

**INTERPERSONAL WEIGHT STIGMA FROM FAMILY MEMBERS
IN EARLY ADOLESCENTS**

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Katherine Marie Rancaño, MS

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Thesis Committee Chair and Advisor

Aviva Must, PhD
Morton A. Madoff Professor
Department of Public Health and Community Medicine
Tufts University School of Medicine

Thesis Committee Members

Misha Eliasziw, Ph.D.
Associate Professor
Department of Public Health and Community Medicine
Tufts University School of Medicine

Rebecca Puhl, PhD
Professor, Department of Human Development & Family Sciences
Deputy Director, Rudd Center for Food Policy and Health
University of Connecticut

Margie Skeer, ScD, MPH, MSW
Weiner Hailey Family Professor
Department of Public Health and Community Medicine
Tufts University School of Medicine

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ABSTRACT

Interpersonal weight stigma pervades the social and physical environments of children and adolescents, including social and traditional media platforms, healthcare, schools, and their homes. Interpersonal weight stigma from parents and siblings is especially harmful to the physical and psychosocial health of early adolescents. Negative weight talk includes weight teasing, judgmental remarks about one's weight, and critical remarks about one's lifestyle choices (e.g., eating and exercise habits). It is one of the most common forms of interpersonal weight stigma experienced by early adolescents: up to 46% experience it from their parents and up to 61% experience it from their siblings.

Aim 1. Frequent exposure to negative weight talk from family members (negative familial weight talk) can lead to weight bias internalization, wherein individuals blame themselves for their weight and apply negative weight-based stereotypes and beliefs to themselves because of their weight. Elevated weight bias internalization is linked to disordered eating behaviors, worsening mental health, and poor body image. Yet, the impact of negative familial weight talk on weight bias internalization is unclear among early adolescents. In our first study, we cross-sectionally examined the impact of negative familial weight talk on weight bias internalization levels in 5th, 6th, and 7th graders residing in Massachusetts. Across negative familial weight talk frequency categories (never: 0 times; occasionally: 1 to 9 times; and often: >9 times), weight bias internalization levels increased in a dose-response pattern among participants with or without overweight/obesity and among girls. No association was observed in boys.

Aim 2 and Aim 3. Conversations about one's weight and eating or exercise habits often a source of weight stigma. Parents—without fully recognizing its impact—often use stigmatizing language, characterize weight as a personal responsibility, and engage in negative weight talk (e.g., teasing) during weight-based conversations with their children. Despite the common occurrence of negative weight talk from parents and the evidence of stigmatizing content during parent-child conversations about weight, no intervention, to our knowledge, has been designed to reduce these types of interpersonal weight stigma in early adolescents. In our second and third study, we analyzed data from an ongoing randomized controlled trial to examine the efficacy of a universal weight stigma intervention on negative weight talk from parents (Aim 2) and the quality of parent-child conversation about weight (Aim 3) at 3 months and 6 months follow-up.

We observed no difference in the frequency of negative weight talk from parents at 3- and 6-months follow-up. Additional analyses indicated, however, that among all participants negative weight talk decreased by 27% at 3 months and by 29% at 6 months from baseline levels. (Aim 2). Conversation quality significantly improved among participants in the intervention group at both time points compared to participants in the control group. Participants in the intervention group used 34% and 27% fewer stigmatizing comments at 3- and 6-months, respectively, compared to participants in the control. In addition, participants in the intervention group used 13% and 15% more non-stigmatizing comments at 3- and 6-months, respectively, compared to participants in the control (Aim 3).

This body of research expands our understanding of the impact of negative familial weight talk on weight bias internalization in early adolescents. Our universal weight stigma intervention demonstrates the malleability of weight-based conversation quality and holds promise for meaningfully reducing stigmatizing experiences at home for early adolescents in the U.S.

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CHAPTER 1

Introduction

Considerable media and research attention have focused on the prevalence, etiology, and complications of pediatric obesity over the decades since it was first recognized as a major public health problem. Research studies on pediatric obesity have exponentially increased worldwide since the 1970s and remain a key research area of focus.¹ Attention was amplified early in 2023 with the American Academy of Pediatrics' (AAP) publication of the revised clinical guidelines for the evaluation and treatment of pediatric obesity.² Within three months of its publication, the guidelines were mentioned by more than 600 news articles across more than 400 news outlets.* In contrast, stigma experienced by children and adolescents with obesity and *its* impact on their health and well-being has received far less attention or concern. Early adolescence is a vulnerable time period when stigmatizing experiences occur, as this development phase is characterized by considerable physical changes, identity development, and heightened social comparison with peers.³ Early adolescents commonly experience interpersonal weight stigma, such as teasing and verbal criticisms of their lifestyle and physical appearance, bullying, and discrimination by peers, teachers, healthcare providers, and even family members (including parents, siblings, and distant relatives).^{4,5} Understanding the impact of interpersonal weight stigma from parents and siblings specifically, is an important area of research—and the primary focus of this dissertation—because it is a prevalent form of stigma and has profound consequences to the physical and psychosocial health of early adolescents.

* Estimate of media coverage for the Clinical Practice Guideline for the Evaluation and Treatment of Children and Adolescents With Obesity was obtained by Altmetrics on March 8, 2023.
<https://www.altmetric.com/details/140992077>

Problem and Significance

Up to 43% of early adolescents report being teased or criticized by their parents because of their weight or body shape and 59% report similar experiences from their siblings.^{6,7} Such negative comments about weight and appearance, termed negative familial weight talk (NFWT), are linked to myriad consequences in early adolescents, including declines in mental and physical health and an elevated risk for unhealthy behaviors to control weight and avoid future stigmatization.⁸⁻¹⁰

Frequently experiencing NFWT may lead early adolescents to blame themselves for their weight and applying negative weight-based beliefs and stereotypes to themselves because of their weight. This process of self-blame and self-directed stigma is termed weight bias internalization (WBI) and leads to a diminished sense of self-worth.¹¹ WBI is associated with many of the same consequences observed with NFWT and may operate as the link between experiences of interpersonal weight stigma and poor health and well-being.^{11,12} Yet, examination of the determinants of WBI in early adolescents is lacking in the literature. More specifically, the impact of NFWT on WBI levels in early adolescents remains largely unexplored. Existing studies have primarily focused on WBI in adults and those that focus on pediatric populations have limited generalizability to early adolescents in the U.S.¹³⁻¹⁹

The rapid physical and cognitive growth that occur with puberty render early adolescents vulnerable to body image and appearance-based issues.³ Within the context of NFWT, this vulnerability is concerning because parents and siblings have a powerful influence on the development of body image, weight-based attitudes, and unhealthy weight control behaviors in children and adolescents.^{20,21} Yet, despite the common occurrence of NFWT and its harmful effects on early adolescent health and well-being, existing interventions have primarily targeted peer-sourced interpersonal stigma.²²⁻²⁴ No intervention, to our knowledge, has been designed to reduce interpersonal weight stigma from family members.

As the primary providers of food within the home and of opportunities for physical activity, parents are considered key agents of change for behavioral interventions and are central to the effectiveness of obesity treatment.²⁵ The AAP's clinical guidelines are an exemplar. They rely heavily on parental involvement and on family-based approaches for treating pediatric overweight and obesity.² Consequently, parents feel pressure to “do something” about their child's weight, which often begins as a conversation with their child about their weight and their eating and exercise habits. Despite their positive intentions, parents often use stigmatizing language when discussing weight and related behaviors.²⁶⁻²⁸ Parents also acknowledge that they feel uncomfortable talking about weight with their child and are unsure of how to do so without damaging their child's self-esteem or causing the development of an eating disorder.^{27,29,30} Thus, interventions targeting interpersonal weight stigma from family members must not only focus on reducing the *frequency* of NWT, but also on improving the *quality* of parent-child conversations about weight.

Specific Aims and Hypotheses

This dissertation examines the impact of negative familial weight talk on weight bias internalization levels in early adolescents and aims to expand existing knowledge of weight bias internalization and its determinants during a vulnerable developmental period. Further, this research uses the rigorous study design of an ongoing parallel-group randomized controlled trial to examine the efficacy of a 13-week universal weight stigma intervention on the frequency of negative weight talk and on the quality of parent-child conversations about weight, which was measured using a novel, direct observational method that was developed for this research. The specific aims of this research are:

Aim 1 To examine the association between negative familial weight talk and weight bias internalization in early adolescents. Hypothesis 1a: A higher frequency of negative familial

weight talk will be associated with higher weight bias internalization levels in early adolescents. Hypothesis 1b: The association between negative familial weight talk and weight bias internalization will be stronger among early adolescents with overweight or obesity compared to those without. Hypothesis 1c: The association between negative familial weight talk and weight bias internalization will be stronger among girls compared to boys.

Aim 2 To assess the efficacy of a universal weight stigma intervention on the frequency of negative familial weight talk. Hypothesis 2: Early adolescents randomly assigned to the intervention group will experience less frequent negative weight talk from their parent (enrolled in the study) at 3- and 6-months post-randomizations compared to early adolescents in the control group. Exploratory Hypothesis 2a: Early adolescents randomly assigned to the intervention group will experience less frequent negative weight talk from all family members living in their household compared to early adolescents in the control group. Exploratory Hypothesis 2b: Early adolescents randomly assigned to the intervention group will have lower weight bias internalization levels compared to early adolescents in the control group.

Aim 3 To assess the efficacy of a universal weight stigma intervention on the quality of parent-child conversations about weight. Hypothesis 3: Parent-child dyads randomly assigned to the intervention groups will have higher quality conversations about weight and eating and exercise habits (i.e., less stigmatizing content and more non-stigmatizing content) at 3- and 6-months post-randomization compared to early adolescents in the control group.

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CHAPTER 2

Review of the Literature

The Deep Roots of the Weight Stigma

Stigma research began in earnest in 1963 with Erving Goffman's formative essay, *Stigma: Notes on the Management of Spoiled Identity*. Goffman is credited with being the first to conceptualize stigma and describe the experiences of those subjected to it.¹ His anecdotal essay was the foundation and catalyst for countless studies on various stigmatized attributes, conditions, and behaviors. A clear definition to guide research was lacking, however. In 2001, Link and Phelan published a seminal review which synthesized decades of cross-disciplinary research in order to provide a comprehensive definition of stigma.² They defined stigma as having five essential elements: 1) a specific characteristic is labeled as different, 2) negative beliefs are assigned to the characteristic (i.e., stereotyping), 3) distinct categories are used to separate and identify those with and without the characteristic, 4) discrimination and loss in societal status is experienced by those identified with the characteristic, and 5) societal power structures allow the preceding four elements to occur. Weight stigma satisfies all elements of this definition.³

Weight stigma is the label affixed to the condition of overweight and/or obesity which—through social and cultural processes—has been associated with negative stereotypes. These, in turn, have led to the discrimination and societal rejection of individuals labeled as “overweight” or “obese.” Put more simply, weight stigma is the prejudice, marginalization, and discrimination experienced by individuals with overweight or obesity.^{4,5} To appreciate the deep-rooted nature of weight stigma, it is helpful to understand how the labeling of weight transpired.

Body Weight Categories: A Critical Shift From “Average” To “Ideal”

As noted above, characteristics labeled as divergent from the “norm” is the first essential element of stigma. Labelling body weight categories (i.e., underweight, healthy/normal weight, overweight, and obese) began in the late 19th century when Adolphe Quételet sought to use the statistical concept of a Gaussian distribution to establish the “average” height-adjusted weight for adults.⁶ In 1842, he published reference tables for the “average weight” for Belgian men and women.⁷ Soon after in 1846, John Hutchinson published similar reference tables for English men.⁸ Nearly 20 years later in 1867, Henry C. Fish similar reference tables of the “most desirable” proportion of height-adjusted weight for American men in the *“The Agent’s Manual of Life Assurance”* by the Mutual Life Insurance Company of New York.⁹

In the early 1900s, the Association of Life Insurance Medical Directors and the Actuarial Society of America set actuarial goal: to determine a standard height-adjusted reference table based on *longevity*.¹⁰ Statisticians of the Metropolitan Life Insurance Company (MLIC) collated mortality data of policyholders between 1911 and 1935. These data, which included height and weight at the time of policy initiation, allowed the MLIC to publish the definitive “ideal” height-adjusted-weight that was associated with the lowest mortality. The tables were stratified by gender* and by body frame: small, medium, and large.^{11,12} In 1959, the reference tables were revised according to findings from The Build and Blood Pressure Study wherein the height-adjusted-weight for the lowest mortality—relabelled as “desirable” weight—was lower, on average, † than the previously published MLIC reference tables.^{13 ‡}

* The MLIC reference tables of 1942, 1943, and 1958 likely used gender to refer to biological sex. Reference tables for women and men were published separately in 1942 and 1943, respectively. In 1959, reference tables for women and men were published together.

† The differences between the 1942/1943 and 1959 “ideal”/“desirable” weight tables were substantial, especially for women and men with a shorter stature. For example, the recommended weight for women with a height of 5 feet, 4 inches and “medium” frame, was 6 to 11 pounds lighter (124 to 132 pounds vs. 113 to 126 pounds). For men with a “medium” frame and height of 5 feet, 10 inches, the recommended weight was 4 to 7 pounds lighter (153 to 164 pounds vs. 146 to 160 pounds).

‡ The MLIC reference tables did not stratify by age, implying that one’s weight should remain unchanged throughout adulthood (≥25 years) for longevity.

The MLIC reference tables were not the first to link weight with longevity. The relationship between obesity and early mortality—among other sequelae, such as infertility and diabetes—was hypothesized by ancient physicians such as Hippocrates (460-370 B.C.), Sushrut and Charak (500-400 B.C.), Galenus (129-216 A.D.), and Ibn Sina, commonly known as Avicenna in the West (980-1037 A.D.).⁶ The MLIC reference tables, however, mark a critical shift in the early 20th century from the identification of the *average* weight to an *ideal* or *desirable* weight. Investigators continued to search for the best body weight for longevity and to quantify the risk for mortality and other comorbidities according to deviations from the standard (e.g., 20% above “ideal” weight).

TABLE 1. Fogarty International Center Conference on Obesity Recommended Weight in Relation to Height.¹

Height		Men		Women	
Feet	Inches	Average	Range	Average	Range
4	10			102	92–119
4	11			104	94–122
5	0			107	96–125
5	1			110	99–128
5	2	123	112–141	113	102–131
5	3	127	115–144	116	105–134
5	4	130	118–148	120	108–138
5	5	133	121–152	123	111–142
5	6	136	124–156	128	114–146
5	7	140	128–161	132	118–150
5	8	145	132–166	136	122–154
5	9	149	136–170	140	126–158
5	10	153	140–174	144	130–163
5	11	158	144–179	148	134–168
6	0	162	148–184	152	138–173
6	1	166	152–189		
6	2	171	156–194		
6	3	176	160–199		
6	4	181	164–204		

¹ Height without shoes, weight without clothes. Adapted from the Table of the Metropolitan Life Insurance Co. (Courtesy of the Metropolitan Life Insurance Co.)

Figure 1. Image of the recommended “acceptable” weights from the 1975 Fogarty International Conference on Obesity

In 1975, the Fogarty International Conference on Obesity criticized existing reference tables and provided an average and range of “acceptable” weights, adjusted for height, which were adapted from the MLIC tables and were not stratified by the arbitrary body frame categories, as the criteria for “small”, “medium”, and “large” frame had never been described (Figure 1).

¹⁴ In their report, measures of adiposity were also discussed and cited the work of Ancel Keys, who had determined Body Mass Index Index* (BMI, weight in kilograms divided by height in meters²) was the *best available measure* of adiposity. ¹⁵ Both Keys et al. and the conference report clearly stated that none of the existing measures of adiposity nor the height-adjusted reference tables *reliably* estimated body fat. Nonetheless, BMI was slowly adopted as the leading measure of adiposity. ¹⁶

By 1995, the World Health Organization (WHO) Expert Committee on Physical Status published *The Use and Interpretation of Anthropometry* which stipulated that height and weight, the two basic measures of human anthropometry, should be combined as BMI as a practical measure of the “extent of overweight in individuals and populations”. They proposed cut points for classifying BMI based on its association with mortality.^{† 17} Shortly thereafter in 1998, the National Institutes of Health published the *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report*, which reviewed evidence from observational studies and clinical experience on BMI, morbidity, and mortality. The report determined that BMI was a *practical* measure for assessing overweight and obesity. The cut points adopted were the same as those proposed by WHO and remain

* The BMI was developed by Adolphe Quételet and is known in some parts of Europe as the “Quételet Index.”

† Normal weight BMI = 18.5 and <25.0; Grade 1 overweight BMI = 25 and < 30; Grade 2 overweight BMI = 30 and < 40; Grade 3 overweight BMI = ≥ 40

the same today: underweight (BMI <18.5), normal weight (BMI of 18.5 to < 25.0), overweight (BMI of 25 to < 30) and obesity (BMI $\geq$ 30).^{18*}

Since its development, experts have recognized both the limitations of BMI and its practicality in the clinical setting. It continues to be scrutinized today for its validity in accurately estimating adiposity and predicting risk of health complications and mortality.^{16,19} More recently, BMI has been criticized for possible misclassification of overweight/obesity in specific racial/ethnic groups.²⁰ Notwithstanding these critiques, BMI and the corresponding body weight categories have been important analytical tools for advancing population-based obesity research. Yet, they have simultaneously functioned as tools for weight stigma propagation. Admittedly, prior to the existence of these categories people were stigmatized for their weight based upon their appearance. These body weight categories, however, are the definitive labels used to differentiate those with and without overweight/obesity. Labeling individuals as “overweight” or “obese” allows for the negative prejudicial beliefs and attributes associated with overweight and obesity to be attributed to those affixed with the labels and, in turn, used as justification for their societal discrimination and mistreatment.

Depictions of Obesity Throughout History

Body weight categories set apart individuals with overweight/obesity from those without; however, the social meaning and implications of belonging to a specific weight category are cultural and learned through socialization. Throughout history obesity has been praised and vilified; over time the latter has far outweighed the former.

Relics from the Paleolithic era, such the *Venus of Willendorf* figurine (20,000 B.C., Figure

* “Healthy weight” is currently used by some organizations such as the Centers for Disease Control and Prevention (CDC). “Preobese” was temporarily used in place of “overweight”. “Class I, II, and III obesity” and “severe obesity” are still used intermittently to refer to different levels of obesity (Class I: BMI of 30 to <35; Class II: BMI of 35 to <40; Class III/severe obesity: BMI $\geq$ 40). Cut points for body weight are different for youth.

2A), suggest obesity may have been a symbol of fertility and evolutionary advantage.^{6,21} In medieval Europe, when famine and sickness were common, fatness was a symbol of power, vigor, beauty, and health. Further, artworks during the Renaissance illustrate fatness as symbols of power and beauty, such as the portraits of King Henry VII (Figure 2B) and works by Peter Paul Rubens and Michelangelo.²² In coincident with the sociocultural laud for fatness and full-bodied figures was shame and repudiation.

Obesity has often been associated with negative characteristics, such as weakness, poor health, decadence, and immorality. In ancient Sparta, civilians were required to be physically fit for war; those who did not conform to the physical standard were ostracized.²² In ancient Greece, Hippocrates linked obesity to fatigue, infertility, and early mortality and attributed excessive eating and physical inactivity as its cause.²³ Obesity became intertwined with morality in the Middle Ages, when Constantine I (306-337) declared Christianity the official religion of the Roman Empire. In Roman Catholic teachings the seven deadly sins are believed to inspire additional sin; that could be overcome, however, through the seven virtues.²⁴ Two of the seven—gluttony and sloth—are associated with obesity, and their corresponding virtues are temperance and diligence.^{24,25} Thus, obesity was a punishment from God and signified personal moral failure, the remedy of which was restraint and hard work. Societal condemnation for extravagance and indulgence grew with the spread of Christianity throughout Europe.²² Evidence of obesity as punishment for moral failure is documented in 13th century Japan. The “corpulent woman” in the *yamai-zōshi* (Scroll of Diseases and Deformities, 1185-1333) depicts a large-bodied woman who is unable to support her own weight, the inscription tells a tale of woman punished for her overindulgence in luxury and greed (Figure 2C).^{25,26}



A. Venus of Willendorf
c. 25,000 B.C. Discovered August 7, 1908,
near Willendorf by Josef Szombathy.
Naturhistorisches Museum, Vienna.



B. Portrait of Henry VIII of England.
Hans Holbein the Younger. Unknown
date, after 17th century. Oil on Canvas.
Walker Art Gallery, Liverpool.



C. Corpulent woman from *Yamai-zōshi* (Scroll of Diseases and Deformities)
Unknown Artist. Heian - Kamakura-period, 12th to 13th century. Fukuoka Art Museum.



Figure 2. Depictions of obesity throughout history.

By the 18th century, obesity is almost exclusively described as a growing public health issue. Various publications called for self-discipline (i.e., dietary restraint and increased exercise) as the primary form of treatment.²¹ In his 1727 *A Discourse Concerning the Causes and Effects of Corpulency*, Thomas Short attributed obesity to uncontrolled eating and sedentariness.²⁷ This publication was followed by Malcolm Flemyng in 1760 and Giovanni

Battista Morgagni in 1761, who described obesity as an infection of the blood, asserting that excessive eating and inactivity were the cause, and listed the medical consequences of visceral fat.^{28,29} In 1810 and in 1829, William Wadd published two books on obesity, the first characterized it as a disease that caused a multitude of disorders. His second book included guidelines for treatment (e.g., dietary restraint) and unflattering drawings of people with obesity who appear crestfallen and slumped over, in stark contrast to a drawing of a lean, upright man (Figure 3).^{30,31} Throughout the 20th and 21st century, major scientific advancements led to a greater understanding of the complex etiology of obesity (e.g., brain regulation and hormonal control of appetite) and new technologies for treatment were discovered (e.g., insulin and bariatric surgery).^{6,22} Despite these gains in knowledge, obesity stereotypes flourished in the media and in public health campaigns.



Pgs. 59, 99, and 117. By William Wadd. Published in 1820 by London: John Ebers.
Digitized Sponsor: Open Knowledge Commons and Harvard Medical School.



Figure 3. Images from *Comments on Corpulency: Lineaments of Leanness, Mems on Diet and Dietetics*.

Depictions of Obesity in Media Today

Globally, between 1975 and 2016 the number of children and adolescents (aged 5 to 19 years) with obesity increased from 11 million to 124 million (11.2 times higher) and the number of adults (aged ≥ 22 years) with obesity increased from 100 million to 671 million, an almost seven-fold increase.³² The prevalence of obesity is expected to continue upwards. In the United States, 57% of children and adolescents today are projected to have obesity by 2050 (based on 2017 trends).³³ Although rising levels of obesity merit attention, the inflammatory language used to describe trends (e.g., “epidemic” and “crisis”) and predictions of mortality, poor health, exorbitant economic costs, and productivity losses portray people with obesity as burdens to society, thereby strengthening weight biases* and perpetuating weight stigma.^{34,35}

The media both echoes and shapes the dominant cultural norms, attitudes, and beliefs about obesity in society. Today, traditional media and social media are saturated with negative stereotypes that imply that people with obesity are personally responsible for their weight. A 2022 systematic review found widespread weight stigma across all media types (i.e., news media, entertainment, social media, and public health messaging) including hyperbolic language, personal responsibility for weight, and images of people with obesity as unkempt and in ill-fitting clothing (e.g., an exposed midsection) and engaged in stereotyped behaviors (e.g., sedentary activities and consuming “unhealthy” foods).³⁶ Similar depictions are present in child- and adolescent-targeted media; characters with overweight/obesity are significantly more likely than thin or average weight characters to be depicted as oafish, wicked, unattractive, and comical in books, television shows, and movies.^{37,38} *Weight stigma in*

* Weight bias is distinct from weight stigma, although at times they are used interchangeably in the literature. Weight bias refers to negative weight-based attitudes, prejudicial beliefs, and judgements held toward people with overweight or obesity. Weight bias may be explicit (overt, conscious beliefs) or implicit (subconscious, automatic application of biased beliefs and stereotypes). Weight stigma differs from weight bias in that it refers to the actions taken toward people with overweight or obesity. As defined at the beginning of this Chapter, it is the discrimination and social rejection of people labeled as “overweight” or “obese”.

social media has recently drawn substantial attention because it is widely used by youth, has overt and subtle stigmatizing content, and the anonymity of users facilitates intense interpersonal stigmatization (e.g., degrading comments/replies to obesity-related posts). ³⁹⁻⁴¹

Messages that lend credence to the controllability of weight—viewing weight as a physical characteristic that is within one’s control—produce and fortify weight bias. In psychology, attributions* are the causal judgements individuals make to understand the world. ⁴² That is, individuals process and interpret information from their environment to infer causal explanations for people’s behaviors and the outcomes they experience. A large body of research indicates that attributions of controllability is a strong predictor of weight bias. ⁴³ The stronger one believes that obesity is a product of one’s own weak will, laziness, gluttonous behavior, sedentary lifestyle, lack of self-care, etc., the stronger the weight bias. ⁴⁴ Thus, the prejudicial belief that people with obesity are personally responsible for their weight is contingent on the belief that weight is within one’s control. ^{43,45} Indeed, the etymology of “obesity” is rooted in personal responsibility. Its origins come from the Latin word *obesus*, “that has eaten itself fat” and *obedere*, “to eat all over, devour”. ⁴⁶ ²² That individuals are responsible for their weight is widely disseminated across media types and has been endorsed by prominent authority figures (e.g., healthcare providers and public health leaders), ^{36,47,48} despite the breadth of research on obesity’s complex, multifactorial etiology. ^{49,50} Furthermore, this perspective is conceptually harmonious with American values of individualism and self-determinism, whereby one’s lot in life is perceived as proportional to one’s effort and discipline (i.e., you get what you deserve). ^{43,45}

Together, the negative stereotypical images of obesity throughout human history, the pervasive derogatory and hyperbolic coverage of obesity in media, and the synergy between

* Attribution theory in psychology was first conceptualized by Fritz Heider in *Psychology of Interpersonal Relations* (1958). He theorized that people behave as “naïve psychologists” and assign attributes to behaviors to explain and understand human behavior and the outcomes they and others experience.

personal responsibility for weight and core American values have contributed to persistent weight bias and a marked increase in weight stigma in the U.S. over the last 25 years. Over the span of a single decade, between ~1995 and ~2005, the prevalence of perceived weight discrimination in adults increased from 7% to 12%.⁵¹ Fifteen years later (2020), the prevalence of perceived weight discrimination has increased to 42%, a 3.5 times higher prevalence compared to 2005 estimates.⁵² Both studies used nationally representative samples. It is notable that the increase in weight discrimination far outpaced the rise in age-adjusted obesity prevalence during a similar period, which increased by 31% (age-adjusted obesity prevalence was 32% in 2004 vs. 42% in 2018).⁵³ Estimates of weight stigma among youth are comparable to adults: up to one-third of youth have experienced weight-based discrimination and up to 50% report being bullied for their weight.⁵⁴

Weight Bias and Stigmatization among Youth

Implicit and explicit weight bias—the conscious and subconscious negative attitudes, beliefs, and prejudices held against people with overweight or obesity—often promote stigmatizing behavior.⁴³ Weight bias develops through socialization during early childhood. A 2022 scoping review found weight bias in children younger than 4 years-old and evidence that it strengthened with age.⁵⁵ Additionally studies show implicit and explicit weight bias in children (4-6 and 9-11 years) and in adolescents (15-16 years).⁵⁶⁻⁵⁸ Children and adolescents learn accepted societal and cultural norms from the media, interactions with peers, and from parents, who pass on their own weight bias through modeling behaviors (e.g., dieting) and engaging in weight talk (e.g., criticism of their own body weight).⁵⁴

The development of weight bias throughout childhood is important not only because it precedes weight stigma, but because children who endorse weight bias and are stigmatized for their weight can internalize and attribute weight bias to themselves. This process, termed weight bias internalization (WBI), is a type of intrapersonal weight stigma (i.e., self-directed)

that entails attributing prejudicial beliefs and stereotyped qualities to oneself because of one's perceived* body weight.⁵⁹ For example, someone with internalized weight bias perceives themselves as having overweight or obesity and therefore applies negative weight-based attributes, such as laziness or lacking self-discipline, to themselves. Individuals with elevated WBI levels experience self-devaluation, in which they view themselves as less worthy because of their body weight. Children and adults with elevated WBI are more likely to develop disordered eating behaviors, have critical body perceptions, and experience less favorable physical and psychosocial health than those without elevated WBI.⁶⁰

Interpersonal weight stigma (i.e., stigma from external sources) is common among youth. An international study that included six countries (Australia, Canada, France, Germany, United Kingdom, and U.S.) found 22% to 31% of adults recalled their first experience of weight stigma as occurring before age 10 and 43% to 47% recalled their first experience during adolescence (11-19 years).⁶¹ In the same study, adults from all six countries reported the highest frequency of weight stigma and associated distress occurred during childhood and adolescence. Further, 81%[†] reported weight stigma from their family members, making family the most common source.

Youth experience stigma across an array of settings: in media and entertainment content, in healthcare from practitioners, in school from peers, coaches, and teachers, and in their homes from parents, siblings, and other relatives.⁵⁴ Weight stigma from family members is most often experienced in the form of negative weight talk. Negative weight talk can include weight teasing, critical or judgmental comments about weight (e.g., telling their child they

* Weight bias internalization is not limited to individuals with overweight or obesity, that is individuals with a Body Mass Index of >25.0 and <30.0 for overweight and ≥30.0 for obesity. Some research indicates that perceived body weight may be a stronger predictor of weight bias internalization, as some individuals whose weight would classify as "normal" or even "underweight" may have elevated WBI levels due to their *perception* of having overweight or obesity.

† Prevalence of weight stigma from family members by country: Australia = 85%; Canada = 85%, France = 76%; Germany = 76%; United Kingdom = 82%; U.S. = 88%.

would look better thinner) and pressure to diet or exercise for weight loss.^{62,63} In this review, negative familial weight talk (NFWT) refers to any one of these types of negative weight talk from a family member.

Mothers appear to engage in NFWT more than fathers, although the frequency of parental engagement varies by the type of NFWT. A systematic review found 13% to 46% of mothers and 19% to 39% of fathers teased their adolescent about their weight or appearance.⁶⁴ Teasing may be less common in younger children, however. In a sample of diverse U.S. families, 14% and 7% of early adolescents reported that their mother and father, respectively, teased them because of their weight.⁶⁵ Some evidence indicates that weight teasing is more common between siblings than between parents and their child, with 29% to 61.5% of youth reporting teasing from their sibling.⁶⁴⁻⁶⁶ Furthermore, there is evidence of an implicit “permission effect,” whereby siblings are more likely to engage in teasing when parents themselves participate in it.⁶⁷ Despite frequent occurrence, youth report feeling less distressed by NFWT from siblings when compared to other sources (e.g., strangers, friends, parents).⁶⁶ This phenomenon may reflect a mutual understanding between siblings that remarks are light-hearted or that teasing is reciprocal and a natural part of the sibling relationship.⁶⁵ Thus, it is possible that teasing by siblings is not internalized to the same degree as remarks from other sources.

Explicit, negative comments about weight or body shape (e.g., telling a child they weigh too much) tend to be more common than teasing, but less common than critical comments about eating and exercise behaviors (e.g., encouragement to diet or telling a child they should workout to look better). Two studies conducted in diverse U.S. samples found that 17% to 47% of early adolescents reported their mother made critical weight comments whereas 32% to 44% reported that their mother made critical eating and exercise comments.^{68,69} A similar pattern was observed for fathers, who were also less likely to make critical weight comments

than eating and exercise comments (critical weight comments: 17% to 40%; critical eating and exercise comments: 29% to 40%).^{68,69} Parents may make fewer explicit, negative weight comments because they perceive such comments as more harmful and less productive in motivating behavior change than comments about their eating and exercise habits.

Experiences of NFWT can also vary according to a child's gender and weight status.

