visit our website at <http://sirc.asu.edu>. If you have any questions regarding your child's rights as a research subject, or if you feel that your child has been placed at risk, please contact the Chair of the Human Subjects Institutional Review Board, through the ASU Research Compliance Office, at (480) 965-6788.

Thank you for your consideration!

APPENDIX D
ADOLESCENT ASSENT FORM

Multi-level effects of a parenting intervention for enhancing Latino youth health behaviors

Dear Student:

We are from the School of Nutrition and Health Promotion and the School of Social Work at Arizona State University. We are doing research to better understand 6th, 7th, and 8th graders' life experiences such as what they eat and what happens when they are exposed to alcohol, tobacco, and other drugs. Schools all around Phoenix, including your school, are helping us. Families who attend the American Dream Academy program are being invited to help us, too. We hope this research will help us find out ways to help kids like you to stay drug free and eat a healthy diet.

You are being invited to help us by filling out three confidential surveys throughout the year. Each survey takes about 45 minutes, and you will be asked about diet, alcohol, tobacco, and drugs. The surveys are voluntary. Your parent/guardian has given permission for you to fill it out, but you get to decide if you want to take the survey. We will only collect contact information for tracking and follow-up purposes, **or to clarify your diet-related answers if we have questions**. So even though the contact information form is part of the survey, once you take the survey and it is uploaded to the main database, we will take out your contact information and put it in a separate database from all of the survey answers so that all that will be left on your survey is just an ID number. After this, your information will be confidential. So, your parents will never find out what answers you choose and neither will your teachers or your school. You will receive a small item, such as a Frisbee or a key chain, as our way to thank you for completing each survey.

A small number of families will also be invited to participate in additional data collection in their home and by phone. If your family is selected, you will be invited to also allow us to measure your height, weight, and blood pressure, and give us a small blood sample from your finger (finger prick—3 to 4 drops). The blood test will help us learn more about indicators of diabetes and heart disease risk. These optional activities will take about 90 minutes. You will receive \$10 for each home visit for a possible total of \$30. **These will be paid with cash, physical gift card, or electronic gift card**. We will also ask you to complete two phone calls where we will ask you about the foods you ate the day before.

By filling out and signing the form below, you agree to take the survey. You can also indicate whether you would like to participate in the additional data collection activities if your family is selected for those. If you choose not to or if you want to stop at any time, there's no penalty—it won't affect your grade or anything. If you would like to take the survey, please fill in the spaces below and return this letter to your facilitator.

If you have any questions, you can always call us at 602-496-0700 and we will be happy to answer them. For more information, please visit our website at <http://sirc.asu.edu>.

Thank you!

Sincerely,

Sonia Vega-López, Ph.D., Principal Investigator ASU, Phoenix, AZ



Project surveys

I know I have permission to take the surveys and I know what the questions are about. I am going to take the survey because I want to, and I know that I can stop any time. I can skip any questions I don't want to answer, and I know that deciding not to participate is okay.

Signature: Date:

Additional data collection at home and by phone

Please check one of the following options below about additional data collection in your home and by phone:

I DO agree to participate in the collection of additional data in my home to measure my height, weight, and blood pressure, to collect a finger prick blood sample, and to complete two phone calls about the foods I eat. I understand that I may choose not to participate at any time.

I DO NOT agree to participate in the collection of additional data.

Signature:

Please print: Your Name:

Month of birth:

Names of your Parents or Guardians:

Date:

First

First

First

Middle

Day of birth:

Last

Middle

Middle

Last

Last

APPENDIX E
PARENT SURVEY

82. How often does your child do the following at family meals?

	Never or Rarely	Sometimes	Usually	Always
a. Watch television or movies	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
b. Play with hand-held games (e.g., DS, PSP, Game Boy, etc.)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
c. Talk on the phone (cell or other)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
d. Text message	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
e. Listen to music with headphones (e.g., with iPod, MP3 player, or other devices)	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>

83. Do you set limits (have rules, including no use) on your child's media use (TV, cell phone, texting, etc.) at family meals?

- 1 No
 2 Yes

The next questions are about your FAMILY'S eating habits...

76. How often in the past year...	Never or Rarely	A few times a year	A few times a month	A few times a week	Almost every day
a. Have you had a conversation with your child about healthy eating habits?	1	2	3	4	5
b. Have you had a conversation with your child about being physically active?	1	2	3	4	5
c. Have you had a conversation with your child about his/her weight or size?	1	2	3	4	5
d. Have you mentioned to your child that he/she weighs too much?	1	2	3	4	5
e. Have you mentioned to your child that he/she should eat differently in order to lose weight or keep from gaining weight?	1	2	3	4	5
f. Have you mentioned to your child that he/she should exercise in order to lose weight or to keep from gaining weight?	1	2	3	4	5