Although studies have observed that no difference in NFWT experiences by child gender,⁷⁰⁻⁷⁵ other studies have observed more frequent NFWT in girls compared to boys.^{69,76} For example, one cross-sectional study observed NFWT frequency significantly increased from early to late adolescence among girls, but not boys.⁷⁷ NFWT frequency may also depend on parent-child gender concordance (i.e., mother-daughter vs. father-son). For example, a study conducted in Australia (mean age=14.9 years, 54% girls) found that daughters were more likely than sons to report negative comments about their weight from their mother (mother-daughter: 40% vs. mother-son: 33%) The converse was observed for negative comments about weight from fathers (father-daughter: 25% vs. father-son: 32%).⁷⁷ A similar pattern was observed for critical comments about eating habits.

Differences in NFWT according to child weight status are more consistent. Children with overweight/obesity report more frequent NFWT than children with a lower body weight.^{68-70,75,78-80} Parents, particularly mothers, whose child has overweight/obesity may engage in more NFWT because they feel pressure from family members, physicians, and/or other adults to "do something" about their child's weight. A qualitative study among mothers of diverse racial/ethnic backgrounds found that 85% felt responsibility and blamed themselves for their child's weight status, 79% reported family members had made accusatory and degrading comments to them because of their child's weight, and 33% had or anticipated negative experiences with their pediatrician because of their child's weight (n=34, 71% with obesity).⁸¹

Notably, there is no validated, comprehensive measure for NFWT that is widely used by researchers. Many studies develop their own measures, adapt existing validated measures to meet the needs of their study, or use a one to two items to represent weight-based victimization (i.e., teasing and bullying) from any family member, including immediate relatives and distant relatives. As a result, estimates are variable across studies—even after stratification by source and NFWT type. Thus, study findings according to child and source characteristics (e.g., gender) are often difficult to synthesize.

Consequences of Negative Familial Weight Talk during Adolescence

Early adolescents are vulnerable to the behavioral, psychological, and physical ramifications of weight stigma from family members. As children transition into adolescence, they experience rapid physical changes and gains in cognitive development that culminate in a greater awareness of their body shape, greater participation in body comparisons with peers and media content, and hypersensitivity to social rejection.^{82,83} As a result, during early adolescence youth are more prone to issues related to body image and physical appearance and are more impressionable to social norms (e.g., thin-ideal in girls and muscularity in boys).

Nevertheless, family members can act as insulators from (or conductors for) the unrealistic body ideals that pervade youth-targeted media and the sociocultural environment. Parents and siblings are influential in shaping appearance ideals and in cultivating a healthy body image and body esteem.^{84,85} Moreover, parents cultivate family norms and expectations for eating and exercise via role modeling, parenting strategies, and instrumental support (e.g., provision of healthy foods and opportunities for physical activity).^{86,87} Consequently, the way parents and siblings talk about weight, body shape, and healthy lifestyle behaviors around youth can have an immediate and lasting impact on their well-being.

Maladaptive and Disordered Eating Behaviors

Frequent exposure to NFWT is a well-established risk factor for maladaptive and disordered eating behaviors. A systematic review, which examined studies conducted between 1980 and 2020, corroborated previous work that found that weight teasing from parents and siblings is directly associated with unhealthy weight control behaviors and disordered eating in adolescents, including: dieting, restrictive eating, binge eating, bulimia, emotional eating, and the use of unhealthy weight loss practices (e.g., diuretics, purging, laxatives, etc.).⁶⁴

Two additional systematic reviews that synthesized research up to 2020, found that various types of NFWT, such as encouragement to diet and exercise for weight management, critical weight comments, and teasing from family members, siblings, and parents, are also associated with disordered eating behaviors in the short- and long-term.^{62,63}

Physical Health Consequences

NFWT may also compromise physical health through activation of psychological and physiological stress cascades that are associated with unhealthy behaviors, which in turn may facilitate weight gain.^{50,88} As a coping strategy or to evade further stigmatization, youth who experience NFWT are more likely to avoid and participate in less physical activity, engage in more emotional and stress-related eating, have poor sleep quality, and use substances (i.e., alcohol, cigarettes, marijuana, and other drugs).^{54,71,89-92} Although the directionality of the relationship between NFWT and weight gain remains unclear,^{71,93-97} it is possible that these unhealthy coping and/or evasive behaviors lead to weight gain in youth, thus creating a vicious cycle of weight gain, stigmatization, and poor health.

Psychological Consequences

In addition to NFWT having a direct association with disordered eating behaviors and adverse physical health, NFWT may indirectly lead to poor outcomes through declines in

psychological well-being. A recent meta-analysis of 40 studies found a medium effect size ($r = 0.32$, 95%CI = 0.30 to 0.35) for the overall association between weight stigmatization and mental health in youth, with more robust findings among younger participants.⁹⁸ Specifically, NFWT is associated with self-critical body perceptions (i.e., body dissatisfaction, low body esteem, drive for thinness), low self-esteem, depression, anxiety,^{54,74,99-102}

Weight Bias Internalization

Examination of weight bias internalization (WBI)* in youth is an emergent area of study; the majority of WBI research to date has focused on adult populations. Overall, children with overweight/obesity tend to have higher levels of WBI.⁶⁰ Several studies indicate higher levels of WBI in girls compared to boys,¹⁰³⁻¹⁰⁶ but two studies of adolescents seeking weight loss treatment show no difference by gender.^{107,108}

Experiences of interpersonal weight stigma are associated with greater WBI levels in children and adolescents. Elevated WBI has been associated with many of the same outcomes associated with NFWT, including disordered eating (e.g., dietary restraint and restriction), depression, anxiety, body dissatisfaction, low self-esteem, low quality of life, and weight gain in adolescents.^{60,104,109} A meta-analysis of 105 studies found WBI had a stronger effect on mental health than interpersonal weight stigma; however, the study included both youth and adult populations, so findings may not be generalizable to youth.¹¹⁰ Importantly, WBI may operate as a link between NFWT and adverse outcomes, such as emotional issues, disordered eating, and weight gain in youth.^{80,105} Indeed, WBI accounted for 77% of the effect of parental weight teasing on disordered eating psychopathology (i.e., restraint and concerns about eating, weight, and shape) among German adolescents with and without binge eating disorder.⁸⁰

* Weight bias internalization, defined previously, is a type of self-directed weight that entails applying negative weight-based beliefs and stereotypes to oneself because of one's perceived body weight.

There is a dearth of research examining the association between NFWT and WBI. One study in this area demonstrated that maternal comments about their adolescent's weight and their own weight were associated with greater WBI in adolescents, but WBI was not associated with comments from fathers, specifically, or teasing from family members in aggregate.¹¹¹ Three studies conducted in Germany found that weight teasing from any source (i.e., not specific to family) was significantly correlated with elevated WBI, but the analyses did not account for confounding factors.^{103,105,106} Lastly, one study observed that weight teasing from peers was associated with elevated WBI, but teasing from family was not examined.¹¹² Thus, the impact of negative familial weight talk on WBI levels in children and adolescents remains unclear and merits further examination. The few studies that have examined WBI in children and adolescents have limited generalizability. Much of the research in this area has been conducted in Germany.^{80,104,106,113,114} Studies in U.S. populations have employed majority non-Hispanic White samples (50.9% to 90.1%)^{108,111} or samples that are likely to have a higher risk for elevated WBI than would be expected in children and adolescents (e.g., adolescents seeking bariatric surgery or children with overweight/obesity).^{109,115}

Parental Knowledge Gaps Illustrate a Need for Interventions

One method for changing the persistent nature of weight stigma is to target the behavior of a specific group, in this case, family members.² The primary rationale for parental NFWT across parent gender and racial/ethnic background is concern for their child's health and well-being.¹¹⁶ Despite their well-meaning intentions, weight-based conversations can easily be a stigmatizing experience for the child. Various qualitative studies suggest parents are ill-equipped with the knowledge and language needed to have a non-stigmatizing conversation about weight and weight-based behaviors, such as eating and exercise habits. Parents frequently deem obesity as a personal responsibility, use fear tactics, discuss lifestyle behaviors within the context of weight management and aesthetics (e.g., weight loss and

improving one's figure), or believe that weight teasing within family is innocuous.^{65,117-119}

Thus, interventions that seek to reduce interpersonal weight stigma from family members must target both the *frequency* of NFWT within the home and the *quality* of parent-child conversations about weight (e.g., promoting exercise for non-weight-based outcomes).

A Universal Weight Stigma Intervention to Reduce Negative Familial Weight Talk

Universal interventions are designed for delivery to an entire population, regardless of the varying levels of individual risk within the population.¹²⁰ While universal interventions tend to have a smaller effect size than targeted interventions (i.e., interventions delivered to a population with specific risk factors), they maximize intervention reach by being delivered to a whole population.¹²⁰ This strategy is well-suited for NFWT because all youth are vulnerable to weight stigma and would benefit from having fewer stigmatizing experiences from family members.

According to the Family Systems Theory (FST), behaviors are learned through interactions between family members (e.g., parent-child interactions) and through interactions with our sociocultural environment (child-media interactions).¹²¹ For example, parents with past experiences of weight stigma (parent-environment interaction) are more likely to engage in NFWT with their child (parent-child interaction).^{116,122} Moreover, through family interactions, learned behaviors can be transferred across generations. Indeed, studies have observed intergenerational transmission of weight stigma (grandparent-parent and parent-child interactions).⁹⁴ Another example is the observed “permission effect” for NFWT from siblings (i.e., NFWT is more common among siblings if parents also engage in NFWT). In both instances, parents serve as the gatekeepers of NFWT; they can stop the stigmatizing patterns of past and future generations. Therefore, parents are the primary change agents for reducing NFWT. Parents should be equipped with the necessary knowledge and strategies to reduce their—and other family members’—engagement in NFWT and to

improve the quality of the conversations they have with their child about weight and related behaviors.

At present, weight stigma interventions have targeted healthcare providers^{123,124} and peers^{125,126}, but none to our knowledge have targeted interpersonal weight stigma from family members. As noted above, the frequency of NFWT is only part of the problem.

Interventions must be designed to *reduce the frequency* of NFWT and *improve the quality* of parent-child weight conversations. Furthermore, current studies have exclusively used self-reported, survey-based measures of NFWT, which only capture frequency and are subject to measurement error in recall, recall bias, and social desirability bias. To assess the efficacy of a NFWT intervention, survey measures of NFWT benefit from complementary observational measures, such as audio-recorded parent-child conversations, which provide a more nuanced and objective measurement of NFWT.

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CHAPTER 3

Methods

A. Additional Methods for Aim 3.

1. Development of Weight Stigma Family Assessment Task Prompts

The Weight Stigma Family Assessment Task (WS-FAsTask) prompts were used to capture the quality of parent-child conversations about weight, eating habits, and exercise habits. Quality was defined as adherence to the intervention recommendations (e.g., promoting healthy eating and exercise for well-being, not weight loss) and evidence-based constructs associated with weight stigma (e.g., discussing weight as a personal responsibility). The prompts were designed to guide parents and their child through a conversation that would encourage discussion of their motivations, beliefs, experiences, and family norms regarding having conversations about weight, healthy eating habits, and exercise habits.

We used an iterative process to develop the WS-FAsTask prompts. The first draft was reviewed by an expert in weight bias (Puhl) and experts in communication and intervention study design (Skeer and Must) and internally piloted within the SUPPER study team. The prompts were revised and then evaluated in a small pilot study with the target population. There were three objectives for the pilot study. First, to obtain feedback from the target population on the comprehensibility of the prompts. Second, to assess whether the prompts adequately facilitated a discussion of their motivations, beliefs, and experiences regarding conversations about weight and related behaviors. Third, to assess participant comprehensibility and adherence to the instructions for completing and submitting the WS-FAsTask audio recordings. Following the pilot study, few changes were made to the prompts themselves; however, the wording of the instructions was simplified, and white space and instructional graphics were included to enhance comprehensibility.

2. Development of the Coding Manual for Weight Stigma Family Assessment Task

Recordings

Identification of Constructs

A conversation between two individuals is a complex, social interaction comprising verbal (e.g., word choice) and nonverbal attributes (e.g., tone and facial expression) that impact whether a conversation is a positive or a negative experience. Additionally, external factors such as relationship quality, historical conversations and/or interactions with a specific person, and an individual's lived experiences impact how a conversation is received, independent of the words exchanged during the conversation. For example, irrespective of how well a parent navigates a conversation about weight with their child, their child will bring to the exchange their experiences of interpersonal weight stigma from family members and others, their experiences of conversations about weight and remarks about their lifestyle choices, and their own perceptions of their body and self. These individual factors will ultimately influence whether a child perceives a conversation as stigmatizing, neutral, or as supportive. Although it is important to acknowledge the impact of these individual and external factors on the receipt of a conversation, we intentionally did not account for them in the development of the WS-FAsTask coding manual because its purpose is to measure the *quality* of a parent-child conversation, not whether the conversation is perceived as stigmatizing. Indeed, a low-quality conversation is expected to be perceived as more stigmatizing than a high-quality conversation; but we recognize that this may not always be the case.

As part of this dissertation, I sought to assess the quality of parent-child conversations about weight, healthy eating habits, and exercise habits. The research team defined quality as parental adherence to the evidence-based recommendations emphasized throughout the weight stigma intervention. These recommendations were: 1) to eliminate or intervene with all weight talk from family members within the household, including weight teasing, negative

weight talk (i.e., critical or judgmental comments about weight or body shape), and positive weight talk (i.e., praise or complimentary comments about weight or body shape); and 2) to discuss health behaviors, such as eating and exercise habits, within the context of outcomes and anticipated benefits that are unrelated to weight (e.g., socializing with friends, increasing confidence, improving performance in sports, etc.). In addition to measuring adherence to key recommendations from the weight stigma intervention, I sought to capture the occurrence of other evidence-based stigmatizing and non-stigmatizing statements.

I used an inductive and deductive approach for identifying the constructs to include in the coding manual. The constructs for the recommendations included in the intervention were automatically included in the coding manual (deductive). For completeness, additional evidence-based stigmatizing and non-stigmatizing constructs were identified. I conducted a literature review (deductive) and, in collaboration another doctoral student (AG), listened to a subsample of submitted FAsTask audio recordings to identify reoccurring stigmatizing and non-stigmatizing constructs in the target population (inductive). This subsample was composed of the first participants to enroll in SUPPER, who predominantly lived in a neighborhood that is majority non-Hispanic White and of high socioeconomic status. I therefore identified additional recordings from participants of diverse racial/ethnic background and socioeconomic status to ensure that the additional constructs identified were representative of the entire target population.

Ten stigmatizing and four non-stigmatizing constructs, which were directly targeted by the intervention, were included in the coding manual to allow examination of the weight stigma intervention on parent-child conversation quality (Aim 3). An additional four stigmatizing and three non-stigmatizing constructs were identified from the literature review and the subsample WS-FAsTask audio recordings and were included in the coding manual (Table 1).

Dr. Rebecca Puhl, an expert in weight bias reviewed the constructs and provided feedback. I and another doctoral student (AG) then listened to a new sample of WS-FAsTask recordings to ensure that the existing list of constructs was comprehensive and that no new constructs emerged from the WS-FAsTask audio recordings. We included in the WS-FAsTask tool additional items to add richness to the data collected. These items are not included in our measure of parent-child conversation quality and are not defined in the coding manual as they are self-explanatory (e.g., list of words used to describe weight, list of weight-based outcomes and non-weight-based outcomes mentioned during recordings, etc.). See Appendix A for a copy of the complete WS-FAsTask tool, which includes the supplementary items.

Operationalization of Constructs and Determination of Scores

Each construct in the coding manual was operationalized and a rigorous coding protocol was employed to ensure each WS-FAsTask audio recording was systematically coded across coders. Our objective was to reduce subjectivity and maximize inter-rater reliability (IRR). Each construct was operationalized based on descriptions in the literature and their occurrence in WS-FAsTask audio recordings. Construct definitions and operationalizations were critically reviewed by Dr. Puhl and revised accordingly. Additional meetings were held to discuss and refine operationalizations. Once constructs were finalized, we began operationalizing the scale for scoring the occurrence of each construct.

Similar to previous studies that adapted FAsTask to assess parent-child interactions, each construct was initially scored on a 9-point scale.^{4,5} AG and I had difficulty, however, clearly operationalizing each level of the 9-point scale. This resulted in large discrepancies in scores (i.e., poor inter-rater reliability, IRR). The scale was subsequently restricted to four levels and similar difficulties emerged. After numerous meetings with Dr. Puhl, the research team

concluded that a binary scale that captures the occurrence of each construct (present vs. absent) represented would the best approach for reliably measuring the quality of parent-child conversations.

Using the binary scale, KMR and AG tested the final operationalized definitions and binary scores by independently listening to WS-FAsTask recordings and assigning scores, which were then discussed. Numerous meetings were held to refine scoring definitions until total scores were within one point of each other. We included examples for each construct to enhance the comprehensibility and utility of the coding manual. A portion of the examples were direct quotations excerpted from of WS-FAsTask recordings. Dr. Puhl reviewed the final operationalized constructs, scoring definitions, and corresponding examples for accuracy and completeness, which were then revised based on her feedback. The coding manual was intermittently updated to refine definitions and include salient quotations from WS-FAsTask recordings to serve as examples. The finalized codebook was then used in training the coders for scoring the WS-FAsTask recordings. See Appendix B for the final codebook.

3. Training Protocol for FAsTask Coders

The protocol for training FAsTask coders had two stages. The first stage included a brief presentation on the SUPPER Project trial design and an overview of the WS-FAsTask recording protocol. Coders were also provided a copy of the WS-FAsTask prompts and were required to read seminal review articles on weight stigma, family-sourced negative weight talk, and weight-inclusive behavioral interventions to build knowledge and understanding of weight stigma and weight bias.^{1-3,6} As part of their training, coders were also required to complete CITI Human Subjects Research training.

For the second stage of training, coders read the WS-FAsTask codebook (Appendix B). The codebook was divided into two sections (stigmatizing and non-stigmatizing constructs). Sections were assigned to coders for their careful study approximately one week apart. After reading the assigned section, I met with the coding team for an in-depth group discussion. These team meetings served a dual purpose: to discuss points of uncertainty and to gauge coders' mastery of the constructs (e.g., capacity to differentiate between similar constructs). The next section was not assigned until coders had a solid understanding of the prior section. Once KMR and the coders felt confident in their mastery of the codebook, in its entirety, I assigned five training WS-FAsTask recordings for practice. I had previously coded the training recordings and I carefully selected them so that coders could practice coding with recordings that varied in degree of stigmatizing content and in difficulty.

After completing the training WS-FAsTask recordings, coders met with me (the 'comparative standard' coder) to review their scores and discuss discrepancies. If coders' scores were within one point of the comparative -standard, they would be cleared to begin coding independently. If coders' scores were discrepant by two points or more, they were assigned another set of training recordings until scores were consistently within one point of the comparative standard. After coders completed their training and commenced coding independently, their first five recordings were double-coded by KMR to ensure scores remained within one point of the comparative standard. If scores for the first five independently coded recordings were satisfactory, 20% of recordings moving forward were double-coded IRR monitoring. If scores were unsatisfactory, KMR continued to double-code recordings and to hold weekly meetings to discuss discrepancies until scores were within one point of the comparative -standard. Weekly meetings continued after the training period to discuss any codebook uncertainties and review IRR reports, which always included a group discussion of scoring discrepancies.

4. Assignment of Recordings for Coding

Participant dyads were included in Aim 3 if they had completed WS-FAsTask recordings at baseline and at either 3 months or 6 months post-randomization. To determine the subsample of participant dyads who met these inclusion criteria, participant identification numbers (PID) and the completion status of WS-FAsTask recordings at baseline, 3 months, and 6 months were exported from the SUPPER internal tracking database on January 7, 2022. The status of WS-FAsTask recordings were marked as “complete”, “partially complete”, or “incomplete” for each time point. Participant dyads were labeled as “priority 1” if had “complete” or “partially complete” WS-FAsTask recordings for all three timepoints; these dyads were coded first to maximize completeness of the data (N = 117). Participant dyads were labeled as “priority 2” if they had “complete” or “partially complete” for baseline and one follow-up time point (i.e., 3 months or 6 months); these dyads were coded after all priority 1 recordings were completed (N = 51). By the time we began priority 2 coding, we expected some participant dyads would reach the 6-month time point and complete their WS-FAsTask recording. Therefore, we checked for newly submitted recordings for the PIDs that were only missing the 6-month recording.

Participant dyads missing WS-FAsTask recordings at baseline or at both follow-up time points as of January 7, 2022 were excluded from coding (N = 140). Of the excluded participant dyads, 51.4% had baseline or follow-up assessments that were in progress and may ultimately be completed by the close of the SUPPER trial, 27.8% had never been randomized, and 3.5% had withdrawn from the study. Of the participants who had been randomized, 50% had been randomly assigned to the intervention group (Figure 1).

I and a team of three graduate and undergraduate students coded the recordings. I coded 35% of the recordings and the remaining 65% were coded by the other three team members (AG, IK, and MR) (Figure 2). I assigned participants to coders in the order in which participants were randomized. This helped ensure that each coder was assigned an equal number of participants in the control and intervention groups. No more than 10 recordings were assigned to coders each week to reduce coder fatigue and maintain high-quality coding. On average, each recording requires 45 to 60 minutes to complete; each coder completed 3 to 8 recordings per week.

Coders were blinded to group assignment. The WS-FAsTask coding tool attempted to assess the occurrence of unblinding by asking coders to report to which group they believed the participant was randomly assigned (substance use; nutrition, exercise, and weight stigma; I don't know). Responses of "substance use" or "nutrition, exercise, and weight stigma" were interpreted as possible unblinding. I also served as an interventionist for SUPPER and to eliminate risk of unblinding, the other three coders (AG, IK, or MR) were assigned the recordings of participant dyads for whom I served as an interventionist. All recordings for each participant dyad were coded by the same coder and in achronological order to reduce coder-specific bias and chronological bias (e.g., baseline recordings systematically coded differently than 3-month and 6-month recordings). Given the subjective nature of the WS-FAsTask coding process, it was impossible to eliminate all bias; however, any bias in coding would be consistent over time and would be expected to affect both groups equally since coders were assigned recordings in the order in which participants dyads were randomized.

5. Coding Process

The complete WS-FAsTask coding protocol is described in detail in the codebook (Appendix B). Briefly, coders listened to the audio recording twice and completed a structured or unstructured worksheet (Appendix C & D) to document recording quotations that correspond to the constructs of interest defined in the codebook. Only one coder used the unstructured worksheet for their notetaking. The worksheets were also used during weekly team meetings to discuss coding questions and score discrepancies. After completing the worksheet, coders entered the final scores via a REDCap survey link (Appendix A). The REDCap database was only accessible by KMR.

6. Inter-Rater Reliability Monitoring

Regular team meetings and statistical analyses were used to monitor IRR. Weekly team meetings were led by KMR to discuss specific WS-FasTask recordings with which coders had difficulty scoring. During the meeting, coders would share with the team the structured worksheet—completed with their notes—for the WS-FasTask recording in question. The coder would describe their scoring difficulties and the team would determine the best score for the scenario, guided by KMR and the coding manual. If there was a scenario not addressed in the coding manual, the manual was revised accordingly (e.g., clarifying definitions, adding details to scoring operationalizations, and adding new examples for difficult constructs). These meetings served primarily as an ongoing qualitative assessment of IRR; however, they were also an extension of training and helped coders master the coding manual.

As the ‘comparative standard’ coder, KMR double-coded 20% of the recordings assigned to each coder; none of KMR’s recordings were double-coded. To quantitatively assess IRR, reports comparing the coder’s score to the comparative standard score were regularly emailed to coders. Total scores that were discrepant by more than one point from the

comparative standard were flagged for discussion. Discrepancies were discussed in detail during team meeting to identify the source of the discrepancy (e.g., overlooking a salient remark on the recording, misunderstanding the coding manual, or interpreting a remark differently). If a coder was flagged for discrepant scores twice in succession, the coder completed a refresher training with KMR, which focused on the constructs suspected of causing the most problems. After the refresher training was completed, KMR coded the first five recordings assigned to the coder to ensure scores were within one point of the comparative standard. If scores were satisfactory, KMR resumed double-coding only 20% of the coder's recordings. Only one coder was required to complete a refresher training.

To quantify IRR, overall agreement and reliability between coders and the comparative standard were respectively estimated using Pearson's correlation coefficient and the intra-class correlation coefficient (ICC). The mean difference between coders and the comparative standard was -0.004 (SD = 0.17) and 0.01 (SD = 0.17) for stigmatizing and non-stigmatizing items, respectively. ICC measures the reliability between coders and the comparative standard. The ICC was 0.62 and 0.73 for stigmatizing and non-stigmatizing items, respectively, indicating moderate reliability.⁷ Analyses for Aim 3 did not use all of the items in the WS-FAsTask tool; only those that were specifically targeted by the intervention were included in mean scores (targeted items). Measures of agreement and reliability for the targeted stigmatizing and non-stigmatizing items were similar to measures that used all items in the tool and are included in Table 2. A scatter plot of the difference in stigmatizing and non-stigmatizing scores between coders and the comparative standard against the mean scores with 95% confidence limits is used to illustrate agreement between the coder and the comparative standard scores, as recommended by Bland and Altman (Figure 3A and 3B).^{8,9}

B. Additional Methods for All Research Aims

1. Study Sample Differences Across Research Aims

The analyses for these research aims were completed before completion of the SUPPER Project. Further, SUPPER uses an open enrollment study design; therefore, when analyses were conducted participant-dyads were at different stages of the study (e.g., some participants had completed the study, others were at the 3-months follow-up, and others had just enrolled and completed baseline assessments). As a result, the study sample for Aim 1 differs from the study sample for Aim 2, which differs from the sample in Aim 3.

Aim 1 is a cross-sectional analysis of baseline survey data and includes participant-dyads with incomplete data survey and/or Weight Stigma Family Assessment Task (WS-FAsTask) data at 3 months and/or 6 months. Therefore, aim 1 has the largest sample size of the three research aims. Aim 2 is a longitudinal analysis of survey data from baseline, 3 months, and 6 months, whereas Aim 3 is longitudinal analysis of coded WS-FAsTask audio-recordings—not surveys—with up to 6 months follow-up. To maximize the sample size for Aim 3, participants were required to have submitted a WS-FAsTask recording at baseline and at 3 months or 6 months to be included in the analysis (i.e., complete WS-FAsTask data at 3- and 6-months was not required). This is different from Aim 2, which required participants to have both the 3- and 6-month surveys completed to be included in analyses. Thus, despite having a similar follow-up time, the sample size for Aim 2 is larger than Aim 3. In addition, not all participants completed both the surveys and the WS-FAsTask recordings for the 3- and 6-month timepoints. For example, a participant with complete survey data and incomplete WS-FAsTask data would have been included in Aim 2 analyses but excluded from Aim 3 analyses. Further, not all submitted WS-FAsTask recordings were coded due to the small size of our coding team and the time cost of coding each recording. Of the 504 recordings selected for coding, 43 (8.6%) were either not submitted or submitted incorrectly (e.g., never submitted, submitted a duplicate recording, or recorded the Substance Use FAsTask, only).

Thus, 427 (92.6%) of the 461 recordings available to code were coded and met the inclusion criteria for Aim 3 (N = 156 participant dyads). The process for selecting recordings for coding is described in detail above (Chapter 4. Assignment of Recordings for Coding).

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Table 1. Evidence-based stigmatizing and non-stigmatizing constructs.

	Evidence-based constructs from the weight stigma intervention	Evidence-based constructs identified from the literature & SUPPER subsample recordings
Stigmatizing Constructs	1. Pressure to diet for weight loss or management. 2. Pressure to exercise for weight loss or management. 3. Encouragement to diet for weight loss or management. 4. Encouragement to exercise for weight loss or management. 5. References to weight-based outcomes when discussing healthy eating and exercise habits 6. Weight teasing directed to the self, child, or others 7. Negative or critical comments about weight or body shape directed to the self, child, or others. 8. Positive or complimentary comments about weight or body shape directed to the self, child, or others. 9. In favor of talking about weight, body shape, or body size with their child.	1. Description of weight or obesity as a personal responsibility. 2. Use of negative weight-based stereotypes 3. Fearmongering of obesity through use of extreme examples and/or oversimplification of negative, obesity-related outcomes. 4. Description of people with obesity as unhealthy
Non-Stigmatizing Constructs	1. Encourage healthy eating habits for health and well-being, not weight loss, gain, or maintenance. 2. Encourage exercise for health and well-being, not weight loss, gain, or maintenance. 3. References to outcomes non-weight-based outcomes when discussing healthy eating and exercise habits 4. Not in favor of talking about weight, body shape, or body size with their child.	1. Acknowledgement of the complex etiology of obesity, including onset and maintenance. 2. Encouragement of body acceptance. 3. Recognition of body diversity and diversity of body shape, size, and weight.

Table 2. Comparison of Stigmatizing and Non-stigmatizing Weight Stigma Family Assessment Task (WS-FASTask) (N = 35).

Item (Max # of items)	Coder ²	Comparative Standard ²	Difference ³ (Coder-Comparative Standard)		Relative Difference ³ (Code/Comparative Standard)		Reliability
	Mean (SD)	Mean (SD)	Mean (SD)	P value	Ratio (95%CI)	Item (Max # of items)	Mean (SD)
All Items¹							
Stigmatizing (13)	0.21 (0.18)	0.21 (0.20)	-0.004 (0.17)	0.88	1.02 (0.79 to 1.32)	0.88	0.62
Non-Stigmatizing (7)	0.62 (0.20)	0.61 (0.23)	0.012 (0.17)	0.66	1.02 (0.90 to 1.11)	0.66	0.73
Targeted Items¹							
Stigmatizing (10)	0.22 (0.18)	0.22 (0.21)	0.002 (0.17)	0.92	1.01 (0.79 to 1.30)	0.92	0.63
Non-Stigmatizing (4)	0.84 (0.18)	0.81 (0.25)	0.029 (0.21)	0.42	1.04 (0.95 to 1.12)	0.42	0.57

¹ The “All Items” scores include all items in the WS-FASTask tool for the stigmatizing and non-stigmatizing constructs. The “Targeted Items” include only the items that were targeted by the weight stigma intervention. The targeted scores were used as the primary outcome for Aim 3 analyses.

² The first author (KMR) served as the “comparative standard” coder and the “coder” includes all other members of the coding team (AG, MR, and IK). Mean scores are the proportion of items coded as “present.” For example, the “stigmatizing” score contains 14 items, a mean score of 0.21 is interpreted as 21% of the stigmatizing items were coded as present (2 out of 14 items).

³ The mean difference between the coder and comparative standard (coders – comparative standard) was examined using paired t-tests. The relative difference between the coders and comparative standard (coder / comparative standard) was also examined because the underlying distribution of the scores can be analyzed with a binomial distribution (scores of 0s and 1s). Generalized Estimating Equations with a binomial distribution, log link, and compound symmetry covariance matrix were used to estimate the ratios of proportions and corresponding 95%CI. $P < .05$ denotes statistical significance.

⁴ The intraclass correlation coefficient (ICC) is a measure of reliability that estimates the correlation among observations within a cluster. In this case, the correlation between coders and the comparative standard when coding the same participant (cluster). A larger ICC indicates a stronger correlation between observations within a cluster (range: 0 to 1). ICC can be interpreted as: Poor reliability (ICC < 0.5), moderate reliability (ICC ≥ 0.5 and < 0.75), good reliability (ICC ≥ 0.75 and < 0.9), and excellent reliability (ICC ≥ 0.9).

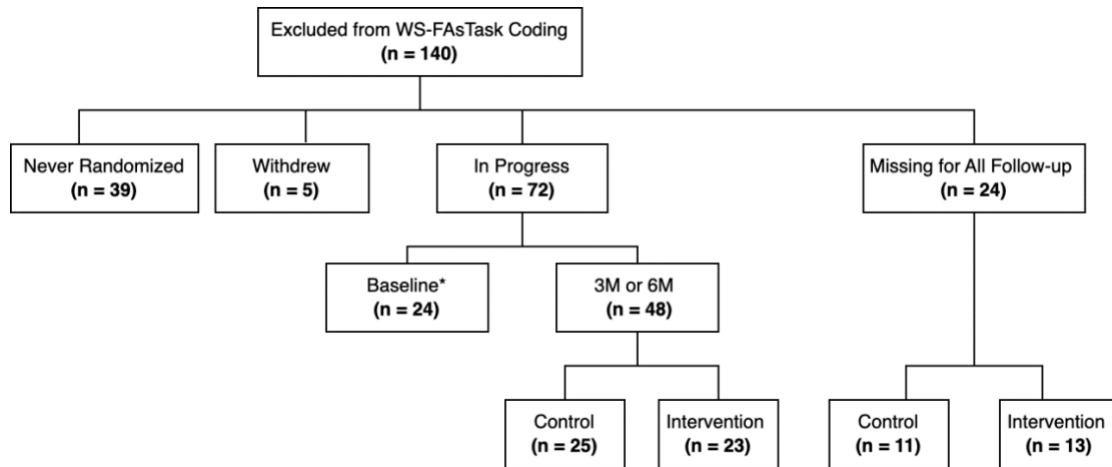


Figure 1. Flow of Participant Dyads Excluded from WS-FAsTask Coding Due to Missing Weight Stigma Family Assessment Task (WS-FAsTask) Recordings

¹ Participants are randomized only after baseline assessments are complete. Two participants had completed their baseline assessments and had been randomized (intervention, $n = 1$; control, $n = 1$), but had not yet reached the 3-month follow-up time point. The remaining 22 participants had baseline assessment in progress and had not yet been randomized.

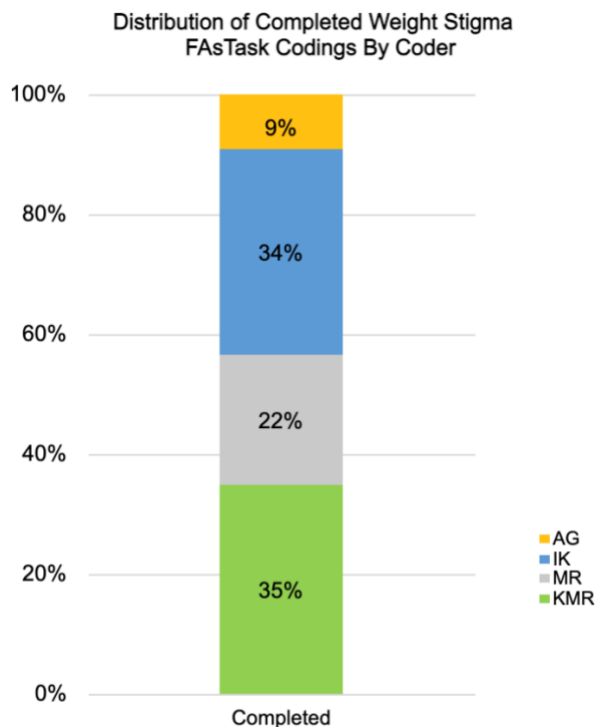


Figure 2. Distribution of Weight Stigma Recordings Completed by Each Coder.

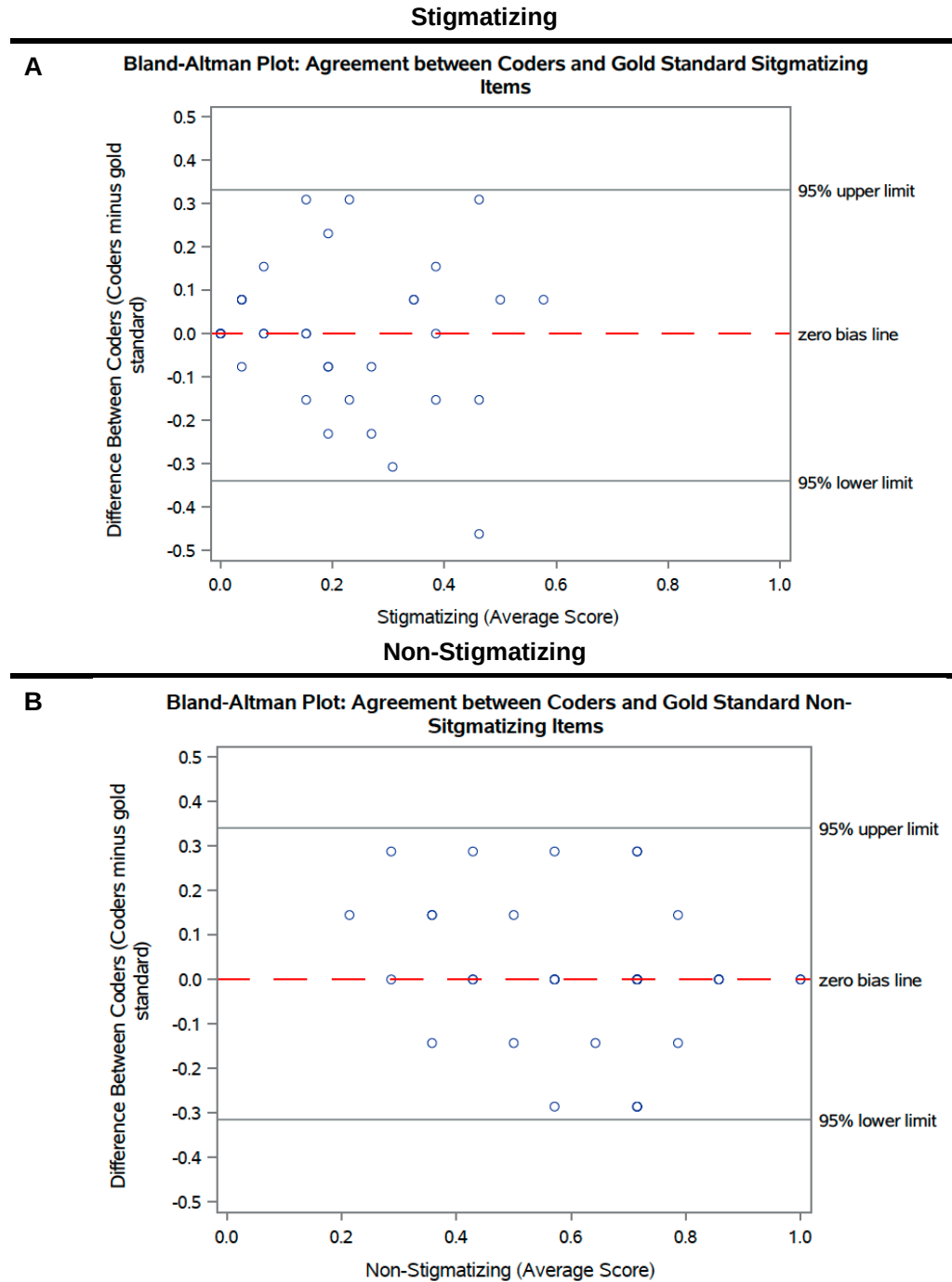


Figure 3. Agreement between coders and the comparative standard for scoring stigmatizing (A) and non-stigmatizing content (B) in the Weight Stigma Family Assessment Task.

¹ Scatter plot of the difference in scores between coders and the comparative standard (coder score – comparative standard score) against the mean of the coder and comparative standard scores $[(\text{coder score} + \text{comparative standard score}) \div 2]$ for stigmatizing content (**A**) and non-stigmatizing content (**B**). Solid grey lines show the 95% confidence limits which indicate where 95% of observations lie ($1.96 \times$ standard deviation of the difference). Dashed red lines show the zero-bias line; dots that fall on the no bias show no bias in coders' scores across the full range of possible scores (range: 0.0 to 1.0).

CHAPTER 4

Negative Familial Weight Talk and Weight Bias Internalization in Early Adolescents

Katherine M. Rancano, MS^a, Rebecca Puhl, PhD^b, Margie Skeer, ScD MPH MSW^c, Misha Eliasziw, PhD^c, Aviva Must, PhD^c

^aTufts University Friedman School of Nutrition Science and Policy, Boston, MA; ^bUniversity of Connecticut Rudd Center for Food Policy and Health, Hartford, Connecticut; ^cTufts University School of Medicine, Boston MA

Planned Journal Submission: *Pediatric Obesity*

Corresponding Author

Katherine M. Rancano, MS
Tufts University Friedman School of Nutrition Science and Policy
150 Harrison Avenue, Boston, MA 02143
katherine.rancano@tufts.edu
(617) 800 - 9192

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Abbreviations:

BMI	Body Mass Index
NFWT	Negative familial weight talk
WBI	Weight bias internalization
WBIS-M	Weight Bias Internalization Scale-Modified

Article Summary

This cross-sectional study describes the dose-response relationship between negative familial weight talk and weight bias internalization in early adolescents by gender and by weight status.

What's Known on This Subject

Early adolescents experience frequent negative familial weight talk (NFWT), a general term for teasing and critical comments about weight from family members. Exposure to NFWT during this developmental period is associated with poor physical and mental health.

What This Study Adds

This study describes the dose-response relationship between NFWT in the home environment and weight bias internalization (WBI) in a diverse sample of early adolescents. NFWT in girls and in early adolescents of any weight status was associated with higher WBI.

Author Contributions

Ms. Katherine M. Rancaño conceptualized, designed, and obtained funding for the study, selected data collection instruments, carried out the statistical analyses and interpretations, drafted the initial manuscript, and critically reviewed and revised the manuscript.

Dr. Rebecca Puhl and Dr. Aviva Must supervised the design of the study, data interpretations, and critically reviewed and revised the manuscript.

Dr. Misha Eliasziw supervised data collection, statistical analyses, and interpretations and critically reviewed and revised the manuscript.

Dr. Margie Skeer supervised the design of the study, oversaw data collection procedures, and critically reviewed and revised the manuscript.

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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Abstract

Objective: Talking about body weight is common in families. We hypothesized that negative familial weight talk (NFWT) frequency would be associated with higher weight bias internalization (WBI) and that the association would be moderated by gender and by weight status.

Methods: In this cross-sectional study, we analyzed 259 early adolescents (5th-7th graders, 10-15 years-old) living in Massachusetts. Participants reported NFWT frequency from family members in their household during the past three months. Frequency was discretized as 'never,' 'occasionally' (1-9 times), and 'often' (>9 times). WBI was assessed by the WBI Scale-Modified. Generalized linear models estimated and compared mean WBI across NFWT frequency categories. Effect modification by gender and by weight status was examined.

Results: In this sample (mean age=11.9 years, 52.9% girls, 51.3% non-Hispanic White), the dose-response relationship between NFWT and mean WBI was moderated by gender ($P=0.049$). Compared to early adolescents who never experienced NFWT, mean WBI among those who often experienced NFWT was 80% higher in girls (95%CI=38% to 136%) and 23% higher in boys (95%CI=-4% to 57%). The dose-response relationship was not moderated by weight status ($P=0.18$). Early adolescents who experienced any NFWT had 2.12 times the prevalence of elevated WBI (≥ 3.0) than those who never experienced NFWT (95%CI=1.17 to 3.83).

Conclusions and Relevance: Frequent NFWT was associated with higher WBI in girls and in early adolescents of any weight status. Longitudinal studies with diverse samples are needed to evaluate the impact of NFWT on WBI over time.

Introduction

As many as 60% of early adolescents are teased because of their weight by family members¹⁻³ and 25% to 46% are encouraged to lose weight through dieting or exercise.^{1,4,5}

Negative familial weight talk (NFWT) refers to family members teasing and making disparaging remarks about a child's weight, body shape, or size, as well as encouraging dieting and exercise for weight loss.⁶⁻⁹ Studies suggest that boys and girls experience NFWT at similar frequencies,¹⁰⁻¹³ whereas early adolescents with overweight/obesity report more frequent NFWT than those without overweight/obesity.^{1,4,14,15}

Parents are a major source of NFWT;⁶⁻⁹ between 21% and 43% of children and adolescents report experiencing NFWT from their parents.^{3,7,16} Parental weight comments shape their child's weight-related attitudes and beliefs, body image, and health behaviors.^{8,17,18}

Accordingly, many studies, including three recent systematic reviews, focus exclusively on parental NFWT and its harmful consequences for youth.⁷⁻⁹ Siblings are also an important source of NFWT, as many as 59% of early adolescents report siblings as a source of weight teasing.^{7,16} Critical weight comments from siblings significantly influence body perceptions,¹⁹ such as body dissatisfaction in girls and drive for muscularity in boys.²⁰ Further, siblings are more likely to engage in negative weight talk when parents themselves engage in it.²⁰

Studies also indicate that family members engage in NFWT differently. Siblings tease more often than parents⁷ and mothers encourage dieting and exercise for weight loss more than fathers and siblings.^{1,5} Although it is important to discern the distinct effects of parental and sibling NFWT, it is valuable to assess the aggregate effect of NFWT from all family members within a household, including siblings, as it provides a comprehensive representation of NFWT within the home environment.

Adolescence is a critical developmental period for body image and self-esteem.¹⁸ Exposure to NFWT during this developmental period undermines the physical and psychological well-being of early adolescents⁶ and can reinforce underlying weight concerns, adversely impact body self-perceptions, and worsen weight-based stereotypes and biases which, in turn, can be internalized.^{12,15} *Weight bias internalization* (WBI) is a type of self-directed stigma wherein individuals engage in self-devaluation and attribute negative weight-based stereotypes and beliefs to themselves because of their perceived body weight.²¹ Girls typically have higher levels of WBI than boys, as do early adolescents with overweight/obesity versus those without overweight/obesity.^{10-13,21} WBI is associated with maladaptive eating behaviors and compromised psychological and physical health in children and adolescents.^{11,12,21,22} Further, WBI may operate as the link between NFWT and the aforementioned health outcomes.^{12,15}

The literature examining the association between NFWT and WBI in early adolescents is sparse and little is known about differences by gender and by weight status. The few extant studies have limited generalizability to early adolescents in the United States and lack racial/ethnic diversity (i.e., ≥90% non-Hispanic White).^{2,12,13} To address these research gaps, we examined the cross-sectional association between NFWT and WBI in a diverse sample of 5th-7th grade students (10-15 years-old) in Massachusetts and examined whether and how associations differed by gender and by weight status.

Methods

Study Design and Participants

This study is a cross-sectional analysis of baseline survey data (March 2019-March 2022) from The SUPPER Project (Substance Use Prevention Promoted by Eating family meals Regularly), a randomized-controlled trial of substance use prevention behavioral intervention

in Massachusetts. Details on the trial design and implementation are published elsewhere.²³ Participant parents and their children were recruited through public schools and a participant recruitment agency. Eligible parents had a child in 5th-7th grade and lived with their child $\geq 50\%$ of the time. Parents and early adolescents with developmental disabilities or limited proficiency in English or Spanish that would interfere with their independent completion of study activities were excluded. Parents and early adolescents provided written informed consent and assent, respectively, and both received a stipend for completed surveys. Study materials were approved by the Institutional Review Board at Tufts University. This report follows the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for cross-sectional studies.²⁴ From this point forward we refer to early adolescents as “adolescents” for easier readability.

Participant Characteristics

Adolescents self-reported their date of birth, gender, race/ethnicity, school grade, and household structure. Parents self-reported their country of birth, annual household income, and highest education level. Adolescents self-reported weight stigma from peers (i.e., “have you ever been teased, made fun of, or treated unkindly by children your age because of your weight?”).^{25,26} Early adolescent height and weight were parent-reported and used to calculate age- and sex-adjusted body mass index (BMI) percentiles; those $\geq 85^{\text{th}}$ percentile were classified as having overweight/obesity (overweight: $>85^{\text{th}}$ and $<95^{\text{th}}$ percentile; obesity: $\geq 95^{\text{th}}$ percentile).²⁷

Negative Familial Weight Talk

Adolescents self-reported NFWT with five items adapted from the Inventory of Peer Influence on Eating Concerns ‘messages’ subscale.^{16,28 28} Although the tool has not undergone a formal validation analysis, studies indicate the ‘messages’ subscale is significantly

associated with disordered eating in children and the tool was used to estimate familial NWT in the Family Meals LIVE! study.^{16,28,29} Participants reported how often during the past three months parents, siblings, and grandparents in their household made critical comments about their weight (e.g., “said you were fat”) on a five-point scale (“never” to “almost every day”). Responses were converted to estimate the frequency during the past three months (e.g., “never” was converted to 0 times and “almost every day” to 71.5; see eTable 4). Converted frequencies for the five items were summed for each family member and aggregated to represent the total NFWT frequency during the past three months (range per family member: 0-357.5 times). Total NFWT frequency was discretized as an ordinal variable: ‘never’ (0 times) ‘occasionally’ (1-9 times) and ‘often’ (>9 times).

Weight Bias Internalization

Adolescents completed the WBI Scale-Modified (WBIS-M), a validated tool to measure WBI levels in adolescents. This version is inclusive of individuals with and without overweight/obesity³⁰ and has been validated in adolescents.^{11,13,22} We used ten of the eleven items to remain consistent with previous studies that have demonstrated low factor loadings for the first item (“Because of my weight, I feel that I am just as competent as anyone”).^{22,31} Participants reported their level of agreement with 10 statements and beliefs about themselves because of their weight (e.g., “I hate myself for my weight”) on a six-point scale. To facilitate comparison with studies that use a seven-point scale, responses were rescaled and then averaged to calculate a mean WBI score (range: 1-7; Cronbach’s α = .96). Higher scores indicate greater WBI.

Statistical Approach

Participant characteristics were summarized with means and standard deviations for continuous variables and frequencies and proportions for categorical variables.

Characteristics were compared across the discretized NFWT frequency categories with one-way analysis of variance and chi-square tests. Generalized linear models with a log link and gamma distribution were used to examine the association between NFWT and WBI. A log link was used because WBI had a right-skewed distribution and a gamma distribution allowed reporting of the results as arithmetic means.³² In addition, the gamma distribution yielded a better-fitting model than a normal distribution (eTable 5).

Confounding variables were identified conceptually according to evidence in the literature and were statistically examined for confounding. Only weight status and peer-sourced weight stigma were identified as confounding variables in bivariate analyses. Although age and gender were not identified as confounding variables, they were included as covariates for completeness. The final models included age, gender, weight status, and peer-sourced weight stigma as covariates. A test of interaction was used to assess whether gender and weight status significantly moderate the association between NFWT and WBI. Ratios of means with corresponding 95% confidence intervals (95%CI) characterize the association between NFWT and WBI and the NFWT frequency of 'never' serves as the reference category.

Although there is no established definition for elevated WBI, high-risk adolescents (e.g., those seeking bariatric surgery) report WBI levels between 3.4-5.5.^{11,15,22,33} As a secondary analysis we examined the association between NFWT and elevated WBI (≥ 3.0). NFWT frequency was dichotomized as 'ever' versus 'never' and a log-binomial regression model was used with the same covariates listed above. Prevalence ratios with corresponding 95% CIs characterize the association between any NFWT and elevated WBI.

To characterize the type and source of NFWT reported, we calculated the percentage of adolescents who reported experiencing any of the five weight-based statements that comprise the NFWT measure from their mother, father, and siblings. Grandparents were excluded because only 19 participants (7.3%) lived with grandparents. These results are presented in a radar plot. Statistical analyses were performed using SAS version 9.4 and results with a P value < 0.05 were deemed to be statistically significant.

Results

Of the 277 participants with baseline NFWT and WBI data, 259 participants were analyzed ($N=18$ missing WBI). There were no meaningful differences between participants with and without missing WBI data (eTable 1). The mean age of participants was 11.9 years ($SD=1.0$) and 52.9% self-identified as a girl, 51.3% self-identified as non-Hispanic White, 23.9% as Hispanic, 14.7% as non-Hispanic Black, and 10.0% as non-Hispanic other. Adolescents who experienced NFWT often were most likely to self-identify as Hispanic ($P=0.02$), have overweight/obesity ($P<0.001$), report weight stigma from peers ($P<0.001$), have a parent who was born outside of the United States ($P<0.001$), and live in a household with parents/guardians with a lower education level ($P=0.03$) and an annual income $< \$150,000$ ($P=0.02$).

One-quarter of adolescents experienced NFWT occasionally (25.5%) and 8.1% experienced it often during the past three months. In our primary analyses, we observed a dose-response relationship between NFWT and WBI. Mean WBI levels were 13% higher among adolescents who experienced NFWT occasionally (95%CI=0.04%-26%, $P=0.04$) and 49% higher among adolescents who experienced it often (95%CI=24%-79%, $P<0.001$) (eTable 2) compared to adolescents who never experienced NFWT.

The association between NFWT and WBI was moderated by gender (interaction $P=0.049$). Overall, girls experienced a greater increase in WBI than boys across NFWT frequency categories. Girls who experienced NFWT often had an 80% higher mean WBI level than girls who never experienced NFWT (95%CI=38%-136%, $P<0.001$) whereas boys who experienced NFWT often had a 23% higher mean WBI level than boys who never experienced NFWT (95%CI=-4%-57%, $P=0.10$). A smaller, non-statistically significant difference by gender was observed with occasional NFWT ($P=0.09$). Girls who experienced NFWT occasionally had a 22% higher mean WBI level than girls who never experienced NFWT (95%CI=5%-44%, $P=0.01$) whereas boys who experienced NFWT occasionally had a 2% higher mean WBI level than boys who never experienced it (95%CI=-13%-20%, $P=0.82$) (Table 2, Figure 1A).

There was no significant difference in the association between NFWT and WBI by weight status (interaction $P=0.18$). Among adolescents with overweight/obesity, those who experienced NFWT occasionally had a 23% higher mean WBI level than those who never experienced NFWT (95%CI=1%-50%, $P=0.007$), whereas among adolescents without overweight/obesity, those who experienced NFWT occasionally had a 7% higher mean WBI level than those who never experienced NFWT (95%CI=-7%-23%, $P=0.37$). A similar pattern was observed among those who experienced NFWT often. Among adolescents with overweight/obesity, those who experienced NFWT often had a 39% higher mean WBI level than those who never experienced it (95%CI=9%-77%, $P=0.007$), whereas among adolescents without overweight/obesity, those who experienced NFWT often had a 72% higher mean WBI level than those who never experienced NFWT (95%CI=28%-132% $P<0.001$). At the highest NFWT frequency category, the mean WBI levels were nearly equivalent between adolescents with and without overweight/obesity (Table 3, Figure 1B).

In our secondary analyses, we found 18.9% of participants had elevated WBI (N=49). The adjusted prevalence of elevated WBI was 41.7% among adolescents who experienced NFWT at any frequency whereas 19.7% of adolescents who did not experience any NFWT had elevated WBI. Thus, the prevalence of elevated WBI was 2.1 times higher among adolescents with any experience of NFWT compared to those who never experienced it (95%CI=1.2-3.8).

With respect to the type and source of NFWT, 27.5% of adolescents reported NFWT from siblings, 23.7% from mothers, and 14.8% from fathers. Compared to siblings, parents were more likely to make diet-related comments and less likely to tease and make appearance-based comments (Figure 2 and eTable 3).

Discussion

In this cross-sectional study of a diverse sample of adolescents in Massachusetts, one-third of participants experienced NFWT during the past three months and 8% experienced it often. To the best of our knowledge, this is the first study to observe a dose-response relationship between NFWT and WBI in adolescents. Although measures of NFWT are variable, previous studies are consistent with our findings.^{2,12,13} Two publications from the PIER study of German children found familial weight teasing was significantly correlated with WBI, but the analyses did not account for confounding factors.^{12,13} A second study conducted in adolescents seeking weight loss treatment found that after adjusting for age, BMI, and race/ethnicity, maternal comments about weight were associated with higher WBI;² however, the study excluded siblings and examined weight teasing separately.

More frequent NFWT was associated with higher levels of WBI in girls than in boys. Girls may internalize critical weight-based commentary more than boys because of higher levels

of body dissatisfaction,³⁴ greater engagements in appearance-related social comparison, and ongoing exposure to weight-stigmatizing media content that differentially targets women/girls.³⁵ Among boys, we observed no difference in WBI across the NFWT frequency categories. Body dissatisfaction in boys often centers on muscularity (not examined in our study) and is associated with adverse outcomes similar to those observed with WBI (e.g., eating disorders and body shame),³⁴ thus warranting future investigation of the relationship between NFWT and WBI in boys.

Our findings indicate that WBI is a concern across the weight spectrum. Increases in WBI, given more frequent exposure to NFWT, did not differ according to weight status. In our sample, WBI increased in a clear dose-response manner across the NFWT frequency categories among adolescents with overweight/obesity. One study of adolescents with overweight/obesity and binge eating disorder found similar findings,¹⁵ whereas another study of adolescents seeking weight loss treatment found teasing from peers—not family—was associated with greater WBI.³⁶

The dose-response relationship in our sample was less pronounced in adolescents without overweight/obesity who may be able to withstand occasional NFWT without considerable increases in WBI. When NFWT was experienced often, however, WBI levels were similar in adolescents with and without overweight/obesity. This finding is noteworthy because up to 45% of children and adolescents without overweight/obesity report teasing or weight-based commentary from family.^{5,37} Further, in our secondary analysis adolescents who experienced any NFWT had more than twice the prevalence of elevated WBI compared to those who never experienced NFWT. Elevated WBI is associated with depression, anxiety, body dissatisfaction, low self-esteem, disordered eating, poor quality of life, and weight gain.

^{11,12,21,22,38} Thus, although adolescents without overweight/obesity evidenced some resilience

to WBI with occasional NFWT, eliminating weight teasing and critical weight-based commentary from family members is still warranted.

Overall, our participants represent a range of weight categories and diverse racial/ethnic backgrounds— these characteristics likely impacted our findings. Previous studies in children and adolescents report mean WBI levels between 3.8-5.5, which is higher than levels observed in our sample.^{2,11,15,22,33} Three German studies conducted in 6-11 years-olds reported WBI levels that were lower than our sample; however, they measured WBI with a four-point scale.^{10,12,13} Acknowledging the limitations of rescaling a four-point scale to a seven-point scale, we estimate WBI in these three studies would be between 2.0-2.4 on a seven-point scale, which is higher than levels observed in our sample. The lower prevalence of overweight/obesity and the racial/ethnic diversity of our sample may have suppressed WBI levels in our study. Despite experiencing more frequent NFWT, emerging evidence with adults suggests that Hispanics and non-Hispanic Blacks have lower WBI levels than non-Hispanic Whites.^{14,39,40} Research is needed to elucidate the complex interactions of cultural norms, weight stigma, and WBI.

We found a similar pattern in the source and type of NFWT as prior studies.^{5,16} Siblings primarily teased and made appearance-related comments, mothers primarily made diet-related comments, and fathers were the least common source of NFWT. Qualitative studies indicate that siblings tease in a joking manner whereas parents discuss weight out of concern for their child's health^{41,42} and to improve their eating and/or exercise habits.⁴³ Mothers experience strong societal pressure and personal responsibility for their child's weight, as a result they may have more weight-related conversations with their children to avoid being perceived as neglectful or to blame for their child's weight.⁴⁴ Further investigation is warranted to elucidate whether the impact of NFWT on adolescent WBI is dependent on the source and type of NFWT they experience.

Strengths and Limitations

Our study has several strengths. First, early adolescent-reported NFWT reduced social desirability bias relative to a parent-reported measure. We used an aggregate, comprehensive NFWT measure that captured several types of NFWT from family members in the household, including siblings. Most studies have assessed weight teasing^{1,14,33,37,40,45} and other forms of NFWT (e.g., encouragement to diet) separately, focused exclusively on parental NFWT, or failed to distinguish between immediate and distant relatives. Second, we used a three-level ordinal variable for NFWT frequency which enabled observation of a dose-response relationship. We conducted analyses using a WBI cut point ≥ 3.0 to define elevated WBI, a novel approach that allows for a more meaningful interpretation of results. Finally, our study examined WBI in a diverse sample of adolescents with a prevalence of overweight/obesity that reflects United States levels, enhancing the generalizability of our findings.

This study also has several limitations. First, the cross-sectional design limits any inference of causality; however, it seems unlikely that elevated WBI levels would lead to NFWT. Although we had 94% statistical power to detect differences in WBI between the 'never' and 'often' NFWT frequency categories in our primary analyses, our sample size may have been underpowered to detect differences in WBI among boys or by weight status. We relied on participants' recall to estimate NFWT frequency and the timeframe was restricted to the past three months to align with the SUPPER study design. Consequently, rare occurrences of NFWT may not have been captured; however, recall may be more accurate over a shorter interval. The NFWT measure in our study also does not include muscularity and thus may be biased toward weight concerns more typical of girls. Finally, the study was conducted in

Massachusetts and may not be generalizable to populations in different parts of the United States or other parts of the world.

Conclusions

In this cross-sectional study, more frequent NFWT was associated with higher WBI in a dose-response manner among 5th-7th graders in Massachusetts. Our findings offer insights about the role of NFWT in WBI and highlight the pertinence of weight stigma in girls and in adolescents of all body weights. Longitudinal studies with diverse samples are needed to evaluate the impact of NFWT and WBI over time and the influence of cultural background on WBI. Although other factors have a stronger influence on WBI levels (e.g., peers and social media), preventing and reducing NFWT is an important step toward maintaining adolescent WBI levels within a healthy range. As such, research is needed to assess the feasibility and efficacy of NFWT prevention interventions and identify proactive strategies to build resilience and reduce WBI levels in adolescents.

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Table 1. Sociodemographic and Weight-Related Characteristics of Participants (N = 259).

	Never (N=172)	Occasionally (N=66)	Often (N=21)	P value
Child age (years), mean (SD)	11.8 (1.1)	12.1 (1.0)	11.9 (1.0)	.06
Child grade, n (%)				.06
5 th	69 (40.1)	17 (25.8)	7 (33.3)	
6 th	63 (36.6)	22 (33.3)	6 (28.6)	
7 th	40 (23.3)	27 (40.9)	8 (38.1)	
Child gender, n (%)				.279
Girl	97 (56.4)	31 (47.0)	9 (42.9)	
Boy	75 (43.6)	35 (53.0)	12 (57.1)	
Child race/ethnicity, n (%)				.024
Hispanic	36 (20.9)	15 (22.7)	11 (52.4)	
Non-Hispanic Black	26 (15.2)	8 (12.1)	4 (19.1)	
Non-Hispanic Other ^a	15 (8.7)	10 (15.2)	1 (4.8)	
Non-Hispanic White	95 (55.2)	33 (50.0)	5 (23.8)	
Child weight classification, n (%)				<.001
Without overweight/obesity	132 (76.7)	40 (60.6)	7 (33.3)	
With overweight/obesity	40 (23.3)	26 (39.4)	14 (66.7)	
Child weight stigma from peers, n (%)				2\$
Never	147 (85.5)	47 (71.2)	13 (61.9)	
Ever	25 (14.5)	19 (28.8)	8 (38.1)	
Child weight bias internalization, mean (SD)	1.7 (1.0)	2.2 (1.3)	3.2 (1.92)	<.001
Parent country of birth, n (%)^b				<.001
Born in the United States	148 (86.6)	48 (74.2)	11 (52.4)	
Born outside of the United States	23 (13.6)	17 (25.8)	10 (47.6)	
Highest household education, n (%)				.03
Less than a bachelor's degree	43 (25.0)	17 (25.8)	11 (52.4)	
Bachelor's or graduate degree	129 (75.0)	49 (74.2)	10 (47.6)	
Annual household income, n (%)				.02
Less than \$26,000	16 (9.3)	9 (13.6)	5 (23.8)	
\$26,000 to \$74,999	16 (9.3)	12 (18.2)	2 (9.5)	
\$75,000 to \$149,999	41 (23.8)	16 (24.2)	9 (42.9)	
\$150,000 or more	99 (57.6)	29 (43.9)	5 (23.8)	

^a American Indian/Alaskan Native (n=2), Asian (n=6), Multiracial (n=10) and Other (n=2)

^b There was missing data on country of birth for one participant with 'Never.'

* Group differences were examined with two sample t-tests and chi-square tests for continuous and categorical variables, respectively. P value <.05 denotes statistical significance.

Table 2. Adjusted Mean Weight Bias Internalization Levels Across Negative Familial Weight Talk Frequency Categories Among Girls and Boys (N = 259).

	Never Mean (95% CI)	Occasionally Mean (95% CI)	Often Mean (95% CI)	Occasionally vs. Never Ratio of Means (95%CI)^a P value*	Often vs. Never Ratio of Means (95%CI)^b P value*
Girls	2.28 (2.09 to 2.50)	2.81 (2.44 to 3.23)	4.12 (3.17 to 5.34)	1.22 (1.05 to 1.44) .01	1.80 (1.38 to 2.36) < .001
Boys	2.12 (1.91 to 2.34)	2.16 (1.89 to 2.47)	2.60 (2.08 to 3.24)	1.02 (.87 to 1.20) .82	1.23 (.96 to 1.57) .10
Girls vs. Boys Ratio of Ratios^c (95%CI) P value*				1.21 (.96 to 1.51) .09	1.47 (1.02 to 2.11) .049

* Generalized linear models with a log link and gamma distribution were used to examine the association between negative familial weight talk (NFWT) and weight bias internalization. Models were adjusted for adolescents' gender, age, weight status, and peer-sourced weight stigma. Linear contrasts were used to assess differences across levels of NFWT and to compare differences between boys and girls. $P < .05$ denotes statistical significance.

^a Occasionally vs. never ratio was calculated by dividing the occasionally mean by the never mean for girls (2.81 / 2.28) and boys (2.12 / 2.16), separately.

^b Often vs. never ratio was calculated by divided the often mean by the never mean for girls (4.12 / 2.28) and boys (2.60 / 2.12), separately.

^c Ratio of ratios was calculated by dividing the ratio for girls by the ratio for boys for occasionally vs. never (1.22 / 1.02) and for often vs. never (1.80 / 1.23) ratios.

Table 3. Adjusted Mean Weight Bias Internalization Levels Across Negative Familial Weight Talk Frequency Among Early Adolescents With and Without Overweight/Obesity (OV/OB) (N = 259)

	Never Mean (95% CI)	Occasionally Mean (95% CI)	Often Mean (95% CI)	Occasionally vs. Never Ratio of Means (95%CI) ^a P value*	Often vs. Never Ratio of Means (95%CI) ^b P value*
With OV/OB	2.33 (2.06 to 2.64)	2.88 (2.47 to 3.34)	3.25 (2.64 to 3.99)	1.23 (1.01 to 1.50) .04	1.39 (1.09 to 1.77) .007
Without OV/OB	1.99 (1.84 to 2.18)	2.13 (1.87 to 2.42)	3.44 (2.56 to 4.62)	1.07 (.93 to 1.23) .37	1.72 (1.28 to 2.32) < .001
With vs. Without OV/OB Ratio of Ratios ^c (95%CI) P value*				1.16 (.91 to 1.45) .23	0.80 (.58 to 1.18) .27

* Generalized linear models with a log link and gamma distribution were used to examine the association between negative familial weight talk (NFWT) and weight bias internalization. Models were adjusted for adolescents' gender, age, weight status, and peer-sourced weight stigma. Linear contrasts were used to assess differences across levels of NFWT and to compare differences between adolescents with and without OV/OB. $P < .05$ denotes statistical significance.

^a Occasionally vs. never ratio was calculated by dividing the occasionally mean by the never mean for adolescents with OV/OB (2.88 / 2.33) and without OV/OB (2.13 / 1.99), separately.

^b Often vs. never ratio was calculated by dividing the often mean by the never mean for adolescents with OV/OB (3.25 / 2.33) and without OV/OB (3.44 / 1.99), separately.

^c Ratio of ratios was calculated by dividing the ratio for adolescents with OV/OB by the ratio for adolescents without OV/OB for occasionally vs. never (1.23 / 1.07) and for often vs. never (1.39 / 1.72) ratios.

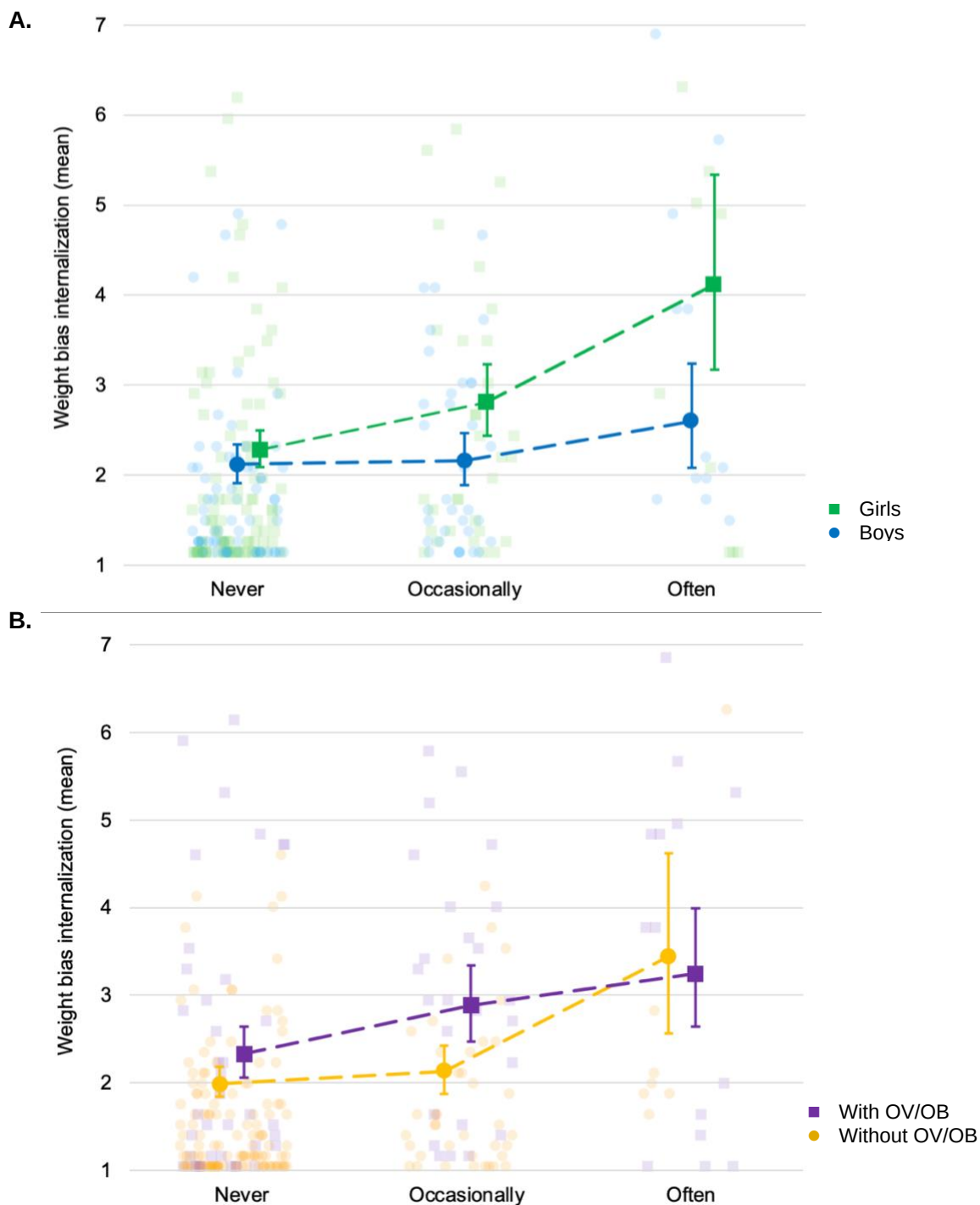


Figure 1. Mean Weight Bias Internalization Across Negative Familial Weight Talk Frequency Categories Among Boys and Girls (A) and Children With & Without Overweight/Obesity (B).

Negative familial weight talk (NFWT) was discretized into a three-level ordinal variable using frequency of NFWT during the past three months. The NFWT frequency categories are never (0 times), occasionally (1 to 9 times), and often (more than 9 times). Solid circles/squares and vertical lines are the adjusted mean weight bias internalization (WBI) and corresponding 95% confidence intervals for each NFWT frequency category. Semi-transparent points are the participants' adjusted mean WBI levels. The dashed lines illustrate the increase in WBI across NFWT frequency categories. Abbreviations: NFWT = negative familial weight talk, OV/OB = overweight/obesity, WBI = weight bias internalization

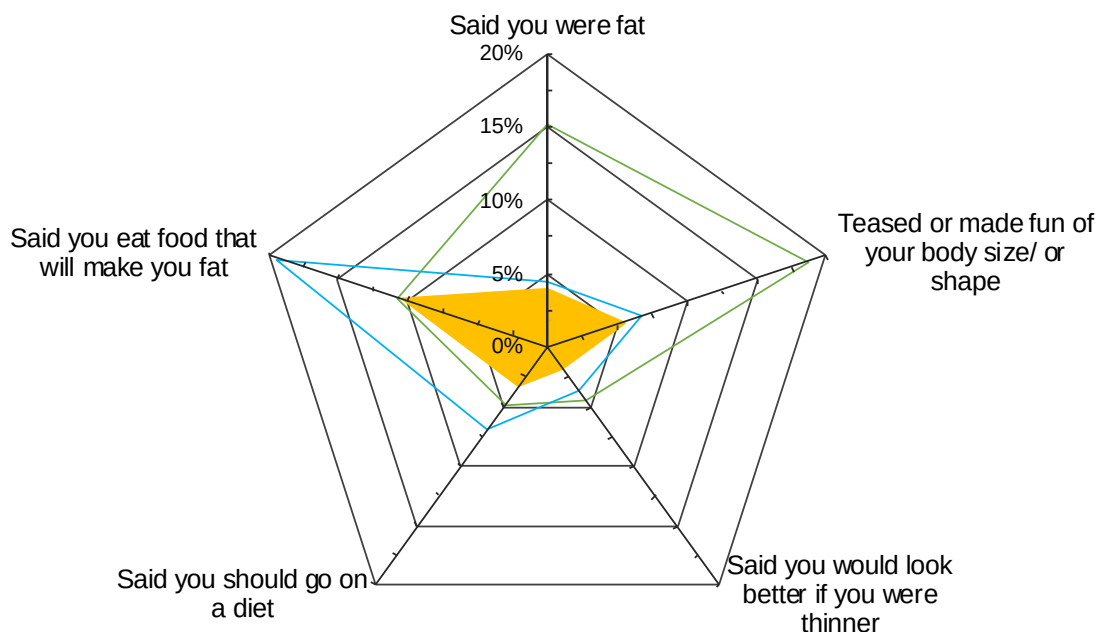


Figure 2. Percentage of Early Adolescents Indicating Any Experience of Negative Familial Weight Talk from Mothers, Fathers, and Siblings During the Past Three Months

The axis of the radar plot shows the percentage of adolescents who indicated experiencing five types of negative familial weight talk statements from their mother, father, or sibling separately at any frequency during the past three months. Moving away from the center of the radar plot indicates a greater percentage of adolescents who experienced that type of negative familial weight talk from a family member in their household.

Supplementary Material

eTable 1. Characteristics of The SUPPER Sample in Participants with Complete and Incomplete Data for Weight Bias Internalization (WBI) (N = 277).

eTable 2. Unadjusted and Adjusted Mean Weight Bias Internalization Levels Across Negative Familial Weight Talk Frequency Categories (N = 259).

eTable 3. Frequency and Percentage of Youth-Reported Negative Familial Weight Talk from Family Members During the Past Three Months (N = 259).

eTable 4. Conversion of negative familial weight talk responses to estimate frequency in the past 3 months.

eTable 5. Comparison of model fit for models fitted with a normal distribution compared to a gamma distribution.

eTable 1. Characteristics of The SUPPER Sample in Participants with Complete and Incomplete Data for Weight Bias Internalization (WBI) (N = 277).

	Complete (N = 259)	Incomplete (N = 18)	P value*
Child age (years), mean (SD)	11.9 (1.0)	11.7 (1.0)	.59
Child grade, n (%)			
5 th	93 (35.9)	7 (38.9)	.22
6 th	91 (35.1)	9 (50.0)	
7 th	70 (29.0)	2 (11.1)	
Child gender, n (%)			< .001
Girl	137 (52.9)	7 (38.9)	
Boy	122 (47.1)	9 (50.0)	
Other	0 (0.0)	2 (11.1)	
Child race/ethnicity, n (%)			.82
Hispanic	62 (23.9)	6 (33.3)	
Non-Hispanic Black	38 (14.6)	2 (11.1)	
Non-Hispanic Other ^a	26 (10.0)	2 (11.1)	
Non-Hispanic White	133 (51.4)	8 (44.4)	
Parent country of birth, n (%)^b			.38
Born in the United States	208 (80.6)	13 (72.2)	
Born outside of the United States	50 (19.4)	5 (27.8)	
Household highest education, n (%)			.63
Less than a bachelor's degree	71 (27.4)	4 (22.2)	
Bachelor's or graduate degree	188 (72.6)	14 (77.8)	
Household income, n (%)			.91
Less than \$26,000	30 (11.6)	3 (16.7)	
\$26,000 to \$74,999	30 (11.6)	2 (11.1)	
\$75,000 to \$149,999	66 (25.5)	5 (27.8)	
\$150,000 or more	133 (51.4)	8 (44.4)	
Child weight classification, n (%)^c			.69
Without overweight/obesity	179 (69.1)	5 (62.5)	
With overweight/obesity	80 (30.9)	3 (37.5)	
Child negative familial weight talk, n (%)			.71
Never (0 times)	172 (66.4)	12 (70.6)	
Occasionally (3 to 9 times)	66 (25.5)	3 (17.7)	
Ever (> 9 times)	21 (8.1)	2 (11.8)	
Child weight stigma from peers, n (%)			.83
Never	207 (79.9)	14 (77.8)	
Ever	52 (20.1)	4 (22.2)	

* T-test and chi-square tests were used to examine group differences. Fisher's Exact was used when assumptions for chi-square were violated. $P < .05$ denotes statistical significance.

^a American Indian/Alaskan Native (n=2), Asian (n=6), Multiracial (n=10) and Other (n=2)

^b One participant with complete WBI data was missing data for country of birth.

^c Ten participants with incomplete WBI data were missing child weight classification data.

eTable 2. Unadjusted and Adjusted Mean Weight Bias Internalization Levels Across Negative Familial Weight Talk Frequency Categories (N = 259).

	Never Mean (95% CI)	Occasionally Mean (95% CI)	Often Mean (95% CI)	Occasionally vs. Never Ratio of Means (95%CI) ^b <i>P</i> value ^a	Often vs. Never Ratio of Means (95%CI) ^c <i>P</i> value ^a
Unadjusted	1.72 (1.59 to 1.85)	2.24 (1.98 to 2.54)	3.16 (2.54 to 3.94)	1.30 (1.13 to 1.51) < .001	1.84 (1.46 to 2.32) < .001
Model 1	2.17 (2.02 to 2.35)	2.48 (2.24 to 2.74)	3.25 (2.73 to 3.88)	1.14 (1.01 to 1.28) .03	1.49 (1.24 to 1.80) < .001
Model 2	2.17 (2.01 to 2.33)	2.45 (2.21 to 2.70)	3.23 (2.72 to 3.83)	1.13 (1.004 to 1.26) .04	1.49 (1.24 to 1.79) < .001

^a A generalized linear model with a log link function and gamma distribution was used to examine the association between negative familial weight talk and weight bias internalization. Model 1 was adjusted for predictors that were statistically significant in bivariate analysis only, which included youth experience of weight stigma from peers (0=never, 1=ever) and youth weight status (0=without overweight/obesity, 1=with overweight/obesity). Model 2 was adjusted for predictors in Model 1 plus youth age (continuous) and youth gender (1=girls, 2=boy). *P* value <.05 denotes statistical significance.

^b Occasionally vs. never ratio was calculated by dividing the occasionally mean by the never mean for the unadjusted model (2.24 / 1.72), model 1 (2.48 / 2.17), and model 2 (2.45 / 2.17) separately.

^c Often vs. never ratio was calculated by dividing the “often” mean by the “never” mean for the unadjusted model (3.16 / 1.72), model 1 (3.25 / 2.17), and model 2 (3.23 / 2.17), separately.

eTable 3. Frequency and Percentage of Youth-Reported Negative Familial Weight Talk from Family Members During the Past Three Months (N = 259).

	Never N (%)	Ever N (%)	Missing N
Mother (N = 250)			
Any negative familial weight talk	190 (73.3)	59 (23.7)	-
Said you were fat	238 (95.6)	11 (4.4)	1
Teased/made fun of you about the size and shape of your body	232 (93.2)	17 (6.8)	1
Said you should go on a diet	229 (92.0)	20 (8.0)	1
Said that you eat food that will make you fat	200 (80.7)	48 (19.4)	2
Said that you would look better if you were thinner	240 (96.4)	9 (3.6)	1
Father (N = 183)			
Any negative familial weight talk	155 (85.2)	27 (14.8)	-
Said you were fat	174 (96.1)	7 (3.9)	2
Teased/made fun of you about the size and shape of your body	172 (94.5)	10 (5.5)	1
Said you should go on a diet	176 (96.7)	6 (3.3)	1
Said that you eat food that will make you fat	163 (89.6)	19 (10.4)	1
Said that you would look better if you were thinner	169 (98.3)	3 (1.7)	1
Siblings (N = 208)			
Any negative familial weight talk	148 (72.5)	56 (27.5)	-
Said you were fat	173 (84.8)	31 (15.2)	4
Teased/made fun of you about the size and shape of your body	166 (81.4)	38 (18.6)	4
Said you should go on a diet	194 (95.1)	10 (4.9)	4
Said that you eat food that will make you fat	182 (89.2)	22 (10.8)	4
Said that you would look better if you were thinner	194 (95.6)	9 (4.4)	5
Grandparents living in the household (N = 19)^a			
Any negative familial weight talk			-
Said you were fat	16 (94.1)	1 (5.9)	2
Teased/made fun of you about the size and shape of your body	16 (94.1)	1 (5.9)	2
Said you should go on a diet	17 (100.0)	0 (0.0)	2
Said that you eat food that will make you fat	17 (100.0)	0 (0.0)	2
Said that you would look better if you were thinner	12 (100.0)	0 (0.0)	7

eTable 4. Conversion of negative familial weight talk responses to estimate frequency in the past 3 months. ^a

Response	Conversion	Estimated frequency during the past 3 months
Never	0 times	0 times
A few times during the past 3 months	3 times	3 times
A few times a month	3 times $\times$ 3 months	9 times
A few times a week	3 times $\times$ 4.333 weeks / month $\times$ 3 months	39 times
Almost every day	5.5 times $\times$ 4.333 weeks / month $\times$ 3 months	71.5 times

^a "A few times" was assumed to represent a frequency of three times. "Almost every day" was assumed to represent a frequency of five to six times per week and the midpoint of 5.5 was used. One month was assumed to have 4.333 weeks (i.e., 52 weeks/12 months in the year).

eTable 5. Comparison of model fit for models fitted with a normal distribution compared to a gamma distribution.

	Model fit ^a	Normal Distribution	Gamma Distribution
Unadjusted model	AIC	816	686
	BIC	830	700
Adjusted model	AIC	670	547
	BIC	699	575

^a Smaller values indicate better model fit.

CHAPTER 5

Efficacy of a Universal Weight Stigma Intervention on Negative Weight Talk in Early Adolescents)

Katherine M. Rancano, MS¹, Margie Skeer, ScD MPH MSW², Rebecca Puhl, PhD³, Misha Eliasziw, PhD², Aviva Must, PhD²

¹ Tufts University Friedman School of Nutrition Science and Policy, Boston, MA; ²Tufts University School of Medicine, Boston MA; ³University of Connecticut Rudd Center for Food Policy and Health, Hartford, Connecticut

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Corresponding Author:

Katherine M. Rancano, MS
Tufts University Friedman School of Nutrition Science and Policy
150 Harrison Avenue, Boston, MA 02143
katherine.rancano@tufts.edu
(617) 800 - 9192

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Author Contributions

Ms. Katherine M. Rancano conceptualized, designed, and obtained funding for the study, selected data collection instruments, carried out the statistical analyses and interpretations, drafted the initial manuscript, and critically reviewed and revised the manuscript.

Dr. Rebecca Puhl and Dr. Aviva Must supervised the design of the study, data interpretations, and critically reviewed and revised the manuscript.

Dr. Misha Eliasziw supervised data collection, statistical analyses, and interpretations and critically reviewed and revised the manuscript.

Dr. Margie Skeer supervised the design of the study, oversaw data collection procedures, and critically reviewed and revised the manuscript.

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

Abstract

Introduction: Early adolescents are vulnerable to the damaging effects of disparaging remarks about their weight, termed negative weight talk (NWT). We examined the efficacy of a parent-targeted intervention to reduce NWT from family members.

Study design: This study is an analysis of an ongoing randomized controlled trial with follow-up at 3- and 6-months post-randomization.

Setting/participants: Participant dyads were early adolescents (57.3% girls, 9-14 years-old, 57.9% non-Hispanic White) and their parents/guardians (n=214, 92.5% female, mean age=43.2 years, 63.0% non-Hispanic White).

Intervention: Participants were randomly assigned to a 13-week universal weight-stigma intervention or substance-use prevention intervention (attention-control). Enrollment and data collection are ongoing. Data were retrieved and analyzed as of January 2023.

Main outcome measures: The primary outcome was child-reported NWT from their parent enrolled in the study. Secondary outcomes included NWT from family members and child weight bias internalization levels. Generalized linear models using generalized estimating equations were used to estimate prevalence ratios (PR) to compare the prevalence of outcomes in the intervention group to the control group at 3- and 6-months.

Results: Primary and secondary outcomes did not differ between the intervention and control groups at 3- or 6-months. In further analyses, both groups exhibited a decrease in child-reported NWT. The prevalence of NWT decreased by 27% from baseline to 3 months (PR=0.74, $P=0.01$) and by 29% from baseline to 6 months (PR=0.71, $P=0.024$).

Conclusions: This intervention was not effective in decreasing NWT; however, there was an unexpected decrease in NWT across both groups. A data collection tool used in our study, which used audio recordings of a parent-child conversations about weight, may have contributed to the observed decrease in both groups. The tool may be an effective intervention strategy for reducing NWT and further study is needed to determine the tool's independent effect on NWT.

Introduction

Interpersonal weight stigma is pervasive in children and adolescents and many report experiencing discrimination, social rejection, bullying, teasing, and critical comments about their weight, size, or shape from healthcare professionals, educators, peers, friends, and family.¹ Family members, parents, and siblings, in particular, are among the most common source of interpersonal weight stigma, which is most often experienced as teasing or negative comments (i.e., critical, judgmental, or comparative statements) about weight or body shape, termed negative weight talk (NWT).¹⁻³ Up to 63% and 54% of youth report NWT from their mothers and fathers, respectively,⁴ and 59% from siblings.⁵ Exposure to familial NWT during early adolescence can be especially harmful because youth experience rapid and drastic changes in physical development and have elevated body awareness, greater valuation of peers' perceptions and acceptance, and a greater exposure to body-related pressures in social media and traditional media.⁶ Familial NWT has been consistently associated with poor mental health (e.g., depression and anxiety), negative body image, body dissatisfaction, low self-esteem, and disordered eating pathology (e.g., binge eating).^{1-3,7,8} More recently, familial NWT has been linked with substance use and reduced participation and motivation for exercise,^{1,7,9} although findings for exercise are mixed.¹⁰ Crucial to the long-term health of early adolescents, these adverse outcomes can persist in adulthood.^{8,11}

Across gender and racial/ethnic groups, the primary motivation driving parental engagement in NWT is a concern for their child's health.¹² Other motivations include to prevent weight issues and stigmatization that parents themselves experienced, to express empathy with their weight-based difficulties, and to reduce their child's overvaluation of weight and body shape.¹²⁻¹⁴ Parents' well-meaning weight-based conversation can easily become stigmatizing, however. A qualitative study of Australian parents (82% female) shows that parent-child conversations about obesity emphasize personal responsibility for body weight,

use fear tactics, frame weight as the central indicator for health, and primarily discuss health behaviors within the context of weight management.¹⁵ Similar themes have been identified in other qualitative studies among U.S. parents^{5,16} and grandparents.¹⁶

Stigmatizing conversations such as these can produce feelings of shame, psychological distress, and internalized weight bias (i.e., self-directed weight stigma and self-devaluation due to perceived excess weight) in youth, which can in turn contribute to additional weight gain.^{17,18} Siblings, in contrast, engage in NWT to tease or poke fun;^{5,19} although sibling teasing is typically benign, a single critical or teasing remark about one's weight—from any family member—can have a lasting impact, notwithstanding its intent.^{19,20}

Some parents are aware of these risks and intentionally avoid talking with their child about their weight.^{12,13} However, complete avoidance may be unrealistic; children will inevitably raise questions or have concerns about their weight or body shape that parents will need to address. Yet, many parents express feeling unsure of how to do so without causing harm.¹⁵ Altogether, quantitative and qualitative evidence point to a lack of awareness among parents and siblings of the adverse impacts of NWT and, among parents, low self-efficacy for navigating conversations about nutrition, exercise, and weight in a non-stigmatizing manner.

Family Systems Theory (FST) posits that human behavior is learned and passed across generations through the complex interactions between family members (e.g., parent-child interactions) and between a family and its surrounding environment (e.g., child-environment interactions).²¹ Family interactions at home (i.e., NWT from family members directed toward themselves or others) are the most proximal environmental factor influencing early adolescents' attitudes and beliefs about weight, body perceptions, and eating and exercise behaviors.²² Yet, to our knowledge, no intervention has targeted NWT from family members;

existing interventions have exclusively targeted weight stigma from healthcare providers^{23,24} and from peers in schools.²⁵

We used data from an existing randomized controlled trial (RCT) to examine the efficacy of a universal weight stigma intervention for parents/guardians of early adolescents in 5th-7th grade (10 to 15 years-old) living in Massachusetts. The two primary goals of the intervention were to reduce weight stigma from family members and to improve the quality of parent-child conversations about weight. In this study, we examine the efficacy of the intervention on familial NWT; findings on the quality of parent-child conversations will be published separately given the complexity of the methods used to collect, measure, and code conversation quality. For this study we hypothesized that youth participants randomly assigned to the weight stigma intervention will report a lower frequency of NWT from their parent (enrolled in the study with them) at 3 months and 6 months post-randomization compared to participants in the control group. We also hypothesized improvements in two secondary outcomes: a decrease in the frequency of NWT from all family members living in the household and reduced levels of weight bias internalization among early adolescents in the intervention compared to the control group.

Methods

Study Design

This study analyzed data from The SUPPER Project (SUPPER, Substance Use Prevention Promoted by Eating family meals Regularly), an ongoing parallel group RCT. The SUPPER trial design and implementation protocol has been described in detail elsewhere.²⁶ In the present study, participants randomly assigned to the weight stigma intervention are analyzed as the intervention group and those randomly assigned to the substance use prevention intervention are analyzed as the attention-control group. Parents/guardians (termed ‘parents’

herein) and early adolescent participants (participant dyads) were randomly assigned to the intervention or attention-control group after baseline assessments were completed.

Weight Stigma Intervention

The 13-week weight stigma intervention provided evidence-based recommendations for parents on reducing weight stigma from family members. The materials were designed to increase parental knowledge of the prevalence and implications of NWT from family members and to increase parental self-efficacy for talking about weight and promoting healthy eating and exercise habits in their children in a non-stigmatizing way. Parents were also provided with educational materials on the basic elements of a healthy diet and physical activity recommendations for children.

The 13-week intervention included a handbook, pamphlet, text messages, magnet, list of local resources, and two, one-on-one sessions with an interventionist that were held two weeks apart. The handbook was the *Healthy Eating and Physical Activity Across Your Lifespan: Helping your Child* booklet that was developed by the National Institute of Diabetes and Digestive and Kidney Diseases.²⁷ The key recommendations of the handbook are: 1) make healthy lifestyle changes as a family, 2) encourage parents to act as role models for healthy behaviors, 3) consume a balanced diet, and 4) exercise regularly. The handbook was adapted to remove any weight-based content (e.g., prevent child weight gain through exercising). The *Talking About Weight: What Parents Need to Know* pamphlet was included with the handbook and was developed by the first author in collaboration with co-authors RP, AM, and MS. The key recommendations of the pamphlet are: 1) NWT is harmful and should be eliminated at home, 2) encourage healthy eating and exercise habits by highlighting outcomes that are unrelated to weight (e.g., strength, confidence, improved focus), and 3) choose words carefully when talking about weight, including your own weight and other's weight.

Given the brief nature of the intervention, a “Eat Healthy, Be Active” magnet, list of resources (e.g., local YMCA and USDA Dietary Guidelines website), and text messages were delivered to participants to help maintain participant engagement and reinforce key messages in the handbook and pamphlet. Text messages have a modest effect in promoting and reminding participants to engage in health behaviors.²⁸ A total of 13 unique text messages were delivered to participant parents twice per week for 13 weeks. Text messages were repeated twice, for a total receipt of 26 text messages.

Parent participants (without their early adolescent) met with an interventionist twice for one-on-one sessions, two weeks apart. All interventionists were undergraduate and graduate students in nutrition or psychology. They were required to complete a two-part training on the session content and use of motivational interviewing (MI) techniques to create a collaborative environment during sessions, such as simple reflections, affirmations, and open-ended questions.²⁹ Interventionists were instructed to begin each session with a discussion of parental values to build rapport and were trained to maintain an empathetic and compassionate tone throughout the sessions to prevent parents from feeling judged or accused of engaging in NWT toward their child, themselves, or others. All interventionists were trained by KMR and sessions were monitored for implementation fidelity. All interventionists were provided with a session checklist to ensure all required activities were completed and participants completed a brief questionnaire to assess whether they read and understood the intervention handbook and pamphlet.

During the first session (held in-person or via video conference), the interventionist met with the participant for 60 minutes and completed an action plan to create goals and identify barriers and facilitators for improving their child’s eating and exercise habits and for eliminating NWT at home. For the weight stigma portion of the session, interventionists

began by addressing parental normative beliefs regarding familial NWT (i.e., beliefs about other parents' and families' engagement in NWT). Interventionists shared statistics on the frequent occurrence of NWT from parents and siblings and mentioned that most parents initiate conversations about weight out of concern for their child's health.

All interventionists were required to make key recommendations throughout the session: 1) eliminate any NTW—directed toward your child, yourself, and others—at home; 2) encourage your child to eat a balanced diet without references to weight; 3) encourage your child to get 60 minutes of moderate-vigorous physical activity each day without references to weight; 4) be a role model and strive to: discontinue engagement in NWT, intervene when other family members engage in NWT, eat a balanced diet, and exercise regularly; 5) make changes as a family in NWT engagement, eating habits, and exercise habits. For the second session, interventionists had a follow up phone call with the participant for 30 minutes and reviewed participant progress toward goals, discussed setbacks, and recapped key recommendations from the first session.

The attention-control group received a substance use prevention intervention that was similar in dose and contact time (i.e., handbook of similar length, 26 text messages for 13 weeks, a magnet, a list of local resources, and two, one-on-one sessions with an interventionist two weeks apart). The intervention materials and sessions of the control group focused on 1) statistics on substance use in adolescents, 2) strategies for communicating effectively with their child about substance use prevention, and 3) the benefits of having family meals regularly. There were a couple of notable differences in content and dose in the control group. First, they received gender-specific handbooks, one for girls and one for boys, with gender-specific statistics on substance use and motivations for substance use initiation. Second, participants had access to a study website with additional information on substance use, parent-child communication, and links to additional relevant resources.

Study Sample or Population

As a universal intervention, all parents of 5th-7th graders, regardless of their underlying risk level, were recruited to enroll in the trial. Participants were recruited through schools, an online recruitment agency, snowball recruitment methods, and community-based organizations in Massachusetts. To be eligible, parents must have a child in 5th-7th grade (10 to 14 years-old) who is enrolled in a school in Massachusetts and live with their child at least 50% of the time. Parents and early adolescents (dyads) with limited proficiency in English or Spanish and early adolescents with a developmental disability that would interfere with their independent completion of study activities were excluded. Eligible dyads met with a research assistant who explained the study in detail, obtained consent and assent from the parent and early adolescent, respectively, and shared materials needed to complete demographic surveys and baseline assessments. The protocol for SUPPER and this study were approved by the university Institutional Review Board.

The SUPPER trial began enrollment in 2019 and we retrieved the data for this study on January 11, 2023. At that time, 337 participant dyads had completed baseline surveys and were randomized. Participant dyads were recruited from over 80 cities and towns across Massachusetts, but the majority live in the Greater Boston Area. Of these 337 dyads, 83.4% had completed surveys at 3 months and 65% had completed surveys 6 months. The analytical sample for this study includes 214 dyads who had completed study surveys at all three time points (intervention $n = 108$; control = 106).

Measures

Surveys were administered online via REDCap and dyads were asked to complete their surveys independently.

Sample Characteristics. Dyads completed demographic questions and survey items on the outcomes of interest. Demographics included age, gender, and race and ethnicity. Parents additionally provided information on their highest level of education and household income.

To characterize the sample in terms of weight status, parents reported their current height and weight which was used to calculate their Body Mass Index (BMI, kg/m^2). The calculated BMI was then classified into CDC weight categories.³⁰ Parents also reported the current height and weight of their child. These measures were used to calculate sex- and age-adjusted BMI percentiles and to classify early adolescents who exceeded the 85th BMI percentile as having overweight/obesity.³¹

Parents completed four items on their history of experiencing weight stigma from friends and family (“have you ever been treated unkindly by peers/family members because of your weight?” and “have you ever been teased or made fun of by peers/family members because of your weight?”). Items were collapsed to represent any weight stigma experience from friends or family members (never/ever).

Parents completed the Modified WBI Scale (WBIS-M), a validated measure of self-directed weight stigma.³² Similar to previous studies, the first item of the measure was dropped; the remaining ten items were used to measure WBI.^{33,34} The ten items ask participants to report their level of agreement with various weight-based beliefs about themselves (e.g., “I wish I could drastically change my weight”) on a 6-point scale. A 6-point scale was used in the study survey to reduce potential errors in participant responses as nearly all other items in the survey used a 6-point scale. For easier comparison to published studies, however, responses were rescaled to a 7-point scale, summed, and averaged to calculate a mean WBI score. There are no established cut points for WBI, however, a study conducted in a large, diverse U.S. sample used one standard deviation below and above the sample mean

to classify WBI (sample mean WBI = 3.35, SD = 1.5).³⁵ Therefore, WBI levels near 3.0 may be interpreted as moderate and levels ≤ 1.85 and ≥ 4.87 may be interpreted as “low” and “high”, respectively (range: 1 to 7, Cronbach’s alpha = 0.92).

Primary Outcome. The primary outcome for this study is child-reported parental NWT. From this point forward “child” refers to data reported by early adolescents and “parent” and refers only to the parent/guardian enrolled in the study. Participants completed five items adapted from the “messages” subscale of the Inventory of Peer Influence on Eating Concerns. Studies show a significant association between the “messages” subscale and disordered eating in children, and it was used in Family Meals LIVE! study to measure familial NWT.^{5,36,37} Participants estimate the frequency of negative comments they received from their parent about their eating (e.g., “said you should go on a diet”) and weight/body shape (e.g., “said you were fat”) during the past three months on a five-point scale (“never” to “almost every day”). Responses were dichotomized to represent any frequency of NWT (never/ever, Cronbach’s alpha = 0.82).

Secondary Outcomes. Child-reported frequency of NWT from all family members living in the household (i.e., other parent/guardians, and siblings) during the past 3 months was measured using the same methods described above. The reported frequency of familial NWT—including the parent participant—was aggregated and dichotomized to represent any child-reported NWT from all family members in the household (never/ever). Child-reported mean weight bias internalization levels were assessed with the WBIS-M (Cronbach’s alpha = 0.95).

Statistical Analysis

This study followed an intention-to-treat analytical approach where participants are analyzed according to the group to which they were randomly assigned. We did not account for

clustering by school in our analyses (i.e., participants from the same school are analyzed as independent observations) because of the 99 participating schools, only 6% ($n = 6$) had greater than five students from the same school enrolled in the study and 66% ($n = 66$) have one student enrolled.

To assess the efficacy of the intervention, we used generalized linear models with a binomial distribution and a log link. The proportion of early adolescents who experienced any parental NWT during the past three months was derived from generalized estimating equations (GEE) fitted with a compound symmetry correlation matrix to account for repeated measures over time. Models were not adjusted for baseline covariates because no evidence of confounding was observed. The intervention effect at 3 months and 6 months post-randomization is summarized with a prevalence ratios and corresponding 95% confidence intervals (95%CI) where the prevalence in the control group serves as the referent group.

The same analytical approach was used to examine the efficacy of the intervention on the secondary outcome, child-reported familial negative weight talk. For child weight bias internalization, the other secondary outcome examined, we used generalized linear models with a normal distribution and a log link. The log link was used because weight bias internalization was right-skewed, and log-link allows reporting of arithmetic means. Means were derived from GEEs fitted with a compound symmetry correlation matrix to account for repeated measures over time. The intervention effect at each time point is summarized as a ratio of means and 95%Cis.

Post Hoc Analyses. We conducted post hoc analyses to determine whether there was a significant decrease across study time points in child-reported parental NWT. Generalized linear models with a binomial distribution and a log link were used for analyses. The proportion of early adolescents who experienced any parental NWT across the three

timepoints was derived from GEEs fitted with a compound symmetry correlation matrix to account for repeated measures over time. Prevalence ratios and corresponding 95%CI summarize the change over time, where baseline serves as the referent.

Results

There were 220 dyads who completed surveys at all three time points, of which 216 had complete child-reported NWT data and were analyzed. The analytical sample sizes vary slightly for secondary analyses due to missing data for the secondary outcomes.

Overall, parents were 43.2 years-old and most were women (92.6%), non-Hispanic White (63.0%), highly educated (≥ 4 -year degree, 70.8%), and lived in a household earning an annual income $\geq \$150,000$ (54.6%). Nearly two-thirds had obesity or overweight (64.0%), 38.8% had experienced weight stigma from friends or family, and parents had a mean weight bias internalization level of 2.6 (low-moderate). Over half of early adolescents were girls (52.7%) and participants were evenly distributed by grade. Most participants self-identified as non-Hispanic White (57.9%), did not have overweight/obesity (73.4%), and never experienced any NWT from the parent participant (76.9%). There were no differences in baseline sample characteristics between groups (Table 1).

We observed no difference in the prevalence of child-reported parental NWT between the intervention and control group at 3 months (16.7% vs. 17.0%, $P = 0.95$) or 6 months post-randomization (15.7% vs. 17.0%, $P = 0.81$) (Table 2). Similar results were observed for secondary outcomes. There was no difference between the intervention and control group at 3 or 6 months in the prevalence of child-reported negative weight talk from all family members in the household or in child weight bias internalization levels (eTable 1 & eTable 2).

Although we observed no difference between groups in various measures of NWT, there was a decrease in child-reported parental NWT across time points in both the intervention and control group. In post hoc analyses, we found the prevalence of child-reported NWT talk was 26.6% lower at 3 months (PR = 0.74, 95%CI = 0.58 to 0.95, $P = 0.01$) and 28.6% lower at 6 months (PR = 0.71, 95%CI = 0.53 to 0.97, $P = 0.024$) relative to baseline levels (Figure 1).

Discussion

In this study of early adolescents, we found no evidence that our weight stigma intervention reduced NWT from parents in the intervention group relative to those in the control group. We observed no difference between groups in child-reported parental NWT at 3 or 6 months nor in child-reported NWT from all family members living in the household or in child weight bias internalization levels. However, we unexpectedly observed a significant decrease over time in child- and parent-reported NWT in both the intervention group and control group.

To our knowledge, this study is the first to examine the efficacy of an intervention targeting family-sourced weight stigma. Interventions that indirectly sought to reduce family-sourced weight stigma or sought to reduce weight stigma from other sources (e.g., peers) have had similar difficulties in reducing interpersonal weight stigma in adolescents and in adults. For example, a pilot study used communication skills training for mothers to enhance the efficacy of a behavioral weight control program. Mothers in the study were asked to apply communication skills during weight-related conversations with their child (i.e., assertive communication, active listening, and affect management) and were recommended to avoid making negative or critical comments about their child's weight. Yet, no change in adolescent-reported maternal negative weight-based commentary in the intervention group was observed.⁵⁰

School-based interventions in this area have also had mixed success. Very Important Kids (V.I.K.) was a school-based intervention that targeted peer-sourced teasing—including, but not limited to, weight-based teasing—and unhealthy weight control behaviors in 4th-6th graders (mean age = 10 years) and was efficacious in reducing overall teasing post-intervention; however, when teasing was partitioned by type (i.e., name calling, appearance-based, weight-based); only appearance-based teasing had significantly decreased.²⁵ A universal teacher-led program for younger children (5-8 years-old) in Australia also found no significant difference post-intervention on appearance-based teasing, which included teasing about their body and size.³⁸ A recent scoping review on school-based anti-bullying programs found none of the 10 meta-analyses and systematic reviews focused exclusively on weight-based bullying.³⁹ There is a dearth of research on interventions to reduce interpersonal weight stigma—of any type or from any source—in children and adolescents. Most interventions have addressed interpersonal weight stigma from health care providers in adult populations.⁴⁰

One factor that may have contributed to the lack of a difference in NWT from parents between groups was the dose of the intervention, which may have been too low to produce meaningful reductions in NWT. Initially, our intervention was designed as the attention-control group for SUPPER, which focused on nutrition and exercise. Given the timing, it was not possible to propose a new attention-control condition that exclusively focused on reducing weight stigma. Instead, we included additional content on weight stigma reduction, given that conversations about nutrition and exercise often lead to conversations about weight and/or obesity. We acknowledge that, by working within the constraints of the SUPPER attention-control group, our approach may have inadvertently diluted the dose of the weight stigma intervention. In its final form, approximately one-third of the intervention content exclusively focused on weight stigma and the remaining two-thirds focused on nutrition and exercise.

Another factor that potentially contributed to our findings is that to reduce interpersonal weight stigma, interventions may need to first address underlying weight bias. The prejudicial beliefs and attitudes that produce weight bias are engrained from toddlerhood; children younger than three years-old exhibit a negative bias toward individuals with obesity.⁴¹ As we age, weight biases are reinforced in our interpersonal relationships (e.g., social rejection of people with obesity by peers) and sociocultural environment (e.g., negative depiction of obesity in the media). These interactions make it difficult to achieve lasting shifts in weight bias and weight stigma. Nevertheless, effective interventions are possible, as seen among health care providers, when they 1) discuss the complexities of obesity to address misconceptions regarding controllability and the related view of weight being a personal responsibility, 2) challenge weight biases and stereotypes, and 3) discuss the implications of weight stigma.^{23,40,42} The intervention in our study addressed the latter, but not the former two topics. Our educational materials focused primarily on the prevalence and implications of NWT from family members which may have been insufficient to change parental engagement in NWT, particularly for parents with strong implicit and/or explicit preexisting weight bias.

The aforementioned criteria notwithstanding, education-based strategies with health care providers have had mixed efficacy, in part because weight bias is a stable construct, but also because medical training itself endorses and often amplifies existing weight biases (e.g., curricula that characterizes obesity as a personal responsibility, clinical preceptors/mentors who model discrimination and bias toward patients with obesity, and characterization of people with obesity as “difficult patients”).^{24,40,43} Parents, however, may be more receptive to information on the complexities of obesity and be more open to confronting their biases, considering the implications of NWT on their child’s well-being. Indeed, recent evidence suggests that parents of adolescents want guidance on how to engage in supportive

communication about weight-related topics such as body image, appearance-teasing, and shifting conversations from weight to health.⁴⁴ Given the ubiquity of weight bias in the U.S. and globally, we expect most parents to have some level of implicit or explicit weight bias.⁴⁵ Thus, future parent-targeted interventions may benefit from including content that confronts underlying weight bias and negative weight-based stereotypes in addition to helping parents engage in more supportive communication about weight-related health.

We observed a large, unanticipated decline (26% to 46%) in NWT from parents relative to baseline. The intervention in this study had two goals: to reduce the frequency of NWT and to improve the quality of parent-child conversations about weight. The data collection methods for measuring conversation quality may have contributed to the observed decline in NWT from parents. To assess conversation quality, participant dyads are asked to audio-record a 10-minute conversation about nutrition, exercise, and weight using six prompts that guide them through the conversation. Two prompts ask the parent and child to share their motivations and the anticipated risks and/or benefits of having weight-based conversations (e.g., “talk with your teen about why you think it is important to talk about or not talk about weight or body shape”) and one prompt asks the early adolescent to share their experience of having conversations about weight with their parent (i.e., “talk about how you feel when your parent talks to you about your weight or body shape.”). Thus, the unexpected decline among all participants, including those in the control group, may be explained by inadvertent cross-contamination of the intervention material (e.g., implications of weight stigma) through this data collection method.

By using these prompts to facilitate their conversation about weight and related behaviors, parents may have been primed to be more aware of and/or to empathize with their child’s stigmatizing experiences. For example, the last prompt allows the parent to hear, directly from their child, how their child feels when they talk about their child’s weight or when they

call their child names—either in an endearing or teasing way—that are related to their weight (e.g., ‘string bean’, ‘*gorda/o*’, and ‘fluffy’). Individuals with greater empathy toward people with obesity appear less likely to engage in weight-based victimization, such as NWT.⁴⁶ Further, since all participants completed the audio-recorded conversations, having these prompt-facilitated conversations may have led to cross-contamination of the intervention content (i.e., learning of their child’s experience of NWT raised their awareness of NWT consequences). As a result, parents in the control group may have modified their engagement in NWT despite receiving no other information on weight stigma and NWT. Although unexpected, the decrease in NWT across study arms indicates that the method used to capture the quality of parent-child conversations may be an intervention tool in and of itself that can be feasibly integrated into clinical care settings. For example, a pediatrician asking an adolescent patient how they feel when their parent talks to them about their weight or body size may help to increase parental awareness of how NWT affects their child.

Limitations and Strengths

This study had several limitations. More than one-third (35.9%) of participants enrolled and randomized had incomplete surveys at 3- or 6-months post-randomization; however, 51.2% (n=62) of these participants have surveys that were “in progress”. Moreover, the rate of non-completion was balanced between the control and intervention group. Our primary and secondary outcome measures relied on participant recall; however, all our outcomes were child-reported to minimize possible bias of parent-reported information. Lastly, the prompt-facilitated conversations and parents’ access to strategies to improve communication quality among participants in the control group may have impeded our ability to assess the true effect of the intervention.

Our study also has several notable strengths. Our study is designed as a parallel group RCT which minimizes the risk of confounding in our analyses. We used follow-up assessments at

3- and 6-months post randomization which allowed assessment of the largest possible effect (3-months) and sustainability (6-months) of intervention effects. Lastly, most weight stigma research among children and adolescents to date has included homogenous samples that are majority non-Hispanic White and with a high body weight. In contrast, our sample was diverse in racial/ethnic background and had a prevalence of overweight/obesity that is more representative of the U.S. than previous studies thereby improving the generalizability of our findings. Our findings, however, are most generalizable to parents and early adolescents in Massachusetts.

Conclusion

There is an alarming paucity of interventions designed to reduce interpersonal weight stigma—NWT specifically and other forms such as discrimination and bullying—among children and adolescents within the home environment and other. More research and attention are warranted, given the known impact of interpersonal weight stigma on the physical and psychosocial well-being of children and adolescents. Although the weight stigma intervention examined in this study did not reduce NWT, important insights were gained. The efficacy of future interventions may be enhanced by incorporating educational materials that explicitly address the complexities of obesity to challenge existing weight biases in participants. The potential cross-contamination from the prompted audio-recorded parent-child conversations may have been fortuitous as the prompts may be an effective intervention strategy for reducing interpersonal weight stigma within the home environment and other sectors (e.g., healthcare). A study expressly designed to assess the effect of these conversations on parents and their engagement in NWT is warranted.

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Table 1. Sample characteristics at baseline by group allocation (n = 214).

	Intervention (n = 108)	Control (n = 106)	P value*
Parent gender, n (%)			0.64
Woman	99 (91.7)	99 (93.4)	
Man	9 (8.2)	7 (6.6)	
Parent age (years), mean (SD)	43.8 (6.9)	42.5 (6.0)	0.15
Parent race/ethnicity, n (%)			0.95
Hispanic	21 (19.4)	20 (18.9)	
Non-Hispanic Black	11 (10.2)	13 (12.3)	
Non-Hispanic Other	6 (5.6)	7 (6.6)	
Non-Hispanic White	70 (64.8)	66 (62.3)	
Parent education level, n (%)			0.81
< 4-year degree	31 (28.7)	32 (30.2)	
≥ 4-year degree	77 (71.3)	74 (69.8)	
Household income, n (%)			0.80
< \$26,000	13 (12.3)	9 (8.8)	
\$26,000 to \$74,999	11 (10.2)	13 (12.3)	
\$75,000 to \$149,999	24 (22.2)	26 (24.5)	
≥ \$150,000	60 (55.6)	58 (54.7)	
Parent weight status, n (%)¹			0.16
Underweight	1 (0.93)	1 (0.95)	
“Healthy” weight	43 (39.8)	31 (29.5)	
Overweight	26 (24.1)	39 (37.1)	
Obesity	38 (35.2)	34 (32.4)	
Parent weight bias internalization, mean (SD)	2.7 (1.3)	2.4 (1.1)	0.19
Parent weight stigma from friends or family, n (%)			0.25
Never	62 (57.4)	69 (65.1)	
Ever	46 (42.6)	37 (34.9)	
Child gender, n (%)			0.20
Girl	61 (56.5)	51 (48.1)	
Boy	47 (43.5)	53 (50)	
Other	0 (0.0)	2 (1.9)	

Child grade, n (%)			0.59
5 th	38 (35.2)	33 (31.1)	
6 th	43 (39.8)	40 (37.7)	
7 th	27 (25.0)	33 (31.1)	
Child race/ethnicity, n (%)			0.58
Hispanic	22 (20.4)	20 (18.9)	
Non-Hispanic Black	15 (13.6)	12 (11.3)	
Non-Hispanic Other	8 (7.4)	14 (13.2)	
Non-Hispanic White	65 (60.2)	60 (56.6)	
Child weight status, n (%)			0.89
Without overweight/obesity	75 (72.1)	73 (71.6)	
With overweight/obesity	29 (27.9)	29 (28.4)	
Child-reported negative weight talk from parent, n (%)			0.93
Never	83 (76.9)	88 (83.0)	
Ever	25 (23.1)	24 (22.6)	
Child-reported negative weight talk from all family members, n (%)			0.86
Never	74 (68.6)	72 (67.9)	
Ever	34 (31.5)	34 (32.1)	
Child weight bias internalization, mean (SD)	2.0 (1.3)	2.0 (1.2)	0.94

* Group differences were examined using χ^2 test of independence for categorical variables and two sample t-tests for continuous variables. $P < 0.05$ signifies statistical significance.

¹ Three participants were missing data for parent weight status. Two from the intervention group and one from the control group.

² Eight participants were missing data for child weight status. Four from the intervention group and four from the control group.

Table 2. Effect of the intervention on child-reported parental negative weight talk at 3 months and 6 months post-randomization (N = 214).

	3 Months Prevalence	6 Months Prevalence
Intervention		
%	16.7	15.7
(95%CI)	(10.9 to 25.4)	(10.2 to 24.4)
Control		
%	17.0	17.0
(95%CI)	(11.2 to 25.9)	(11.2 to 25.9)
Intervention vs. Control		
Prevalence Ratio	0.98	0.93
(95%CI)	(0.54 to 1.78)	(0.51 to 1.70)
<i>P</i> value	0.95	0.81

*Generalized linear models with a binomial distribution and a log link. Estimates were derived from generalized estimating equations with a and compound symmetry correlation matrix to account for repeated measures. $P < 0.05$ signifies statistical significance.

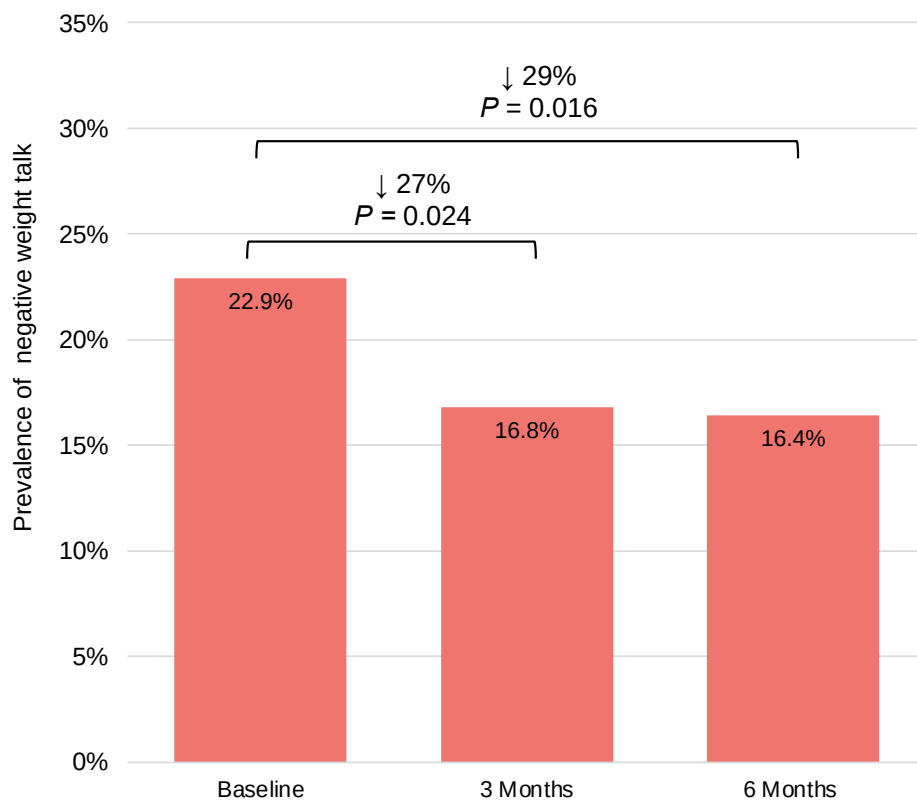


Figure 1. Child-reported parental negative weight talk in all participants across time points (n = 214).

¹ Vertical bars show the estimated proportion of child-reported parental negative weight talk (NWT). Child-reported parental NWT was 26% lower at 3 months relative to baseline (Prevalence Ratio, PR = 0.74, 95%CI = 0.58 to 0.95) and 29% lower at 6 months relative to baseline (PR = 0.71, 95%CI = 0.53 to 0.97).

² Generalized linear models with a binomial distribution and log link were used to examine NWT over time. The proportions and Prevalence Ratios across time points were derived from generalized estimate equations with a compound symmetry correlation matrix to account repeated measures, with baseline serving as the reference.

eTable 1. Effect of the intervention on child-reported negative familial weight talk at 3 months and 6 months post-randomization (N = 214).

	3 Months Prevalence	6 Months Prevalence
Intervention		
%	27.8	29.6
(95%CI)	(20.5 to 37.7)	(22.2 to 39.6)
Control		
%	28.3	29.3
(95%CI)	(20.9 to 38.3)	(21.8 to 39.3)
Intervention vs. Control		
Prevalence Ratio	0.98	1.01
(95%CI)	(0.64 to 1.51)	(0.67 to 1.53)
<i>P</i> value	0.93	0.96

*Generalized linear models with a binomial distribution and a log link. Estimates were derived from generalized estimating equations and a compound symmetry correlation matrix to account for repeated measures. *P* < 0.05 signifies statistical significance.

eTable 2. Effect of the intervention on child weight bias internalization levels 3 months and 6 months post-randomization (N = 214).

	3 Months Mean	6 Months Mean
Intervention		
Mean	2.1	2.0
(95%CI)	(1.9 to 2.3)	(1.8 to 2.3)
Control		
Mean	2.1	2.2
(95%CI)	(1.9 to 2.4)	(2.0 to 2.4)
Intervention vs. Control		
Ratio of Means	0.99	0.93
(95%CI)	(0.85 to 1.14)	(0.81 to 1.08)
<i>P</i> value	0.90	0.35

*Generalized linear models with a normal distribution and a log link. Estimates were derived from generalized estimating equations with a compound symmetry correlation matrix to account for repeated measures. *P* < 0.05 signifies statistical significance.

CHAPTER 6

Efficacy of a Universal Weight Stigma Intervention on the Quality of Parent-Child Conversations about Weight

Katherine M. Rancaño, MS¹, Margie Skeer, ScD MPH MSW², Rebecca Puhl, PhD³, Misha Eliasziw, PhD², Aviva Must, PhD²

¹ Tufts University Friedman School of Nutrition Science and Policy, Boston, MA; ²Tufts University School of Medicine, Boston MA; ³University of Connecticut Rudd Center for Food Policy and Health, Hartford, Connecticut

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Abbreviations

AAP	American Academy of Pediatrics
ICC	Intraclass Correlation Coefficient
IHBLT	Intensive Health Behavior and Lifestyle Treatment
SUPPER	Substance Use Prevention Promoted by Eating family meals Regularly
WBI	Weight Bias Internalization
WS-FAsTask	Weight Stigma Family Assessment Task

Keywords: weight stigma, universal intervention, youth, parent-child conversations, conversation quality

Abstract

Background: Parent-child conversations about weight are often a source of weight stigma for youth. Given parents' frequent involvement in pediatric obesity prevention, management, and treatment, it is essential that parents know how to talk about weight and weight-related behaviors in a non-stigmatizing way with their child.

Intervention: Participant dyads were parents (N = 157, 91.1% female, mean age=41.9 years, 59.5% non-Hispanic White) and their early adolescent (52.2% girls, age=9-15 years). Dyads were randomized to a 13-week universal weight-stigma intervention or substance-use prevention intervention (attention-control).

Methods: We analyzed data from an ongoing parallel group randomized controlled trial with follow up at 3- and 6-months post-randomization to examine the efficacy of a universal weight stigma intervention on the quality of parent-child conversations about weight. Quality of parent-child conversations (fewer stigmatizing comments and more non-stigmatizing comments) was measured using the Weight Stigma Family Assessment Task (WS-FAsTask). WS-FAsTask is a novel direct observational method that captures the occurrence of various types of stigmatizing (ten types) and non-stigmatizing (four types) comments during audio-recorded parent-child conversations about weight, eating habits, and exercise habits.

Results: Dyads in the intervention group used 34% fewer types of stigmatizing comments at 3 months than participants in the control group (15.6% vs. 23.8%, $P<0.001$) and 27% fewer types of stigmatizing comments at 6 months (14.4% vs. 19.7%, $P=0.012$). For non-stigmatizing comments, participants in the intervention group used 13% more types of non-stigmatizing comments at 3 months (81.7% vs. 72.3%, $P<0.001$) and 16% more types of non-stigmatizing comments at 6 months (85.1% vs. 73.2% $P=0.001$).

Conclusions: Our universal weight stigma intervention was efficacious at improving the quality of parent-child conversations about weight, eating habits, and exercise habits 3 months and 6 months post-randomization. It holds promise to better equip parents for having conversations about weight and weight-related behaviors with their child in a less stigmatizing way, which may contribute to a meaningful reduction in their child's stigmatizing experiences at home and subsequent negative outcomes.

Background

Historically, stigma has at times been viewed as a strategy to promote behavior change in individuals with stigmatized conditions (e.g., HIV and substance use disorder), yet evidence indicates that stigma is ineffective for such change.¹ Similar views have been applied to weight stigma (e.g., perceptions that shaming people about their weight will motivate weight loss).^{2,3} However, many studies show that weight stigma contributes to maladaptive and disordered eating patterns, less engagement in physical activity, and greater consumption of calories and unhealthful foods.^{4,5} Experiencing weight stigma can further induce psychological and physiological stress (e.g., hormonal dysregulation) that can lead to increases in weight, creating a cycle of stigma, stress, and weight gain.⁶⁻¹⁰ The health harms of weight stigma are not restricted to adults; children and adolescents are vulnerable to weight stigma from multiple interpersonal sources, including their families.¹¹ Youth report frequent weight stigma from their parents, up to 46% and 39% report teasing about their weight or appearance from their mother and father, respectively, and approximately 25% report being encouraged to diet or exercise for weight loss.¹²⁻¹⁴

The American Academy of Pediatrics' (AAP) clinical practice guidelines for children and adolescents with obesity recommend prompt referral to intensive health behavior and lifestyle treatments (IHBLT) for pediatric patients with overweight/obesity.¹⁵ According to 2018 estimates, 41.5% of children and adolescents (aged 2 to 19 years) have overweight/obesity and would thereby qualify for treatment.¹⁶ The parents of referred children would likely engage in frequent conversations with their child about their weight and related health behaviors considering that the IHBLT recommended by the AAP relies heavily on parental involvement and a family-centered approach.¹⁵

Parents engage in weight-based conversations with their child out of concern for their health.

¹⁷ Yet, parents often unintentionally use stigmatizing language during their discussions about

weight and related behaviors. For example, up to 47% of adolescents have experienced critical comments about their eating and/or exercise behaviors (e.g., encouragement to diet or exercise for weight loss) from their mothers and up to 40% experienced similar comments from their fathers.^{18,19} Moreover, qualitative studies indicate parents often discuss weight as a personal responsibility (i.e., characterizing obesity as controllable and viewing individuals as personally responsible for managing their weight), make disparaging remarks or tease their child for weight, body shape, or the fit of their clothes, use fear tactics to motivate behavior change, and discuss health behaviors as a means for managing one's weight and appearance.²⁰⁻²²

On the other hand, some parents avoid talking about weight with their children because they worry about damaging their child's self-esteem, were stigmatized for their own weight by family members, or find it difficult to talk about weight with their child.^{17,21,23} Such concerns are justified given that weight stigma from family members is associated with disordered and maladaptive eating behaviors (e.g., binge eating, emotional eating, and dietary restriction), low self-esteem, body dissatisfaction, lower physical activity levels, and poor mental health (e.g., elevated stress, anxiety, depression).^{12,24,25} Nonetheless, avoiding conversations about weight can be challenging for parents. As children move into adolescence—and experience rapid physical and cognitive growth—they develop greater body awareness and engage in more body comparisons with peers and media role models, which often prompt questions about their own weight and/or body shape that parents will need to address.²⁶ Recent evidence demonstrates that parents want guidance on how to have supportive communication with their children about weight-related topics (e.g., encouraging a positive body image, promoting healthy lifestyle behaviors, and reducing weight-based criticisms).²⁷ Without guidance on how to navigate these conversations, parents may unintentionally make their child feel stigmatized for their weight, or—if parents continue to evade the issue—youth may turn to external, and potentially harmful, sources for information (e.g., social media,

peers etc.). These challenges suggest that families would benefit from interventions that provide guidance on how parents can have conversations about weight and related behaviors in a non-stigmatizing way.

Parent-child conversation about weight, at minimum, should avoid weight teasing or disparaging comments about weight, including comments about their own weight, others' weight, and their child's weight.^{12,24,25} These types of comments, termed negative weight talk (NWT), reflect a type of interpersonal weight stigma that undermine youth physical and psychosocial health, as noted above. Parental conversations about weight should also be mindful of complimentary comments about their child's weight or body shape, termed positive weight talk (PWT). Research is mixed on the effects of PWT; youth may misinterpret these comments as criticism, become preoccupied with their weight and appearance, or become concerned about their weight if family members cease providing praise.^{28,29}

Another guiding principle for parents is to reframe discussions to focus on health and well-being, instead of weight (e.g., growth and development, health behaviors, body esteem, energy levels, etc.). Although inconclusive, promising evidence suggests that health-focused conversations, without direct reference to weight, are not associated with the same adverse outcomes observed with weight-focused conversations, such as disordered eating and body dissatisfaction.²⁵ While some children may still feel stigmatized by health-focused conversations if they are sensitive about their weight or have had prior experiences with weight stigma, focusing on healthy behavior rather than weight-specific outcomes is a reasonable approach for most parents. Moreover, studies have shown that focusing on weight is not necessary for behavior change, participants in health behavior interventions that deemphasize weight (e.g., weight-inclusive approaches) experience improvements in health behaviors, physical health, and psychological health.^{30,31} Lastly, parents can build's self-efficacy in their child and encourage lasting behavior change by providing informational

support via health-focused conversations (e.g., eating nutritious foods and engaging in physical activity to promote cardiovascular health), instrumental support (e.g., access to opportunities for physical activity), and role-modeling healthy behaviors.³²⁻³⁴

Our weight stigma intervention is the first, to our knowledge, designed to reduce family-sourced stigma in youth; however, the impact of the intervention on the quality of parent-child conversations about weight remains unexplored. In this study, we conducted a secondary analysis of an existing randomized controlled trial to examine the efficacy of a weight stigma intervention delivered to parents of early adolescents on the quality of parent-child conversations about weight and weight-related behaviors. Using a novel, direct observational method to assess conversation quality, we hypothesized that participants randomly assigned to the weight stigma intervention would use fewer types of stigmatizing comments and more types of non-stigmatizing comments than participants in the control group during audio-recorded conversations about weight at 3 months and 6 months post-randomization.

Methods

The SUPPER Project (SUPPER, Substance Use Prevention Promoted by Eating family meals Regularly) is an ongoing parallel group randomized controlled trial for parents and their child in 5th, 6th, or 7th grade (10 to 15 years-old) living in Massachusetts. A detailed description of the design and implementation protocol has been published elsewhere.³⁵

Briefly, participants were randomly assigned to either a substance use prevention intervention or a weight stigma reduction intervention, which allowed examination of the efficacy of the weight stigma intervention.

Participant dyads were randomly assigned to the weight stigma intervention or the control group after completion of baseline assessments using a 1:1 ratio. The protocol for SUPPER and this study were approved by the university Institutional Review Board.

Weight Stigma Intervention

The weight stigma intervention was a universal intervention; as such, it was designed for all parents/guardians (termed “parents”) and youth, regardless of their underlying risk level for weight stigma.³⁶ A universal intervention strategy was well-suited for this intervention because all youth are vulnerable to weight stigma and would benefit from feeling less stigmatized for their weight by family members. Intervention materials were designed to provide parents with educational materials and strategies on how to improve eating and exercise habits in their child. In addition, the intervention sought to increase parental knowledge of the prevalence and implications of weight stigma from family members and to increase parental self-efficacy for having non-stigmatizing conversations with their child about weight and eating and exercise habits. The primary goals of the intervention were to reduce the frequency of negative weight talk between family members, which was examined in a separate study (Chapter 5, Aim 2), and to improve the quality of parent-child conversations about weight and eating and exercise habits, which is the focus of this study. We defined conversation quality by adherence to the weight-stigma reduction strategies provided by the intervention, which are described below.

The weight stigma intervention was 13 weeks in duration. Participants received a handbook (*Healthy Eating and Physical Activity Across Your Lifespan: Helping your Child*), pamphlet, text messages, a magnet, list of local resources, and met twice, one-on-one, with an interventionist. The key themes of the handbook were: 1) make healthy lifestyle changes as family, 2) encourage parents to role model healthy behaviors, 3) consume a balanced diet, and 4) exercise regularly. The original handbook was developed by the National Institute of Diabetes and Digestive and Kidney Diseases and was modified by the first author (KMR) to remove weight-based content (e.g., encouragement to exercise for weight loss).³⁷ A supplementary pamphlet, *Talking About Weight: What Parents Need to Know*, was developed with guidance from an expert in weight bias (RP), co-authors AM and MS, and

materials from the UConn Rudd Center for Food Policy and Health and the STOP Obesity Alliance.^{38,39} The key recommendations of the pamphlet were: 1) to eliminate negative comments about a child's weight, body shape, or size from family members; 2) to encourage healthy eating habits and regular exercise habits in their child by using non-weight-based outcomes (e.g., encourage exercise to improved mental health, rather than weight loss); and 3) to choose words carefully when talking about weight, including their own weight and other's weight.

The remaining intervention materials (i.e., text messages, magnet, and list of local resources) were included to facilitate participant engagement and reinforce intervention content.⁴⁰ Thirteen unique text messages, which reiterated key themes from the intervention handbook and pamphlet, were delivered to participant parents twice per week for 13 weeks (receipt of 26 text messages total). The magnet contained a "Eat Healthy, Be Active" message and the list of resources provided parents with informational support, such as a link to the U. S. Department of Agriculture Dietary Guidelines for Americans and local recreational centers.

Parents met one-on-one with an interventionist—without their child—twice, two weeks apart. All interventionists were undergraduate or graduate students in nutrition or psychology and participated in a two-part training on the session content and use of specific motivational interviewing (MI) techniques. Although interventionists were not formally trained in MI, specific MI techniques (i.e., simple reflections, affirmations, and open-ended questions) were used throughout the sessions and interventionists built a collaborative environment by deferring to parents for their expertise on the needs and workings of their family.⁴¹ Training materials emphasized leading sessions with empathy and understanding to prevent parents from feeling chastised or accused of stigmatizing their child. All interventionists were trained by KMR and sessions were monitored for implementation fidelity. All interventionists were

provided with a checklist to ensure all required activities were completed. Parents were also asked to complete a brief questionnaire at the start of the session to assess whether they read and understood the intervention handbook and pamphlet.

The first session was one hour and was held in-person or via Zoom video conference. Interventionists began each session with a discussion of parental values to help build rapport with the participant. The interventionists then worked with the participant to complete an action plan, which guided parents in developing goals to improve their child's eating and exercise habits and eliminate weight stigma from family members at home. Interventionists were required to cover specific key recommendations throughout the sessions: 1) eliminate any teasing or weight-based comments (positive or negative) directed toward your child, yourself, and from other family members at home; 2) encourage your child to eat a balanced diet without references to weight; 3) encourage your child to get 60 minutes of moderate-vigorous physical activity each day without references to weight; 4) be a role model and discontinue teasing and weight-based commentary toward family members and/or oneself, intervene when other family members engage in weight teasing or weight-based commentary, and participate in healthy behaviors regularly; and 5) make behavioral changes together as a family. Given the sensitive nature of weight stigma, interventionists began the weight stigma portion of the session by discussing the prevalence of family-sourced weight stigma (i.e., addressing parental normative beliefs) and by acknowledging that parents primarily initiate weight-based conversations was out of concern for their child's health. The second session with the interventionist was held two weeks later as a 30-minute follow up phone call between the parent and the interventionist. During the second session, the interventionist reviewed the participant's progress toward set goals, discussed setbacks, and reiterated the key recommendations.

The control group received a substance use prevention intervention designed with a similar 'dose' and contact time. Participants received a handbook of similar length, 13 unique text messages (twice per week for 13 weeks), a magnet, access to a website with relevant substance use resources, and two sessions with an interventionist held two weeks apart. Two differences between the intervention and control group warrant mentioning. First, the materials for the control group were gender-specific (e.g., gender-specific statistics on substance use prevalence) and second, the control group website provided a more extensive list of resources than the list provided to participants in the intervention group.

Study Sample

Recruitment took place at schools and community organizations. Snowball recruitment methods and an online recruitment agency were also used to enhance recruitment efforts. Although dyads were recruited from over 80 cities and towns across Massachusetts, the majority lived in the Greater Boston Area. To be eligible for the study, parents had to have a child in 5th, 6th, or 7th grade, enrolled in a school in Massachusetts, and must live with their child at least 50% of the time. Dyads with limited proficiency in English or in Spanish and early adolescents with a developmental disability that would interfere with their independent completion of study activities were excluded. Those who were interested in the study and met eligibility criteria were scheduled to meet with a research assistant who obtained informed consent and assent from the parent and early adolescent, respectively. Dyads were then provided with demographic surveys and other baseline assessment materials (e.g., iPad to record parent-child conversations).

Enrollment for SUPPER began in 2019 and the data for this study were retrieved on February 24, 2023. At this time, 161 participant dyads with complete parent-child audio recordings had been randomized. Of these dyads, 157 had complete baseline data and at

least one follow-up time point. Four dyads with incomplete data were excluded from analyses (missing baseline, N = 2; missing baseline and 3-months, N = 2).

Measures

Surveys were used to collect sociodemographic information of participants. Surveys were completed online independently by parents and their child through REDCap at baseline (pre-randomization) and 3 months and 6 months post-randomization.

Sociodemographic and Anthropometric Characteristics. Dyads were asked about their gender, age, and race and ethnicity. Parents provided information on their highest level of education and annual household income. Parents also reported their current height and weight and the height and weight of their child. Parent height and weight was used to calculate their Body Mass Index (BMI, kg/m^2), which was classified into weight status categories according to CDC cut points.⁴² Parent-reported height and weight for their child was used to calculate sex- and age-adjusted youth BMI percentiles; as indicated by CDC cut points, youth above the 85th percentile were classified as having overweight/obesity.⁴³

Weight Stigma. To assess parents' past experiences of interpersonal stigma (directed from external sources), parents completed four items which asked if they have ever been stigmatized for their weight from friends or family ("have you ever been treated unkindly by peers/family members because of your weight?" and "have you ever been teased or made fun of by peers/family members because of your weight"). Items were dichotomized to indicate any experience of interpersonal weight stigma.

Parents also completed the Modified Weight Bias Internalization (WBI) Scale, a validated measure of intrapersonal self-directed stigma.⁴⁴ Consistent with previous studies, which removed the first item due to low factor loading, the first item was dropped and the remaining

ten were used.^{45,46} The ten items asked participants to report their level of agreement with weight-based beliefs about themselves (e.g., “I wish I could drastically change my weight.”) on a 6-point scale. A 6-point scale was used throughout the study survey to maintain a consistent scale across survey items; however, responses were rescaled to a 7-point scale, summed, and averaged to calculate a mean WBI score for easier comparison to published studies. Responses were rescaled to a 7-point scale for ease of comparison to published studies and then averaged to calculate a mean WBI score (range = 1 to 7, Cronbach’s alpha = 0.92). Although there are no established cut points for WBI, levels near 3.0 can be interpreted as moderate for adults. A study conducted in a large, diverse sample of adults in the U.S. (n = 3,504) used one standard deviation below and above the sample mean to classify WBI as ‘low’ and ‘high’, respectively (mean WBI = 3.35, SD = 1.5).⁴⁷ Thus, WBI levels ≤ 1.85 can be interpreted as ‘low’ and levels ≥ 4.85 can be interpreted as ‘high’.

Primary Outcome: Quality of Parent-Child Conversations about Weight. The Family Assessment Task (FAsTask) is a direct observational tool that uses video recordings to assess family interactions.⁴⁸ The tool has been adapted for substance use intervention research to assess interactions (e.g., relationship quality, monitoring, norm-setting for alcohol and drug use) between parents and their at-risk adolescent.^{49,50} For this study, we adapted FAsTask and developed the Weight Stigma Family Assessment Task (WS-FAsTask) to measure the quality of parent-child conversations about weight and eating and exercise habits. Instead of videos, participants submitted audio recordings to reduce participant reactivity to being visually recorded (i.e., the Hawthorne effect). Dyads submitted recordings at baseline, 3-months, and 6-months.

Participants were provided with an iPad and audio-recording instructions to record their conversation. Dyads used a set of cards with prompts to guide them through two 10-minute conversations. The first conversation was about substance use and the second was about

weight and eating habits and exercise habits. The first three prompts of the weight-based conversation asked parents and their child to discuss their motivations, anticipated risks and benefits, and family norms for having healthy eating and exercise habits. The last three prompts focused on weight conversations. One prompt asked the child to discuss how they felt when their parent talked with them about their weight or body shape. The other two prompts asked the parent and child to discuss together their motivations and the anticipated risks and/or benefits of having conversations about weight (eTable 1). Although the first three prompts focus on eating and exercise habits, all six prompts allow for the examination of weight stigma because conversations about lifestyle behaviors can become stigmatizing or extend to weight-focused content. For example, when someone is criticized or judged for engaging (or not engaging) in behaviors that are believed to adversely impact one's weight.

We developed a WS-FAsTask coding procedure and codebook, which were developed specifically for this study by KMR in collaboration with RP, an expert in weight bias. A team of coders (undergraduate and graduate students) were trained on the WSFAsTask protocol and were blind to group assignment. Training incorporated provision of background knowledge on weight stigma from family members. Chapter 3 includes a detailed description of the development of the WS-FAsTask codebook, trainings, and coding protocol.

Briefly, coders were required to score all recordings (i.e., baseline, 3 months, and 6 months) of a particular dyad to restrict the effect of any coder-specific bias on scores across timepoints. Recordings were also scored in achronological order to reduce the effect of chronological bias (i.e., systematic difference in scoring for baseline recordings compared to follow up recordings). To determine the scoring order, each dyad was randomly assigned one of six possible scoring sequences (i.e., all combinations of the three time points: baseline, 3 months, and 6 months); coders then scored recordings in the order indicated by the assigned sequence.

Given the novelty of the WS-FAsTask, we implemented ongoing reliability assessment of scores.^{51,52} The comparative standard coder (KMR) double-coded 20% of each coder's recordings. Scores that were discrepant by more than one point were flagged for discussion during weekly team meetings. A coder whose scores were flagged for discussion twice in a row was issued re-training on the items causing difficulty; only one of four coders had to be re-trained on one occasion. The intraclass correlation coefficient (ICC) was used to assess the reliability of scores. For stigmatizing and non-stigmatizing items, the ICC was 0.63 and 0.57, respectively, indicating modest reliability.⁵¹ Further, we observed no statistically significant difference between the coders' scores and that of the comparative standard for stigmatizing items (mean difference = 0.002, $P = 0.92$) and for non-stigmatizing items (mean difference = 0.03, $P = 0.42$).

The WS-FAsTask codebook contains 13 items to represent different types of stigmatizing comments (e.g., personal responsibility for weight) and seven items to represent non-stigmatizing comments (e.g., encouraging exercise for non-weight-related outcomes). For this study, we included ten of the stigmatizing items and four of the non-stigmatizing items to assess only the types of comments that were targeted by the intervention (eTable 2).

The WS-FAsTask recordings were scored on a binary scale to indicate whether each type of comment was "present" or "absent." The final score is the proportion of the types of comments coded as "present" during WS-FAsTask recordings. For example, a score of 0.2 for stigmatizing comments indicates dyads used 20% of the possible stigmatizing comments during the recording (i.e., two of the ten items). Higher scores indicate a higher occurrence of stigmatizing (unfavorable effect) or non-stigmatizing comments (favorable effect) during the recorded conversation about weight. From this point forward, we use "recorded

conversation(s) about weight” to refer to the WS-FAsTask audio-recorded conversation completed by participant dyads.

Statistical Analysis

In this study, all dyads were analyzed according to the intention-to-treat principle. Although some participants enrolled in the study attended the same school (i.e., clustering by school), we did not account for clustering in our analyses because only 6% (n=6) of the 99 participating schools have greater than five students from the same school enrolled in SUPPER and 66%(n=66) have just one student enrolled. Given the lack of evidence of clustering, we analyzed participants from the same school as independent observations.

We used generalized linear models with a binomial distribution and a log link to assess the efficacy of the weight stigma intervention. For our analytical sample, dyads contributed one observation for each type of comment examined. That is, each dyad contributed ten observations for the stigmatizing comments analysis (one observation for each of the ten types of comments examined) and four observations for the non-stigmatizing comments analysis (i.e., one observation for each of the four types of comment examined). In total, there are 14 observations per dyad in the sample. The proportion of stigmatizing and non-stigmatizing comments used by dyads overall was derived from generalized estimating equations with a compound symmetry covariance structure to account for repeated measures from the same dyad. Two separate analytical models were used to assess stigmatizing and non-stigmatizing comments. Differences in the proportion of stigmatizing and non-stigmatizing comments used by dyads in the intervention relative to dyads in the control at 3- and 6-months are summarized as prevalence ratios with corresponding 95% confidence intervals (95%CI).

We also examined group differences at the item level for types of stigmatizing and non-stigmatizing comments used. We calculated the proportion of each type of comment 'present' during recorded weight conversations. This resulted in ten separate proportions for stigmatizing comments and four separate proportions for non-stigmatizing comments for the intervention and control group. We then calculated the unadjusted difference of the proportions (intervention – control) which are summarized as horizontal bar charts to facilitate visual comparison of the types of comments that differed between the intervention and control group at 3 and 6 months.

Results

Of the 157 dyads with complete WS-FASTask recordings at baseline, 153 had complete recordings at 3 months and 117 had complete recordings at 6 months. Thus, for the stigmatizing comments dyads contributed 1,570 observations at baseline, 1,530 observations at 3 months and 1,170 observations at 6 months. For the non-stigmatizing comments, dyads contributed 628 observations at baseline, 612 observations at 3 months, and 468 observations at 6 months.

Overall, participant parents were 41.8 years-old, the majority were women (91.1%), non-Hispanic White (59.9%), and highly educated ($\geq$ four-year degree, 65.6%), and lived in a household earning less than \$150,000 per year (73.1%). Two-thirds of parent participants had overweight/obesity (65.6%), 40.7% had been stigmatized for their weight by friends or family, and the mean level of weight bias internalization was 2.5 (low-moderate). Youth participants were evenly distributed across grades, with slightly more youth being in 6th grade (37.6%), 52.2% self-identified as a girl, and 28.7% had overweight/obesity. During recorded weight conversations, dyads used 26.2% of the 10 types of stigmatizing comments and 76.3% of the four types of non-stigmatizing comments at baseline. No differences in baseline sample characteristics were observed between groups (Table 1).

During recorded conversations about weight, dyads in the intervention group used 34% fewer types of stigmatizing comments overall at 3 months (15.6% vs. 23.8%, $P < 0.001$) and 27% fewer types of stigmatizing comments at 6 months (14.4% vs. 19.7%, $P = 0.012$) relative to dyads in the control group (Table 2). At the item level, dyads in the intervention used nine of the 10 types of stigmatizing comments less frequently than dyads in the control group at 3 months. The largest difference in proportions was observed for negative weight talk (-27%), personal responsibility for weight (-15%), being in favor of talking about weight (-14%), and positive weight talk (-8%) (Figure 2A). A similar pattern was observed at 6 months. Dyads in the intervention used eight of the 10 types of stigmatizing comments less frequently than dyads in the control group. The largest difference in proportions was observed for negative weight talk (-10%), being in favor of talking about weight (-8%), personal responsibility for weight (-9%) and positive weight talk (-12%) (Figure 2B, eTable 2).

Dyads in the intervention group used 13% more non-stigmatizing comments overall at 3 months (81.7% vs. 72.3%, $P = 0.006$) and 16% more non-stigmatizing comment at 6 months (85.1% vs. 73.2%, $P = 0.001$) relative to dyads in the control group (Table 2). At the item level, dyads in the intervention group used all four types of non-stigmatizing comments more frequently than dyads in the control group at 3 months and 6 months. At both time points, the largest difference in proportion was observed for encouraging exercise for well-being (3 months = +13%; 6 months = +21%) and for not being in favor of talking about weight (3 months = +11%; 6 months = +15%) (Figure 3A & 3B, eTable 2).

Discussion

In this study we found a significant improvement in the overall quality of recorded weight conversations at 3 months and 6 months for dyads in the intervention group relative to those in the control group. Dyads in the weight stigma intervention used fewer stigmatizing

comments during recorded weight conversations compared to dyads in the control group, where most of the 10 types of stigmatizing comments were used less frequently by dyads in the intervention group. We also observed a concurrent increase overall and in all four of the types of non-stigmatizing comments among dyads in the intervention relative to those in the control group. Despite observing no difference in the frequency of parental NWT between groups in our previous study, findings from this study indicate that when parents were asked to have a conversation about weight and related behaviors with their child, as done with the WS-FAsTask, parents in the intervention group were able to have a higher quality conversation (i.e., less stigmatizing content and more non-stigmatizing content) than parents in the control group.

Given the novelty of WS-FAsTask and that this study is the first to report WS-FAsTask scores, an in-depth interpretation of our findings is warranted. We observed 34% fewer stigmatizing comments at 3 months among dyads in the intervention group, which corresponds to approximately 64 fewer comments used overall. Thus, each dyad in the intervention used approximately 0.82 fewer types of stigmatizing comments than dyads in the control group (64 fewer types / 76 dyads in the intervention group). Similarly, 27% fewer types of stigmatizing comments were used by dyads in the intervention group than in the control group at 6 months. This corresponds to approximately 38 fewer types of comments overall and approximately 0.67 fewer types of comments per dyad (38 fewer types / 56 dyads in the intervention group). Smaller effects were observed for non-stigmatizing comments. We observed 13% more non-stigmatizing types of comments at 3 months among dyads in the intervention group than in the control group, which corresponds to approximately 22 more types of comments overall and approximately 0.30 more types of non-stigmatizing comments per dyad (22 more types / 76 dyads in the intervention group). At 6 months, dyads in the intervention group used 16% more non-stigmatizing types of comments than dyads in the control group, which corresponds to approximately 14 more

types of comments overall and approximately 0.25 more types per dyad (14 more types of comments / 56 dyads in the intervention group). Overall, we observed a modest improvement in conversation quality, which is characteristic of universal interventions.

The American Academy of Pediatrics' recently published clinical practice guidelines for obesity in children and adolescents have a strong emphasis on family-centered approaches and encourage parental involvement to enhance treatment efficacy (e.g., monitoring, limit setting, reducing barriers, modifying the home environment, etc.).¹⁵ This may translate into more frequent parent-child conversations about weight in the near future. As such, the demand for interventions that equip parents with the knowledge and strategies for navigating these conversations in a supportive manner is likely to also increase. Our findings show that participation in a universal weight stigma intervention led to parental improvement in nearly every type of stigmatizing and non-stigmatizing comment examined. Out of the ten types of stigmatizing comments measured in the WS-FAsTask, we observed the largest reductions for personal responsibility for weight and negative weight talk, both of which are potent forms of weight stigma experienced by youth.¹¹ Further, of the four types of non-stigmatizing comments, the largest increase was observed for encouraging exercise for well-being, not weight loss. A smaller increase was observed for encouraging healthy eating for well-being, not weight loss. Although we did not assess changes in health behaviors in this study, previous studies of adolescents and adults show that discussing and promoting health behaviors using supportive language and without emphasizing weight loss and management (e.g., weight-inclusive versus weight-normative approach), is an effective strategy for increasing motivation, compliance, and engagement in health behaviors.^{30,54} Only two types of stigmatizing comments shifted in an unfavorable direction: pressure to diet and exercise for weight loss or control. That is, dyads in the intervention group used more pressure to diet or to exercise for weight loss than dyads in the control group at 3 months and 6 months. This was an unexpected finding, and it is unclear why these two items occurred more frequently in

the intervention group relative to the control group. The occurrence of these items was very rare (0% to 6.6%), however, and it may have been a chance finding.

Parents have indicated that generic reading materials alone (e.g., online resources, pamphlets, etc.) are less helpful at facilitating conversations about weight than speaking with a physician and understanding their recommendations.⁵³ Qualitative research expands upon these preferences and indicate that parents want physicians to show regard for their parental expertise and to provide concrete, actionable weight-based recommendations that are feasible within their family context.⁵⁵ Although these studies focus on conversations between physicians and parents, they likely apply to parental preferences for receiving guidance on weight-based conversations with their children. Therefore, the two, one-on-one sessions with interventionists were likely important for achieving the effects observed in our study. Interventionists were trained to work collaboratively with parents and to defer to their knowledge on what works best for their family. This collaborative and empathetic approach during sessions afforded parents the flexibility to personalize and apply the broad recommendations provided in the weight stigma pamphlet to meet the needs and preferences of their family. The ability to personalize broad recommendations is particularly important for language preferences when talking about weight and body shape. Studies have shown substantial variability between individuals in their preferences and emotional response to the words used by others to describe their weight.^{27,56} Moreover, some families may have greater acceptance for talking about weight and body shape and a greater tolerance for weight-based jokes and teasing, especially among specific racial/ethnic groups, as is often observed in Hispanic/Latino families.^{23,57}

No other study, to our knowledge, has examined the impact of an intervention on the stigmatizing and non-stigmatizing content of parent-child conversations about weight. Existing interventions have primarily focused on communication style (e.g., warmth, hostility,

and openness) and have used weight-based outcomes to assess efficacy (e.g., weight loss, energy intake, and self-monitoring).⁵⁸⁻⁶¹ Although communication style is important, it may not be sufficient to override the presence of stigmatizing content. For example, a pilot study among maternal-adolescent dyads tested the effect of combining a behavioral weight control (BWC) program with a communication skills component on adolescent-reported negative weight-related comments and weight-based outcomes (e.g., maternal self-monitoring and adolescent BMI).⁶² The communication skills component included didactics and skills-based activities in assertive communication, active listening, and affect management skills and on keeping discussions on weight “direct” and “problem solving,” while reducing negative and critical comments about weight. Contrary to authors’ hypotheses, there was no change in adolescent-reported negative maternal commentary among dyads in the intervention (BWC + communication), but a significant decrease was observed among dyads in the control group (BWC only). It is possible that mothers in the intervention group continued to have weight-focused conversations and adolescents continued to perceive comments from mothers as negative, despite their use of newly acquired communication skills. Conversely, mothers who did not receive the communication skills training—and were not instructed to maintain direct conversations about weight—naturally deemphasized weight if they noticed that their child was uncomfortable or distressed by the topic. We did not assess communication skills in our study and additional research is needed to elucidate the independent effects of communications skills and the content of weight-based conversations (stigmatizing and non-stigmatizing) on youth well-being.

We observed that nearly all types of stigmatizing and non-stigmatizing comments shifted in a favorable direction among dyads in the intervention group. Given that WS-FAsTask capture only the type of comment, rather than their frequency or intensity, it is possible that the effect of the intervention was underestimated. For example, if dyads in the control group frequently discussed weight as a personal responsibility and dyads in the intervention group never

discussed weight as a personal responsibility, the difference between groups would only appear as a one-unit difference in the types of stigmatizing comments used. A similar scenario can take place for the intensity of stigmatizing comments. One may feel more stigmatized by a blatantly stigmatizing comment than a more subtle one. Nevertheless, the receipt of a stigmatizing comment—blatant or subtle, frequent or infrequent—depends on a multitude of interrelated factors including, but is not limited to, one's past experiences of weight stigma, level of internalized weight bias, perceived weight status and body satisfaction, gender, and source of the stigmatizing comment (e.g., friend, family, stranger, etc.).

Universal intervention programs tend to have smaller effects than targeted intervention programs.³⁶ Therefore, the modest absolute and relative differences we observed in the proportion of stigmatizing and non-stigmatizing types of comments used between groups was expected. However, because underlying level of risk of participants is not considered with universal interventions, they have the potential to impact a large breadth of individuals (i.e., reach). Further, although it is possible that WS-FAsTask recordings do not reflect the naturally occurring, weight-based conversations at home between family members, they are likely a reasonable representation of the conversations parents have when asked to talk with their child about their weight, as frequently done by pediatricians. Our study was also time- and resource-efficient, which are common barriers to intervention sustainability and dissemination. We believe our universal weight stigma intervention has the key elements for wider dissemination at pediatricians' offices or children's hospitals and could have a meaningful impact at a population level, if it proves to be effective at a larger scale.

Limitations and Strengths

Our study was not without limitations. First, we specifically developed the WS-FAsTask for this study and, although we saw significant improvements in scores, the clinical

meaningfulness of the change in scores has not been established. Previous studies have utilized FAsTask to assess the quality of parent-child conversations about substance use; however, FAsTask scores were primarily used to provide parents with feedback and were not directly associated with adolescent outcomes.⁶³ Notwithstanding these limitations, the WS-FAsTask tool had modest interrater reliability and is likely to have good content validity as it was developed in collaboration with an expert in weight bias. Second, participants were asked to audio record their conversations at home and may have been susceptible to social desirability bias. However, anecdotal evidence from our coding team indicates that parents seemed to have candid conversations during recordings. Furthermore, participants completed two FAsTasks, one on substance use and the second on weight stigma. It is possible that participants were less influenced by the novelty of being recorded during the WS-FAsTask section since all participants completed the substance use FAsTask first.

Our study also has several noteworthy strengths. The WS-FAsTask allows for direct, in vivo observation of the stigmatizing and non-stigmatizing content of parent-child conversation which is advantageous over traditionally used survey methods. Although the recordings are time-consuming to code, this approach has numerous advantages: it is not susceptible to participant recall bias, one is not restricted by the wording and interpretation of survey questions, and it allows assessment of a wide range of stigmatizing and non-stigmatizing comments. Second, all WS-FAsTask coders were extensively trained, and we employed a rigorous coding protocol with ongoing monitoring of interrater reliability to ensure coders were blinded to group allocation, to reduce risk of within-coder bias and chronological bias, and to reduce the influence of interrater variability on observed changes in WS-FAsTask scores. Lastly, as a secondary analysis of a randomized controlled trial, our study benefited from the "gold standard" of study designs, which eliminates risk of confounding and supports inference of causality.

Conclusions

In light of the emphasis of parental involvement in the care and management of pediatric obesity, parents need guidance on how to have conversations with their child about weight in a non-stigmatizing way. Our universal weight stigma intervention was effective at improving the stigmatizing attributes of parent-child conversations about weight (e.g., it reduced stigmatizing content and increased non-stigmatizing content). As a universal intervention with relatively low time- and resource-demands, it has the potential for wider testing and dissemination at a larger scale.

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Table 1. Sample characteristics of participants by baseline group allocation (N = 157).

	Control (N = 79)	Intervention (N = 78)	P value*
Parent gender, n (%)			0.25
Woman	74 (93.7)	69 (88.5)	
Man	5 (6.33)	9 (11.5)	
Parent age (years), mean (SD)	41.0 (5.9)	42.7 (6.8)	0.555
Parent race/ethnicity, n (%)			0.824
Hispanic	17 (21.5)	20 (25.6)	
Non-Hispanic Black	12 (15.2)	9 (11.5)	
Non-Hispanic Other	2 (2.5)	3 (3.9)	
Non-Hispanic White	48 (60.7)	46 (59.0)	
Parent education level, n (%)			0.781
< 4-year degree	28 (35.4)	26 (33.3)	
≥ 4-year degree	51 (64.6)	52 (66.6)	
Household income, n (%)			0.702
< \$26,000	8 (10.1)	11 (14.1)	
\$26,000 to \$74,999	12 (15.2)	8 (10.3)	
\$75,000 to \$149,999	22 (27.9)	20 (25.6)	
≥ \$150,000	37 (46.8)	39 (50.0)	
Parent weight status, n (%)¹			0.201
Underweight	1 (1.3)	0 (0.0)	
“Healthy” weight	21 (26.6)	30 (39.5)	
Overweight	29 (36.7)	19 (25.0)	
Obesity	28 (35.4)	27 (35.5)	
Parent weight bias internalization, mean (SD)	2.5 (1.1)	2.6 (1.3)	0.531
Parent weight stigma from friends or family, n (%)			0.298
Never	50 (63.3)	43 (55.1)	
Ever	29 (36.7)	35 (44.9)	
Child gender, n (%)			0.358
Girl	40 (50.6)	42 (53.9)	
Boy	37 (46.8)	36 (46.2)	

Other	2 (2.5)	0 (0.0)	
Child grade, n (%)			0.906
5 th	29 (36.7)	26 (33.3)	
6 th	29 (36.7)	30 (38.5)	
7 th	21 (26.6)	22 (28.2)	
Child weight status, n (%)²			0.433
Without overweight/obesity	50 (66.7)	53 (72.6)	
With overweight/obesity	25 (33.3)	20 (27.4)	
Stigmatizing WS-FAsTask observations contributed by time point, n³			
Baseline	790	780	
3 months	770	760	
6 months	610	560	
Non-stigmatizing WS-FAsTask observations contributed by time point, n³			
Baseline	316	312	
3 months	308	304	
6 months	244	224	
Quality of parent-child conversation about weight (WS-FAsTask scores), % (95%CI)			
Stigmatizing content ³	215 / 790 (27.2)	198 / 780 (25.4)	0.410
Non-stigmatizing content ³	237 / 316 (75.0)	240 / 312 (76.9)	0.573

* Group differences were examined using χ^2 test of independence for categorical variables and two sample t-tests for continuous variables. $P < 0.05$ signifies statistical significance (bolded).

¹ Two participants were missing data for parent weight status, both were from the intervention group.

² Nine participant were missing data for child weight status. Five from the intervention group and four from the control group.

³ The counts and proportions for baseline WS-FAsTask scores are based on the crude number of co. Estimated proportions were derived from Generalized Estimating Equations (GEE) using a compound symmetry covariance structure to account for repeated measures. GEEs estimate proportions. Stigmatizing content has a maximum of 10 items and non-stigmatizing content has a maximum of 4 items.

Table 2. Effect of the intervention on the quality of parent-child conversations about nutrition, exercise, and weight at 3 months and 6 months post-randomization.¹

	Stigmatizing Comments		Non-Stigmatizing Comments	
	3 Months	6 Months	3 Months	6 Months
Intervention				
n / N	119 / 760	78 / 560	248 / 304	197 / 224
% ²	15.6	14.4	81.7	85.1
Control				
n / N	183 / 770	116 / 610	226 / 308	183 / 244
% ²	23.8	19.7	72.3	73.2
Prevalence Ratio	0.66	0.73	1.13	1.16
(95%CI)	(0.53 to 0.81)	(0.57 to 0.93)	(1.04 to 1.23)	(1.07 to 1.27)
<i>P</i> value ³	<i>P</i> < 0.001*	<i>P</i> = 0.012*	<i>P</i> = 0.006*	<i>P</i> = 0.001*

¹ Participant dyads contributed 10 observations for the stigmatizing content and 4 observations for non-stigmatizing content. See end of Table 1 for total number of observations contributed by time point.

² Generalized linear models (GLMs) with a binomial distribution and log link were fit to the data. Estimated percentages and inferences were derived from Generalized Estimating Equations (GEE) using a compound symmetry covariance structure to account for repeated measures. GEEs estimate proportions. Stigmatizing content has a maximum of 10 items and non-stigmatizing content has a maximum of 4 items.

³ Prevalence ratios and corresponding 95% confidence intervals (95%CI) were derived using GEEs from the GLMs. The control serves as the reference group (intervention / control). *P* < 0.05 signifies statistical significance (*).



Figure 1. Effect of the intervention on the quality of parent-child conversations about nutrition, exercise, and weight at 3 months and 6 months post-randomization (N = 156).

¹ The Weight Stigma Family Assessment Task (WS-FAsTask) score measures the quality of parent-child conversations about nutrition, exercise, and weight. Scores are calculated as the proportion of stigmatizing and non-stigmatizing items coded as “present” in the WS-FAsTask recordings. A higher score indicates a higher proportion of stigmatizing and non-stigmatizing content was present during WS-FAsTask recordings. Black diamonds and circles indicate WS-FAsTask scores at baseline. Blue diamonds (intervention) and grey circles (control) indicate mean WS-FAsTask scores at 3 months and 6 months post-randomization with corresponding 95% confidence intervals.

² The WS-FAsTask scores (i.e., proportions) were estimated using generalized linear models (GLMs) with a binomial distribution and log link. Estimated percentages were derived from Generalized Estimating Equations (GEE) using a compound symmetry covariance structure to account for repeated measures. P value < 0.05 indicate a statistically significant difference in the proportion of stigmatizing and non-stigmatizing content between the intervention group relative to the control group (reference) at 3 months and 6 months post-randomization.

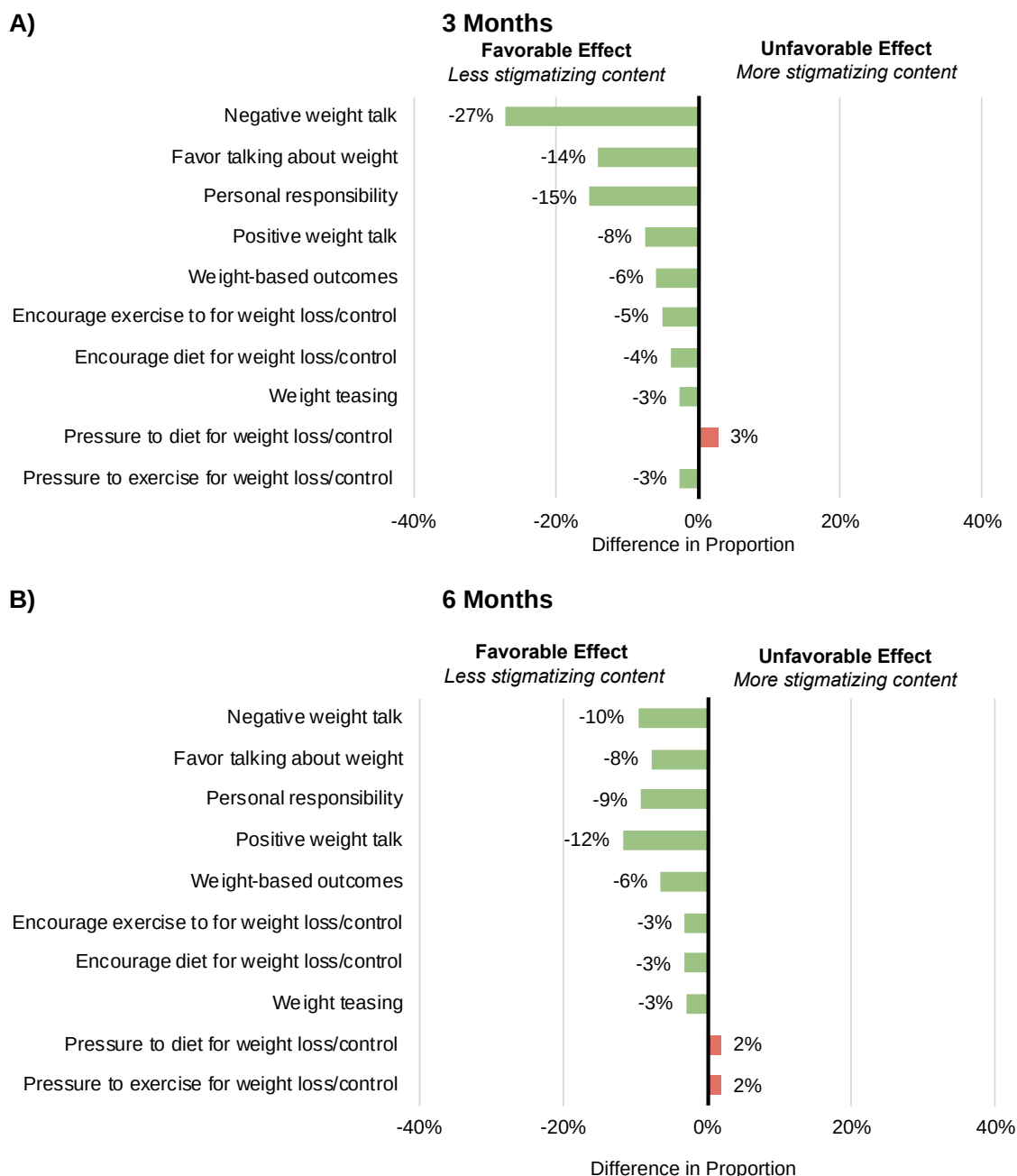


Figure 2. Effect of the intervention on use of stigmatizing content during parent-child conversations about nutrition, exercise, and weight at 3 months and 6 months post-randomization (N = 156).

¹ Horizontal bars show the unadjusted difference in the proportion of stigmatizing items that were present during the Weight Stigma Family Assessment Task recordings (Intervention – Control). Green bars indicate a lower proportion of stigmatizing items in the intervention group relative to the control (favorable intervention effect). Red bars indicate a higher proportion of stigmatizing content in the intervention group relative to the control (unfavorable intervention effect). (A) shows results at 3 months post-randomization and (B) at 6 months post-randomization.



Figure 3. Effect of the intervention on the use of non-stigmatizing content during parent-child conversations about nutrition, exercise, and weight at 3 months and 6 months post-randomization (N = 156).

¹ Horizontal bars show the unadjusted difference in the proportion of non-stigmatizing items marked as “present” during the Weight Stigma Family Assessment Task recordings (Intervention – Control). Green bars indicate a higher proportion of non-stigmatizing items in the intervention group relative to the control (favorable intervention effect). Red bars indicate a lower proportion of non-stigmatizing content in the intervention group relative to the control (unfavorable intervention effect). (A) shows results at 3 months post-randomization and (B) at 6 months post-randomization.

Supplementary Materials

eTable 1. Weight Stigma Family Assessment Task Prompts

TEEN:	Please talk about why you eat the foods you eat and why you have the exercise habits you do.
PARENT:	Think about the expectations you have for your teen about the foods they eat and their exercise habits. Talk with your teen about what your expectations are and why you have them.
PARENT AND TEEN:	Please discuss together the possible benefits of having healthy eating habits and being physically active.
PARENT:	Think about the times you have mentioned or spoken to your teen about their weight or body shape. Talk with your teen about why you think it is important to talk about or not talk about weight or body shape.
TEEN:	Talk about how you feel when your parent talks to you about your weight or body shape.
PARENT AND TEEN:	Please discuss together the possible benefits or risks of talking about weight or body shape, including comments about <u>your own</u> weight or body shape; comments about <u>other people's</u> weight or body shape.

eTable 2. Weight Stigma Family Assessment Task Items and Sample Quotations.

Types of Stigmatizing Comments	Quotations
1. Personal responsibility for weight	<i>Some people do have a slower metabolism and that makes it difficult for them to lose weight but, that just means they need to work harder to meet their weight goals.</i>
2. Pressure to diet for weight loss or management.	<i>You know you have gained a little weight this year and you said that it is bothering you. I am worried about it too. You need to start watching what you eat so you can lose the bit of the weight you have gained.</i>
3. Pressure to exercise for weight loss or management.	<i>You should really start a sport this year to start losing some of the weight you gained during COVID-19. You already had this last year off.</i>
4. Encouragement to diet for weight loss or management.	<i>Maybe we can snack a little less, especially after school when you are snacking on chips and things. Making these small, healthy changes can really help you keep your weight in check.</i>
5. Encouragement to exercise for weight loss or management.	<i>Exercise can help you with the weight and it makes you stronger and feel good. We can make a goal to go outside to do exercise for at least 30 minutes. We can do it together. What do you think?</i>
6. References to weight-based outcomes when discussing healthy eating and exercise habits	<i>We exercise so much because we want to keep our weight in check.</i>
7. Weight teasing directed to the self, child, or others	<i>Child: Sometimes I will say something looks big and you will say 'just like you'... Parent: [Laughs] but you know I don't think that, right? Really... have I ever said you're big? Child: No... but sometimes in jokes.</i>
8. Negative or critical comments about weight or body shape directed to the self, child, or others.	<i>Parent: I know that I am fat. Child: You are not fat, Mom Parent: [Scoffs]. Yeah, okay.</i>
9. Positive or complimentary comments about weight or body shape directed to the self, child, or others.	<i>You are at the perfect weight, right? Because we went to the doctor, and they weighed you. It is good you are at a good weight</i>

10. In favor of talking about weight, body shape, or body size with their child.	<i>When I talk about your body, I say that you are in shape. Sometimes, when you have gained weight, I tell you because you have to keep that in mind so that we can take care of ourselves and monitor what we eat and the exercise that we do.</i>
Types of Non-Stigmatizing Comments	Quotations
1. Encourage healthy eating habits for health and well-being, not weight loss, gain, or maintenance.	<i>If you don't eat a good breakfast your brain will get all foggy. You need to eat healthy with well-balanced meals to keep your mind sharp and focused</i>
2. Encourage exercise for health and well-being, not weight loss, gain, or maintenance.	<i>It not about the weight. Exercising more will help you get better at basketball. You'll get faster and your ball handling will get better.</i>
3. References to outcomes non-weight-based outcomes when discussing healthy eating and exercise habits	<i>Eating well an exercising is good for things like anxiety and depression. It is good for your heart, too.</i>
4. Not in favor of talking about weight, body shape, or body size with their child.	<i>Parent: We don't talk about your weight at home because my parents spoke with me a lot about my weight, and it didn't make me feel very good. I don't want that for you but, if you want to talk about it, we can.</i>

eTable 3. Effect of the weight stigma intervention on the proportion of the types of stigmatizing and non-stigmatizing comments used by dyads at 3 months and 6 months post-randomization.

	3 Months			6 Months		
	Intervention (N = 76)	Control (N = 76)	Difference ¹	Intervention (N = 56)	Control (N = 61)	Difference ¹
Stigmatizing comments, %						
Pressure to exercise for weight loss/control	3.9	6.5	-2.5	1.8	0.0	1.8
Pressure to diet for weight loss/control	6.6	3.9	2.7	1.8	0.0	1.8
Weight teasing	0.0	2.6	-2.6	3.6	6.6	-3.0
Encourage diet for weight loss/control	2.6	6.5	-3.9	0.0	3.3	-3.3
Encourage exercise to for weight loss/control	2.6	7.8	-5.2	1.8	4.9	-3.1
Weight-based outcomes	46.1	51.9	-5.9	41.1	47.5	-6.5
Positive weight talk	22.4	29.9	-7.5	16.1	27.9	-11.8
Personal responsibility	26.3	41.6	-15.2	26.8	36.1	-9.3
Favor talking about weight	22.4	36.4	-14.0	25.0	32.8	-7.8
Negative weight talk	23.7	50.6	-27.0	21.4	31.1	-9.7
Non-Stigmatizing comments, %						
Mention non-weight-based outcomes	100.0	97.4	+2.6	100.0	95.1	+4.9
Eat healthy for well-being, not weight loss	84.2	77.9	+6.3	89.3	78.7	+10.6
Exercise for well-being, not weight loss	81.6	68.8	+12.7	94.6	73.8	+20.9
Do not favor talking about weight	60.5	49.4	+11.2	67.9	52.5	+15.4

¹ The difference in proportion (intervention – control) is unadjusted.

CHAPTER 7

Summary and Discussion

Research Overview

This dissertation research focused on weight stigma, the discrimination and societal rejection of individuals labeled as “overweight” or “obese”. Weight stigma in early adolescents has become a major concern because they are vulnerable to body image and appearance-based issues and often experience interpersonal weight stigma from their family, regardless of their weight status.¹ Parents and siblings are the most common sources of interpersonal weight stigma and frequently tease or make critical remarks about their each other’s weight, body shape, and lifestyle choices.²⁻⁴

Interpersonal weight stigma from family members has lasting consequences on the physical and psychosocial health of early adolescents, including elevated weight bias internalization (WBI) levels. WBI is a growing area of research, and the study of its determinants in children and adolescents is largely absent in the literature. This paucity of research inspired the first goal of this dissertation: to elucidate the impact of negative familial weight talk, a potent and prevalent source of interpersonal weight stigma, on WBI levels in early adolescents.

Although family members are a common source of interpersonal weight stigma, few—if any—interventions have been designed to reduce family members’ engagement in negative weight talk. In addition, parents have limited knowledge and self-efficacy for navigating conversations about weight; they want to learn how to have supportive communications with their children about healthy behaviors and body image while also reducing weight-based criticisms.⁵⁻⁸ These gaps inspired the second goal of this dissertation: to examine the efficacy of a weight stigma intervention on the frequency of interpersonal weight stigma from

parents and the quality of parent-child conversations about weight using data from an ongoing randomized controlled trial.

Summary and Discussion of Findings

Aim 1: The relationship between negative familial weight talk and weight bias internalization.

The objective of this aim was to characterize the relationship between negative familial weight talk and WBI in early adolescents. To accomplish this, we analyzed baseline data from SUPPER participants, who were in 5th, 6th, or 7th grade and were residing in Massachusetts. We measured the frequency of negative familial weight talk from parents and siblings currently living in the household. Our findings indicate that as the frequency of negative familial weight talk increases, WBI levels incrementally increase. Prior research had primarily examined negative familial weight talk as a binary variable, which precluded observation of a dose-response trend. The dose-response relationship we observed represents a noteworthy contribution to our understanding of the possible determinants of WBI in pediatric populations.

As a cross-sectional analysis, our findings cannot be interpreted as evidence of causality. Few studies of negative familial weight talk are prospective, and fewer examine WBI longitudinally. It is unlikely that higher levels of WBI cause more frequent negative familial weight talk. Nevertheless, other research questions, such as the malleability of WBI, remain largely unanswered and are critical to informing intervention efforts (e.g., the salience of prevention and the feasibility of treatment). Considering how early weight bias develops,⁹ longitudinal examination of WBI and its determinants from toddlerhood to young adulthood is warranted. A long-term, prospective study would provide a deeper understanding of WBI and its determinants and would better inform the design of prevention and treatment interventions.

Differences by Gender, but not Weight Status

We found no evidence of effect modification by weight status in the relationship between NFWT and WBI, but results differed by gender. Our results also indicate that the impact of negative familial weight talk on WBI levels did not depend on the early adolescent's weight status. Surprisingly, early adolescents with and without overweight/obesity who experienced negative familial weight talk at the highest frequency level had nearly identical WBI levels. This finding highlights that children with and without overweight/obesity are equally susceptible to elevations in WBI, particularly when negative familial weight talk is experienced frequently.

Negative familial weight talk had a considerable impact on WBI levels in girls, whereas it had no impact on WBI levels in boys. This finding adds to the existing literature that indicates that girls have increased sensitivity to weight-based comments and are vulnerable to developing issues with body image and related outcomes. However, it is important to emphasize that boys experience significant body satisfaction issues during early adolescence, but their body concerns are different—and at times in conflict—with the body concerns of girls.¹⁰ Girls typically seek to lose weight whereas boys often seek to gain weight, specifically lean body mass (i.e., muscle mass).¹¹ Like girls, boys who are preoccupied with their weight experience body shame and are prone to developing disordered eating behaviors.¹²

The distinct body concerns of boys may explain their apparent resiliency to elevations in WBI because our negative familial weight talk measure is specific to negative comments related to *excess weight*, not underweight or muscularity. Thus, an important consideration for future research is to include measures of negative weight talk that include comments related to underweight. This approach would improve the generalizability of findings for boys and for cultural groups with curvier and higher body weight ideals. Further, existing studies use various measures of negative weight talk; this lack of a consensus in measurement impedes

synthesis of study findings. Thus, a comprehensive, validated measure that is not restricted to comments about excess weight and captures various types of weight-based comments (e.g., teasing, encouragement to exercise, etc.), the source (i.e., parent, grandparent, sibling, etc.), and valence (i.e., positive and negative) would be an important contribution to the field. A comprehensive measure would allow analysis of the individual types of weight talk (e.g., unique impact of teasing) as well as their collective impact.

Aim 2 and Aim 3. Efficacy of a universal weight stigma intervention. The objective of these research aims was to assess the efficacy of a universal weight stigma intervention on the frequency of negative familial weight talk (Aim 2) and the quality of parent-child conversations about weight (Aim 3). Conversation quality was significantly improved among parent-child dyads in the intervention group at 3- and 6-months post randomization compared to dyads in the control group. Dyads in the intervention group used fewer stigmatizing and more non-stigmatizing types of comments during audio-recorded conversations than dyads in the control group. Although conversation quality improved, there was no evidence of a difference in the occurrence of negative weight talk between groups at either time point.

For several reasons, we believe these findings represent important contributions to the literature. As a time- and resource-efficient universal intervention, our approach holds promise for shifting the stigmatizing nature of parent-child conversations about weight. Ensuring parents are well-equipped to talk about weight and lifestyle behaviors effectively and in supportive and non-stigmatizing manner is critical to the development of lifelong, healthy eating and exercise habits in children and adolescents without jeopardizing their self-esteem or body image. Notably, parents are motivated to improve in this realm. Moreover, as the first intervention, to our knowledge, to directly target negative familial weight talk, it

illustrates that the language parents use for talking about weight is malleable and thus represents a feasible behavioral target for future interventions.

Recommendations to Enhance Intervention Efficacy

We observed promising results with our weight stigma intervention, although it was only partially successful in achieving its goals to reduce negative parental weight talk. To enhance the efficacy of the intervention, several factors warrant consideration. First, the content of our intervention material was partly restricted by the initial design of the SUPPER attention-control group, which served as our intervention group for our analyses. Two-thirds of the intervention content focused on promoting nutrition and physical activity without much emphasis on weight stigma. Although both topics are weight stigma adjacent, future studies should consider a substantial increase in the content that specifically addresses familial weight stigma and provides guidance on how best to talk about weight with children.

Second, the primary goal of this intervention was to reduce negative familial weight talk by building parental knowledge and increasing parents' self-efficacy for having non-stigmatizing conversations about weight and eating and exercise habits. However, incorporating intervention materials that address underlying weight bias in parents themselves may enhance the efficacy of the intervention.^{13,14} That is, parents with explicit or implicit weight bias may have been less receptive to the intervention content and thereby less willing to modify their behavior. To address underlying weight bias, materials could provide relevant information or one-on-one intervention sessions that focus on increasing self-awareness of bias and challenging weight-based stereotypes and misconceptions about obesity, such as its controllability and related concepts (e.g., personal responsibility for weight).

Third, a thorough evaluation of the fidelity of implementation for the intervention is essential to inform wider dissemination efforts. Although not included in this dissertation, KMR and the SUPPER research team developed measures of implementation fidelity for all components

of the intervention, including measures of dose, adherence, quality, and participant engagement.¹⁵ Several safeguards were in place throughout the delivery of the intervention to ensure high fidelity. For example, the first five intervention sessions were evaluated by KMR to assess the dose, quality, and adherence of the interventionists' sessions and the SUPPER research team ensured all participants received intervention materials (e.g., handbooks, text messages, etc.). However, a comprehensive examination of intervention fidelity would illuminate which intervention components were most effective and would clarify whether the modest effect of the intervention was the result of the study design (i.e., universal interventions have smaller effects than targeted interventions), poor fidelity of implementation, or the prompted audio-recordings for the Weight Stigma Family Assessment Task (discussed in detail below). We were unable to include measures of the antecedents to child- and parent-outcomes, such as parental knowledge of weight stigma and self-efficacy for having conversations about weight with their child. Examining these antecedents would further elucidate the mechanism by which parent-child conversation quality improved and possibly clarify the lack of an effect on negative familial weight talk frequency that we observed.

Opportune Discovery of a Novel Intervention Activity

We observed an unanticipated decrease in the frequency in child- and parent-reported negative weight talk among all participants at 3- and 6-months post randomization relative to baseline levels. We suspect that the Weight Stigma Family Assessment Task prompts received by all parents, specifically those that helped them empathize with their child's stigmatizing experiences from family, may have led to less engagement in negative weight talk. This direct observational tool may also function as an intervention activity for reducing interpersonal weight stigma. As an intervention activity, the tool could be modified to include prompts that probe for child's preferences for talking about weight and related behaviors (i.e., terminology, timing, setting, and person), which would have the additional benefit of

equipping parents with tailored information on how to ensure their child feels respected and supported.¹⁶ An important next step for this research is to determine whether conversation prompts are an effective intervention activity for reducing negative weight talk from family members.

Improving Measurement of Conversation Quality in Weight Stigma Research

Existing studies on weight stigma have relied on survey-based measures and qualitative research to understand family-sourced stigma. Innovative methods that allow for a deeper, more nuanced examination of parent-child conversations are needed to understand the critical attributes of a non-stigmatizing conversation about weight and weight-related behaviors. Qualitative research provides invaluable, in-depth analysis of parent-child conversations; however, it cannot be used to quantify change over time or the magnitude of differences between groups.

We measured conversation quality with the Weight Stigma Family Assessment Task (WS-FAsTask), a direct observational tool developed for this study. Although we observed favorable shifts in the stigmatizing and non-stigmatizing content of parent-child conversations, the clinical significance of these shifts is unclear. The need to validate the WS-FAsTask tool is evident. The utility of the tool would be improved by determination of convergent validity using survey-based measures of negative familial weight talk (e.g., weight teasing, encouragement to exercise for weight loss, etc.); predictive validity using measures of disordered eating behaviors or WBI; and qualitative research, such as focus groups or facilitated interviews with parents and children to provide insight on their perspectives on the stigmatizing nature of the conversation. Further, determination of the WS-FAsTask minimal clinically important difference (sometimes referred to minimum clinically meaningful change) would improve the interpretability of results. That is, we would be better able to interpret the 34% decrease in stigmatizing types of conversations we

observed in Aim 3, for example, if a clinical or meaningful endpoint were ascribed to a known difference in WS-FAsTask scores. Validation of the WS-FAsTask tool would advance our understanding of the conversational attributes that contribute to the stigmatizing experiences of individuals with a higher body weight. The tool could also be expanded to other salient interactions, such as clinician-patient conversations.

In addition to validation, constructs could be added to the WS-FAsTask to create a more comprehensive measure of conversation quality, such as: the intensity of the comments (e.g., direct vs. subtle), frequency of occurrence, communication style (e.g., openness, warmth, reciprocity), and dyadic configuration (e.g., mother-daughter, sibling-sibling, etc.). Investigators will need to balance the comprehensiveness of the tool with its practicality. The addition of too many constructs would substantially increase the time-cost of coding, which would be a considerable limitation to using WS-FAsTask in a large-scale study.

Concluding Remarks

Interpersonal weight stigma has a lasting impact on the health and well-being of early adolescents. This dissertation research deepens our understanding of negative familial weight talk and its impact on weight bias internalization levels among early adolescents. It further contributes evidence that girls are more prone to elevated weight bias internalization levels than boys, but additional investigation in boys is warranted. Moreover, we provide important evidence that frequent negative familial weight talk and its effects are not limited to individuals with overweight or obesity.

This dissertation research demonstrates that participation in a universal weight stigma intervention can favorably alter the quality of parent-child conversations about weight and related behaviors. As a universal intervention, it holds promise for eliciting wide-reaching

effects, notwithstanding various adjustments that are expected to enhance efficacy. If disseminated at a larger scale, meaningful declines in early adolescents' experiences of interpersonal weight stigma at home may be achieved.

For this research we developed the Weight Stigma Family Assessment Task, a new direct observational tool to measure the quality of parent-child conversations about weight. The development of this tool is a major achievement of this research, given its potential for enriching our understanding of the complexities and nuances of parent-child conversations about weight. Lastly, the prompts that parent-child dyads used to guide their recorded conversations may themselves be a potent intervention activity for reducing the frequency of negative familial weight. At this time, conclusive evidence regarding its efficacy is lacking. Further examination of the prompts' efficacy is warranted, and if confirmed, would represent a significant contribution to the field.

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APPENDICES

Appendix A. Weight Stigma Family Assessment Task Tool (REDCap)

FAsTask Weight Stigma V.2.0

Page 1

Please complete the Weight Stigma Family Assessment Task for the audio-recorded conversation you were assigned from the SUPPER Project.

Points to remember:

Use the codebook for item definitions and examples. Listen to the audio recording twice before submitting your final scores. Code each audio recording in one sitting. Take notes using the structured worksheet provided to you. Save your notes on Box in your assigned Box folder. Thank you!

Participant Identification Number (PID)

Stigmatizing conversation items (Part 1)

Parent discusses weight as a personal responsibility.

☐ Present ☐ Absent

Parent encourages child to lose weight or control weight through dieting.

☐ Present ☐ Absent

Parent encourages child to lose weight or control weight through exercising.

☐ Present ☐ Absent

Parent pressures child to lose weight or control weight through dieting.

☐ Present ☐ Absent

Parent pressures child to lose weight or control weight through exercising.

☐ Present ☐ Absent

Parent uses negative weight-based stereotypes.

☐ Present ☐ Absent

Parent uses serious negative outcomes to fear-monger obesity.

☐ Present ☐ Absent

Parent describes people with obesity as unhealthy.

☐ Present ☐ Absent

Parent is in favor of talking about weight, body shape, and size with their child.

☐ Present ☐ Absent

Did the parent provide rationale for why they are in favor of talking about weight, body shape, and/or size?

☐ Yes ☐ No

What rationale did the parent provide?

- ☐ Concern for health
- ☐ Make a plan to improve eating habits
- ☐ Make a plan to improve exercise habits
- ☐ Motivate individual to change behavior(s) to improve weight status
- ☐ Raise awareness of a weight problem
- ☐ Do not believe that weight teasing is hurtful or taken seriously (e.g., "it's just a joke")
- ☐ Other

Please specify what "other" rationale the parent provided for why they talk about weight, body shape, and/or size.

Stigmatizing conversation items (Part 2) - Weight-focused conversation

Are any weight-based outcomes mentioned when discussing healthy dietary and exercise habits?

☐ Yes ☐ No

Who mentioned weight-based outcomes when discussing healthy dietary and exercise habits?

☐ Parent only ☐ Child only ☐ Both parent and child

How many times are weight-based outcomes mentioned when discussing healthy dietary and exercise habits?

☐ 1 time ☐ 2 times ☐ 3 times ☐ 4 times ☐ 5+ times

Which weight-based outcomes were mentioned?

- ☐ Prevent weight gain
- ☐ Avoid "getting fat" or "becoming fat"
- ☐ Increase weight
- ☐ Lose weight
- ☐ Maintain, control, or "keep" weight
- ☐ Reduce physical size (e.g., smaller waist)
- ☐ Increase physical size (e.g., larger quadriceps, larger biceps)
- ☐ Change physical shape to look better or achieve a specific standard (e.g., flatter stomach)
- ☐ Burn calories to offset indulgence or excess intake (i.e., create energy deficit)
- ☐ Burn calories to lose weight
- ☐ Restrict food intake to offset indulgence or excess intake (i.e., create energy deficit)
- ☐ Restrict food to lose weight
- ☐ Other

Please specify what "other" weight-based outcome was mentioned.

Did you have any difficulty selecting a response option for any of the items in the "Stigmatizing Conversation Items" sections?

☐ Yes ☐ No

Select the item(s) for which you had difficulty selecting a response.

- ☐ Weight as a personal responsibility
- ☐ Pressure to lose weight through dieting
- ☐ Pressure to lose weight through exercising
- ☐ Encourage to lose weight through dieting
- ☐ Encourage to lose weight through exercise
- ☐ Negative weight-based stereotypes
- ☐ Serious negative outcomes related to obesity
- ☐ Obesity is unhealthy
- ☐ Parent is in favor of talking about weight

Briefly explain why you had difficulty selecting a response option for WEIGHT AS A PERSONAL RESPONSIBILITY.

Briefly explain why you had difficulty selecting a response option for PRESSURE TO LOSE WEIGHT THROUGH DIETING.

Briefly explain why you had difficulty selecting a response option for PRESSURE TO LOSE WEIGHT THROUGH EXERCISING.

Briefly explain why you had difficulty selecting a response option for ENCOURAGE TO LOSE WEIGHT THROUGH DIETING.

Briefly explain why you had difficulty selecting a response option for ENCOURAGE TO LOSE WEIGHT THROUGH EXERCISING.

Briefly explain why you had difficulty selecting a response option for NEGATIVE WEIGHT-BASED STEREOTYPES.

Briefly explain why you had difficulty selecting a response option for SERIOUS NEGATIVE OUTCOMES.

Briefly explain why you had difficulty selecting a response option for OBESITY AS UNHEALTHY.

Briefly describe why you had difficulty selecting a response option for PARENT IS IN FAVOR OF TALKING ABOUT WEIGHT.

Stigmatizing conversation items (Part 3): Weight teasing

Did any the PARENT use any weight-based teasing toward the child, self, or others during the conversation?

☐ Yes ☐ No

How many times did the PARENT use weight-based teasing toward the CHILD?

☐ 0 times ☐ 1 time ☐ 2 times ☐ 3 times ☐ 4 times ☐ 5+ times

How many times did the PARENT use weight-based teasing toward the SELF?

☐ 0 times ☐ 1 time ☐ 2 times ☐ 3 times ☐ 4 times ☐ 5+ times

How many times did the PARENT use weight-based teasing toward the OTHERS?

☐ 0 times ☐ 1 time ☐ 2 times ☐ 3 times ☐ 4 times ☐ 5+ times

Stigmatizing conversation items (Part 4): Negative weight talk

Did the PARENT make any critical comments about weight or body shape directed to the child, self, or others during the conversation (i.e., negative weight talk)?

☐ Yes ☐ No

How many times did the PARENT make critical comments about weight or body shape toward the CHILD (i.e., negative weight talk).

☐ 0 times ☐ 1 time ☐ 2 times ☐ 3 times ☐ 4 times ☐ 5+ times

How many times did the PARENT make critical comments about weight or body shape toward the SELF (i.e., negative weight talk).

☐ 0 times ☐ 1 time ☐ 2 times ☐ 3 times ☐ 4 times ☐ 5+ times

How many times did the PARENT make critical comments about weight or body shape toward the OTHER (i.e., negative weight talk).

☐ 0 times ☐ 1 time ☐ 2 times ☐ 3 times ☐ 4 times ☐ 5+ times

Stigmatizing conversation items (Part 5): Positive weight talk

Did any PARENT make any complimentary comments about weight or body shape directed to the child, self, or others during the conversation (i.e., positive weight talk)?

☐ Yes ☐ No

How many times did the PARENT make complimentary comments about weight or body shape toward the CHILD (i.e., positive weight talk).

☐ 0 times ☐ 1 time ☐ 2 times ☐ 3 times ☐ 4 times ☐ 5+ times

How many times did the PARENT make complimentary comments about weight or body shape toward the SELF (i.e., positive weight talk).

☐ 0 times ☐ 1 time ☐ 2 times ☐ 3 times ☐ 4 times ☐ 5+ times

How many times did the PARENT make complimentary comments about weight or body shape toward the OTHER (i.e., positive weight talk).

☐ 0 times ☐ 1 time ☐ 2 times ☐ 3 times ☐ 4 times ☐ 5+ times

Non-stigmatizing conversation items (Part 1)

Parent describes weight as a complex condition.

☐ Present ☐ Absent

Parent promotes healthy eating for health and well-being, not weight.

☐ Present ☐ Absent

Parent promotes regular exercise for health and well-being, not weight.

☐ Present ☐ Absent

Parent communicates body acceptance.

☐ Present ☐ Absent

Parent communicates body diversity.

☐ Present ☐ Absent

Parent is not in favor of talking about weight, body shape, and size with their child.

☐ Present ☐ Absent

Did the parent provide rationale for why they do not talk about weight, body shape, and/or size?

☐ Yes ☐ No

What rationale did the parent provide?

- ☐ Body image
- ☐ Body satisfaction
- ☐ Hurt feelings
- ☐ Mental health (e.g., depression, anxiety)
- ☐ Non-weight-based outcomes are more important than weight (e.g., health)
- ☐ Parental past experiences of weight stigma as hurtful
- ☐ Physical health (i.e., elevated inflammation)
- ☐ Reduce motivations to improve eating habits
- ☐ Reduce motivations to improve exercise habits
- ☐ Self-esteem
- ☐ Weight gain (i.e., talk about weight can increase risk for weight gain)
- ☐ Other

Please specify what "other" rationale the parent provided for NOT taking about weight, body shape, and/or size.

Non-stigmatizing conversation items (Part 2): Non weight-focused conversation

Were any non weight-focused outcomes mentioned when discussing healthy eating and exercise habits?

☐ Yes ☐ No

Who mentioned non-weight-based outcomes when discussing healthy eating and exercise habits?

☐ Parent only ☐ Child only ☐ Both parent and child

How many times are non weight-based outcomes mentioned when discussing healthy eating and exercise habits?

☐ 1 time ☐ 2 times ☐ 3 times ☐ 4 times ☐ 5+ times

Which non weight-based outcomes were mentioned?

- ☐ Avoid negative social experiences related to weight (e.g., teasing, discrimination, etc.)
- ☐ Body image or Body satisfaction
- ☐ Confidence
- ☐ Cognitive function (e.g., focus)
- ☐ Dental health (e.g., prevent cavities)
- ☐ Energy levels
- ☐ Enjoyment or fun
- ☐ Feeling "good"
- ☐ Health or "be healthy"
- ☐ Improved athletic performance
- ☐ Longevity
- ☐ Mental health (e.g., depression, anxiety)
- ☐ Quality of life
- ☐ Risk for disease (e.g., diabetes, heart disease, hormone dysregulation)
- ☐ Self-esteem
- ☐ Socialization (e.g., play with friends)
- ☐ Strength
- ☐ Tastes good
- ☐ Other

Please specify what "other" non weight-based outcomes were mentioned.

Did you have any difficulty selecting a response option for any of the items in the "Non-stigmatizing Conversation Items" sections?

☐ Yes ☐ No

Select the item(s) for which you had difficulty selecting a response.

- ☐ Weight as a complex condition
- ☐ Promote healthy eating for health/wellbeing
- ☐ Promote exercise for health/well-being
- ☐ Body acceptance
- ☐ Body diversity
- ☐ Parent is not in favor of talking about weight

Briefly explain why you had difficulty selecting a response option for WEIGHT AS A COMPLEX CONDITION.

Briefly explain why you had difficulty selecting a response option for PROMOTE HEALTHY EATING FOR WELL-BEING.

Briefly explain why you had difficulty selecting a response option for PROMOTE HEALTHY EXERCISE FOR WELL-BEING.

Briefly explain why you had difficulty selecting a response option for BODY ACCEPTANCE.

Briefly explain why you had difficulty selecting a response option for BODY DIVERSITY.

Briefly describe why you had difficulty selecting a response option for PARENT IS NOT IN FAVOR OF TALKING ABOUT WEIGHT.

Words used to describe weight

Were any words used by the parent OR child to describe weight throughout the conversation?

☐ Yes
☐ No

Which words were used by the parent OR child to describe weight throughout the conversation. Select ALL that apply.

- ☐ Big
- ☐ Chunky
- ☐ Chubby
- ☐ Curvy
- ☐ Extremely obese
- ☐ Fat
- ☐ Fine (i.e., your weight/body shape/body size is fine)
- ☐ Flaca/o or faquita/o
- ☐ Gorda/o or gordita/o
- ☐ Healthy BMI
- ☐ Healthy weight
- ☐ Heavy
- ☐ Heavyset
- ☐ High BMI
- ☐ High bodyweight
- ☐ Large
- ☐ Low BMI
- ☐ Low bodyweight
- ☐ Morbidly obese
- ☐ Normal BMI
- ☐ Normal weight
- ☐ Normal size
- ☐ Obese
- ☐ Obesity
- ☐ Overweight
- ☐ Perfect
- ☐ Plump
- ☐ Plus size
- ☐ Right size/weight/shape
- ☐ Skinny
- ☐ Small
- ☐ Sobrepeso
- ☐ Thick
- ☐ Thin
- ☐ Unhealthy weight
- ☐ Weight problem
- ☐ Other

Please specify what "other" words were used by the parent OR child to describe weight throughout the conversation.

General Information: Blinding, coder, & time point.

To what group do you think this parent-child dyad was randomly assigned to?

- ☐ Substance use ☐ Nutrition, exercise, and weight stigma ☐ I do not know

Appendix B. Weight Stigma Family Assessment Task Coding Manual

WEIGHT STIGMA FAMILY ASSESSMENT TASK CODING MANUAL

Version 3.4

Box Filename: FasTaskCodingManual_v.3.4_2022-06-15.docx

Last Updated: January 29, 2023

Katherine M. Rancaño, MS¹, Rebecca Puhl, PhD², Aviva Must, PhD³,
Margie Skeer, ScD MPH MSW³, Misha Eliasziw, PhD³, Anna Grossman, MS¹
and Ingyin Khine⁴

¹ Tufts University Friedman School of Nutrition Science and Policy, Boston, MA; ²University of Connecticut Rudd Center for Food Policy and Health, Hartford, Connecticut; ³Tufts University School of Medicine, Boston MA; ⁴Tufts University, Medford, MA

*This coding manual was written for the adapted Weight Stigma Family Assessment Task (WS-FAsTask).
This coding manual was created in August 2019 and last revised in June 2022.*

Codebook Contributions

Identification of constructs: Ms. Katherine M. Rancaño searched through the literature to identify key, evidence-based constructs (stigmatizing and non-stigmatizing). Dr. Puhl reviewed the identified constructs and provided feedback.

Codebook definitions and examples: The construct definitions and conceptualization of examples were written by Rancaño and were reviewed and refined in collaboration with Dr. Puhl and Ms. Grossman. Rancaño and Grossman identified additional constructs via listening to participant audio recordings, which were then defined collaboratively. Dr. Puhl reviewed the definitions and examples and provided ongoing feedback throughout the codebook development process.

Coding methodology: A general coding methodology as created in collaboration with Dr. Skeer and Research Assistants for the SUPPER Project (Rachael A. Sabelli, MS, Michelle A. Lee Bravatti, MS MPH, and Emma C. Ryan, MS). It was then modified and refined by Rancaño, with guidance from Dr. Puhl, Dr. Eliasziw, and Dr. Must to suit the needs of Rancaño's dissertation research aims.

Maintenance and editing: The codebook was updated, refined, and edited as needed by Rancaño. Ingyin Khine contributed additional edits for clarity and provided salient quotations from participant audio recordings to serve as examples.

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WEIGHT STIGMA FAMILY ASSESSMENT TASK CODING MANUAL

I. Description

Family Assessment Task (FAsTask) is a direct observation (i.e., video recorded) measure of family relationship quality, encouragement, limit setting, monitoring, problem solving, and norm setting adapted by Dishion and Kavanagh.¹ FAsTask has been used as a tool to identify intervention targets for adolescents who use substances and their parent(s).^{2,3}

FAsTask was adapted for the SUPPER Project to facilitate a conversation between an early adolescent (5th, 6th, and 7th graders; 10-14 years old) and their parent/guardian about eating habits, exercise habits, and weight talk. The conversation is audio recorded. ***The purpose of this manual to guide the coding of the audio recorded, adapted FAsTask that facilitates a discussion between a parent and their early adolescent about eating habits, exercise habits, and weight.***

The scoring guides in this manual serve a dual purpose:

- 1) to capture evidence-based components of a stigmatizing conversation about eating habits, exercise habits, and weight and;
- 2) to capture parental adherence to the key messages of the negative familial weight talk (NFWT) intervention delivered to participants in the SUPPER Project.

A. Evidence-based components of a stigmatizing conversation

Conversations about eating habits, exercise habits, and weight can be stigmatizing when one is made to feel shame about their weight or body shape. Studies have documented different types of conversations or attributes of a conversation can be stigmatizing and are associated with adverse outcomes in youth and adults.⁴⁻⁶

Stigmatizing conversational components include:

1. Describe weight as a personal responsibility.
2. Pressure or encouragement to lose weight through dieting and/or exercise.
3. Negative weight-based stereotypes.
4. Serious negative outcomes to fearmonger obesity.
5. People with obesity/weight gain as unhealthy.
6. Negative or critical comments about weight or body shape directed to the self, child, or others.
7. Positive or complimentary comments about weight or body shape directed to the self, child, or others.
8. Weight-based teasing directed to the self, child, or others.

Other non-stigmatizing components have also been identified and are associated with beneficial outcomes or have no association with the adverse outcomes that are associated with stigmatizing comments

Non-stigmatizing conversational components include:

1. Acknowledge the complex etiology of obesity, including onset and maintenance.

2. Focus on outcomes unrelated to weight when discussing lifestyle and health behaviors, such as nutrition and exercise.
3. Encourage body acceptance
4. Acknowledge diversity in body shape, size, and weight.
5. Favor not talking about weight, body shape, and/or size with their child, unless specifically ask to by their child.

B. Key messages of the NFWT intervention

1. Eliminate negative familial weight talk within the household, which includes teasing and or critical, shaming comments about weight.
2. Encourage healthy eating and regular exercise for non-weight-related outcomes (i.e., not for weight gain, weight loss, or improvements in body shape/appearance).

C. Participant Materials - FAsTask Instructions and Prompts

Parent and child participants receive a set of prompts to guide them through a facilitated, 10-minute conversation about healthy eating and exercise habits and weight. The conversation is audio-recorded and submitted to the research team online. The instructions the participants receive and the prompts that guide the conversation are outlined below.

C.1. Participant Instructions:

For the next topic, we would like you to discuss healthy eating, exercise, and weight.

Families have different beliefs and practices about healthy eating, exercise habits, and weight. Sometimes children agree with their parents and sometimes they don't. It is okay if you and your child have different views.

For this section, please talk for at least 10 minutes. Set your timer for 10 minutes.

C.2.Prompts:

TEEN: Please talk about why you eat the foods you eat and why you have the exercise habits you do.

PARENT: Think about the expectations you have for your teen about the foods they eat and their exercise habits. Talk with your teen about what your expectations are and why you have them.

PARENT AND TEEN: Please discuss together the possible benefits of having healthy eating habits and being physically active.

PARENT: Think about the times you have mentioned or spoken to your teen about their weight or body shape. Talk with your teen about why you think it is important to talk about or not talk about weight or body shape.

TEEN: Talk about how you feel when your parent talks to you about your weight or body shape.

PARENT AND TEEN: Please discuss together the possible benefits or risks of talking about weight or body shape, including: comments about your own weight or body shape; comments about other people's weight or body shape.

II. Coding Process

General Guidelines

1. **Listen in private.** Find a time and place that is quite for coding. Ambient noises and distractions can interfere with the quality of your coding.
 - a. Only listen to audio recordings in a private place to protect participant confidentiality.
 - a. Use headphones, especially if you are in a public place. Not only will headphones ensure participant confidentiality is protected, but they can help improve the comprehensibility of audio recordings. Many audio recordings are submitted with a low volume and can be difficult to understand without headphones.
 - b. Refer to your CITI Human Subjects Research training for information on participant confidentiality best practices.
2. **Identify assigned recordings.** Refer to your personal Excel file on Box to identify which recordings have been assigned to you.
 - a. Assigned recordings will be uploaded to your personal Box folder labeled with your name (e.g., “[First Name] Assigned”).
 - b. You will not have access to any other recordings; however, if a recording that was no assigned to you appears in your folder, **do not code it**. Report the unassigned recording to the PI (Rancaño) and the incorrect recording will be promptly removed, and the correct one uploaded.
3. **Code in the assigned order.** Code the recordings in the order they are assigned to you.
 - a. Do not code in chronological order unless they were assigned to you that way.
4. **Code in one sitting.** Listen to the recording and complete the coding in one sitting. Allot approximately 45 minutes to one hour for each recording.
 - a. It is best to not begin coding a recording unless you have enough time to fully complete the coding in one sitting.
5. **Code all time points.** Each coder should code **all the timepoints** for a single participant dyad.

General Scoring Guidelines

1. **Constructs are mutually exclusive.** However, the same phrase, sentence, or comment can apply to multiple constructs.
2. **Only code what is said.** Do not try to interpret or make assumptions about what a participant *meant* to say.
3. **Consider the context.** The context can entirely change the score you assign to a statement. Consider the following two scenarios:
 - a. If a parent says “he looks like a whale” when giving a hypothetical example of what weight teasing sound like, then you **should not** code that statement_as an occurrence of weight teasing. In this context, the parent was providing an example.
 - b. If a parent is describing a neighbor and says “he looks like a whale” then the same statement **should** be coded as an occurrence of weight teasing. In this context, the parent is engaging in weight teasing toward their neighbor.

4. **Attend to what the parent AND child say.** Scores are determined by both what the parent and child say during the recorded conversation; however, the primary focus is the parent.

Rationale: Parents are responsible for correcting and intervening if their child discusses dietary habits, exercise, or weight in a stigmatizing way. We want coding to represent how parents navigate conversations about weight. Therefore, a parent should receive credit for responding appropriately and should not be penalized if their child says something stigmatizing (e.g., correcting a child for teasing someone for their weight).

- a. Consider the quality of both the parent's and child's statements **equally** when: The child makes a statement related to the construct and the parent verbally agrees with the statement OR the child makes a statement related to the construct and the parent is silent. *Silence is interpreted as parental agreement with the child's statement.*
- b. Consider the quality of **ONLY the parent's** statements when the child makes a statement related to the construct and the parent verbally disagrees or intervenes, then only code the quality of the parent's response.

A. Listen for the First Time

The first-time coders listen to the recording serves to get a sense of the conversation quality and assign preliminary scores.

1. Identify the start point. Skim the audio recording and identify and document the start of the Nutrition, Exercise, and Weight Section (minute and second, mm:ss). The section usually begins at around the 10-minute mark. Check for a "Part 2" to the audio recording as some conversations have multiple recordings.
2. Start the audio recording and adjust speed to your liking. A speed of 1.25x-1.5x normal is recommended.
3. Take notes using the structured or unstructured worksheet. It is strongly recommended to use the structured worksheet for your notetaking. However, if you feel your coding quality will be best with the unstructured worksheet, please use the unstructured version.
 - a. Structured notes worksheet on Box:
<https://tufts.app.box.com/file/895759112495>
 - b. Unstructured notes worksheet on Box:
<https://tufts.app.box.com/file/887890381898>
4. Complete **all sections** of the worksheet. If a construct was not present in the conversation type "n/a" or "none" to ensure no sections are left blank. Blank sections are interpreted as an incomplete worksheet.
5. Pause the recording as needed to take notes.
6. You may pause and rewind the recording to re-listen to sections that were unclear or that you missed as you were taking notes.

B. Assign Preliminary Scores

Preliminary scores help coders get a better sense of the conversation quality. Coders may feel confident with the preliminary scores for some constructs and feel less confident for others. During the second listen, coders should listen more carefully for the constructs with less confident preliminary scores.

1. Open the WS-FAsTask REDCap Survey:
 - a. <https://collaborate.tuftsctsi.org/redcap/surveys/?s=WH8NTDL79DARHYMX>
2. Assign a preliminary score for all items you feel confident about.
3. For items you are less confident about, there are two options:
 - a. Leave the item blank in REDCap as a mental note of which constructs you should focus on during the second listen.
 - b. Assign a preliminary score **and** make a note in your worksheet to focus on that construct during the second listen.

C. Listen for the Second Time

The second time coders listen to the recording serves to carefully listen for specific construct and refine notes in your worksheet. It also helps coders finalize preliminary scores. After listening to the recording for a second time, coders will assign final scores.

1. Restart the recording at the start point identified in “A. Listen for the First Time”
2. Start the audio recording and adjust the speed to your liking. A speed of 1.25x to 1.5x normal speed is recommended.
3. Take notes in the structured or unstructured worksheet.
 - a. Make sure notes are detailed enough to provide rationale for the final score entered. Coders will need to refer to their notes during team meetings to discuss discrepancies in scores.
 - b. Add notes for items or constructs you may have missed the first time you listened to the recording.
 - c. Focus on the constructs you were less confident about when assignment preliminary scores. Make sure to take careful notes for these sections or type “none” or “n/a” if the construct is not present in the conversation.
 - d. **Do not** leave any sections blank in the worksheet.
4. Pause the recording as needed to take notes.
5. You may pause and rewind the recording to re-listen to sections that were unclear or that you missed as you were taking notes.

D. Assign a Final Score

1. Refer to WS- FAsTask REDCap webpage.
2. Review the scores and adjust preliminary scores, if needed.
3. Assign scores for the constructs you were less confident about.
4. Mark items for which you had difficulty scoring and include a brief description for why you found it difficult in the REDCap survey.
5. Click “Submit” at the end of the REDCap form before exiting the survey. Please, **do not forget to submit** the form. If not submitted, your scores will be lost and will need to be re-entered.

F. Post-Scoring Internal Check

Once a final score is assigned reflect on the score and the overall conversation.

1. Refer to your rationale for scores that do not “feel right”
2. Listen to the conversation a third time to see if you missed something if your notes do not help identify the discrepancy. This is optional and should only be done if you feel like you need to.
3. Reach out to the second independent coder (K. Rancaño) for a second opinion if the final score feels wrong or if you have questions about a score.
4. Questions to ask yourself:
 - a. Does the score make sense given the conversation you heard?
 - b. Why did you feel it was great/poor and are those reasons outlined in the scoring guide for one of the constructs?

III. Limitations the WS-FAsTask Tool

Measurement error. Coders were instructed to code only what is **said** and to not try to interpret participants’ meaning. Therefore, this tool does not have capture some of the more nuanced interactions that may be interpreted by others as stigmatizing.

Social desirability. Participants are aware their conversation is being recorded.

Child self-directed weight talk. These occurrences are not coded in the tool. However, the Parent’s response to the child’s self-directed weight talk will be coded. Rationale is that the intervention target is the parent and not the child therefore any occurrences should be addressed as recommended in the intervention among parents who are assigned to the intervention group.

Past occurrences of weight talk. In some recordings the discussion of past occurrences of weight talk will be coded because it is representative of the current “weight talk environment” at home. As a result, it is possible for a past occurrence of weight talk to be mentioned and coded after the baseline assessment took place. When analyzed, these occurrences of past weight talk will appear as a decrease in conversation quality over time because the baseline audio recording did not mention past occurrence of weight talk.

Unknown if audio-recorded conversations are representative of conversations at home. These conversations follow a series of prompts that facilitate the discussion. These prompts intentionally guide participant dyads to discuss concepts that will allow them to talk about their attitudes and beliefs pertaining to weight and weight-related behaviors. These conversations may not be true reflection of the conversations about weight and weight-related behaviors that occur at home.

May unintentionally encourage weight-based conversations at home. In households where weight has never been discussed, the FAsTask prompts may be the first time a participant dyad has an explicit conversation about weight. If the parent is not prepared for this kind of conversation, there is a risk of exposing the child to weight stigma from the parent.

Encouragement/pressure to diet/exercise constructs are double barreled. These items do not separate weight loss from weight control. Given the young age of the sample, parents are more likely to encourage weight control than weight loss. Children who are above the 95th percentile for weight compared to children of their same sex and age are typically recommended to *maintain their weight* and not lose weight.

Use of a binary scale impedes our ability to capture variability in severity of stigmatizing comments. We originally planned to create a 9-point Likert scale to score conversations. After much consideration, we ultimately used a binary scale because:

- There is limited evidence demonstrating a dose-response relationship between the severity of a stigmatizing comment and adverse outcomes related to weight stigma (e.g., weight bias internalization). Experiencing a single, moderately severe stigmatizing comment can be as impactful as experiencing multiple, mild comments or a single, very stigmatizing comment.
- There is little guidance in the literature defining “mild,” “moderate,” or “severe” stigmatizing comments (e.g., what is the difference between using weight-based stereotypes “minimally,” “somewhat,” and “fully”).
- Studies have historically dichotomized experiences of weight stigma in analyzes (e.g., “ever been told to diet” versus “never been told to diet”).
- Improved interrater reliability (IRR) between coders with less convoluted definitions for a binary scale compared to a 9-point or 5-point scale.
- With a binary scale the FAsTask tool will be easier to use and, therefore, other research groups are more likely to use it in their studies.
- Audio recordings will be coded faster and more efficiently with a binary scale compared to a 5-point scale.

A six-point scale to capture frequency has a ceiling of 5 times or more. This six-point scale was used to assess frequency of weight-based outcomes, non-weight-based outcomes, positive and negative weight talk, and weight teasing. A six-point scale was adopted because the accuracy was unreliable for frequencies greater than five.

- Most participants had a frequency less than 5 for weight-based outcomes, positive weight talk, negative weight talk, and weight teasing during the 10-minute audio recording.
- A six-point scale makes it easier for coders to keep track of occurrences which reduces coding inaccuracies and potentially improves IRR between coders.
- It is very unlikely for a 10-minute conversation to have five or more occurrences of weight-based outcomes, weight talk, and/or weight teasing. Social desirability bias makes these occurrences more even more unlikely.
- To add richness to the data collected, we document the type of weight-based (e.g., weight loss) and non-weight-based outcomes (e.g., health) mentioned.

REMOVED: Parent communicates judgement about their child’s current body shape.

The codebook captures this construct with the negative weight talk item which includes “critical comments about weight, body shape, or size.” These critical comments are a critical judgement of their body shape, size, or weight.

IV. Instrument Content

A. Response Option Types

There are four types of response options in the tool:

- 1) Binary from “absent” to “present.”
- 2) Six-point scale from “0 times” to “5+ times” documenting the frequency the parent or child mention weight-based outcomes, non-weight-based outcomes, weight talk (positive and negative), and weight teasing.

- 3) Binary response options of “yes” and “no” for branching questions to reduce coder burden.
- 4) Check all that apply to capture parent’s rationale for talking about weight, to list weight-based and non-weight-based outcomes mentioned, and to list the words used to describe weight. These items are not defined in the codebook because they are not part of the final score.

A.1. Binary: “Absent” or “present.”

These responses are used to capture the presence of stigmatizing content during the facilitated parent-child conversation. The table below defines the response options “present” and “absent” in general terms. Specific guidelines and examples are provided for each item in Section IV. Part B and Part C for stigmatizing and non-stigmatizing items, respectively.

Present	The construct <i>is present in any degree</i> during the conversation. This includes conversations where the construct is fully present and conversations where the construct is only slightly present. Even minor occurrences during the conversation that would prevent a coder from selecting “absent” are coded as “present.” Comments from the child participant that meet the definition of a construct <u>AND</u> are <u>not</u> corrected by the parent, or the parent is silent are coded as “present.”
Absent	The construct <i>is not present in any degree</i> during the conversation. The criteria for the construct are not met at all. Comments from the child participant that meet the definition of a construct <u>AND</u> are corrected by the parent are coded as “absent.”

A.2. Six-point scale: “0 times” to “5+ times” *

These responses are used to document the frequency of weight-based and non-weight-based outcomes; weight-based teasing, negative weight talk, and positive weight talk during the facilitated conversation.

- Response options: 0 times, 1 time, 2 times, 3 times, 4 times, 5+ times.

A.3. Binary: “Yes” or “no.”

These responses are used throughout the instrument as branching questions to reduce coder burden.

* These items have a ceiling of “5+ times” because we expect a low number of occurrences for these items given the length of the recording (10 minutes) and the effect of social desirability bias on the participants, especially parents.

B. Stigmatizing Conversation Items

B.1. Part 1

1. Parent discusses **weight** as a personal responsibility.

<i>Definition</i>	Personal responsibility for weight frames overweight and obesity as a self-inflicted condition that can be controlled through healthy eating and exercise habits.^{7,8} A common identifying feature for weight as a personal responsibility is blaming individuals with obesity for their weight; it characterizes people with obesity as irresponsible due to a personal failure to care for themselves⁹, such as lacking motivation, self-discipline, or willpower. This oversimplification of the cause of obesity and weight gain can contribute to weight bias, perpetuate negative weight-based stereotypes, and contribute to weight-based discrimination between family members.¹⁰ For this item, the parent discusses weight as a personal responsibility; they emphasize that weight is within individual control and fail to adequately acknowledge the role of external factors in the development and maintenance of obesity and overweight (e.g., genetics, environment, physiology, and psychology). - This item only applies to weight loss and weight maintenance, not weight gain. Present: - Individuals are blamed for their weight AND weight is described as a self-inflicted condition caused by an individual's behaviors and/or decisions (e.g., excess intake of food, types of food, inadequate energy expenditure through exercise, etc.). - Individuals are blamed or viewed as responsible for their weight status. - Weight is described as something that can be controlled by changing one's behavior, mainly through reduced food intake and/or increased exercise. ** Just stating a weight-based outcome is not enough, to be coded as present. Individual blame for weight should be present as well ** Absent: - Weight is not described as a self-inflicted condition caused by individual behaviors and or decisions nor as something that is easily modified. - Behaviors that lead to weight loss or maintenance are mentioned but no blame is placed on the individual to control their weight. - Individuals are not blamed for their weight status	
PID	Timepoint	Examples
		Present
70251	OM	People gain weight because they overconsume...There is no reason to gain 80 pounds when pregnant unless you are overindulging.

		<i>Parent attributes weight gain to only overconsumption and overindulgence</i>
66239	3M	If you eat a lot, you will weigh a lot. If you eat less, you will weigh less. <i>Parent characterizes weight gain/loss as controllable through eating behaviors.</i>
N/A	N/A	It's their fault they gain weight. <i>Parent directly blames individuals for their weight.</i>
N/A	N/A	If you wanted to lose weight you would/could. <i>Parent describes weight loss as a choice or controllable characteristic.</i>
N/A	N/A	Child: People who eat better are skinnier. Parent: Some people do have a slower metabolism and that makes it difficult for them to lose weight but, that just means they need to work harder to meet their weight goals. <i>Parent notes external factors (metabolism) but states that weight can still be controlled through individual effort and behavior.</i>
18188	0M	I also tell you [when you have gained weight] because you have to keep that in mind so we can take care of ourselves and monitor what we eat and the exercise we do. It is important to talk about weight and body shape so we can take measures to help us monitor our weight and figure out what we need to change. <i>Taking measures to monitor weight and make changes without acknowledging external factors places blame on individuals for their weight. This could be coded as "present" for parent being in favor of talking about weight (B.1. Part. 1. Item 9).</i>
13126	3M	We can all control our weight, but how you [the child] eat is my responsibility. If you were 600 pounds, I would feel responsible but, before you got to that weight, I would put us all on a proper diet. No one should be 600 lbs. Unless it's medical. <i>Parent states anyone can control their weight. Although they mention an external factor (medical condition), weight is viewed as a condition that is largely managed through diet (individual behavior).</i>
58223	0M	I do not like you eating junk. It makes your teeth rotten, <u>you are going to gain weight</u>, and it makes you unhealthy overall. <i>Parent links eating junk to weight gain and places responsibility for weight gain on the child if they were to eat junk food.</i>
		Absent
18156	3M	Child: I eat healthy foods so that I don't become fat. Parent: What?! <i>No blame for weight. The child implies weight is controllable, but they do not blame individuals with for their weight. If the child had said "people would not become fat if they ate healthy," then it would be coded as present for personal responsibility because</i>

		<i>weight is directly described as controllable, and blame is placed on individuals to control their weight.</i> <i>This statement would be coded as 1 occurrence of weight-based outcome.</i>
N/A	N/A	Regular exercise and healthy eating habits can lead to weight loss. <i>Behaviors that lead to weight loss or maintenance are mentioned but no blame is placed on the individual to control their weight.</i> <i>This would be counted as 1 occurrence for weight-based outcome.</i>
71231	3M	Parent: We don't force you to exercise because if you exercised you would lose weight and the doctor actually wants you to gain weight. We make you foods that you like, like lobster. Child: Because you know I will eat them. Parent: Right, and because we can add things, like butter, that will help you gain weight. <i>Parent mentions behaviors that lead to weight loss are mentioned but no blame is placed on the individual to control their weight.</i>
		I don't care about the number; I just care that you are content with yourself.... It does not matter what you weigh. I don't weigh myself because I know how I feel in my clothes and I know based on what I am eating that I haven't been making healthy choices so, I don't look at the scale (<i>mentions she was "off track after" eating a lot of chocolate the night before and now is "on track" that morning with her smoothies</i>). <i>Absent because the parent does not directly talk about weight as controllable or blames people for their weight. Her statement about watching what she eats based on how she feels in her clothes implies controllability, but it does not meet the definition of personal responsibility for weight. It is also unclear if by "on/off track" she is referring to her weight or her health.</i>
NA	NA	It's not that simple. Some people are built differently, and you can't do much about the body shape and size you inherit. <i>Parent notes external factors that can contribute to weight gain and does not blame or place responsibility for weight on the individual.</i>
45247	0M	We are not overweight. We are fortunate that we have been able to maintain a lifestyle where we eat healthy and exercise. Papi works hard at being healthy because when he was younger, he was chubby... Not for aesthetics but, for health purposes. <i>Although the parent mentions weight-based outcomes (i.e., chubby) it is not enough to qualify as personal responsibility for weight since the parent states that they "work hard at being <u>healthy</u>." Although it is possible that "healthy" is code for "weight management" it is too subjective to tell from this quote.</i>

2. Parent pressures child to lose weight or control their weight through dieting.

<i>Definition</i>	Pressure to lose weight or control weight (e.g., prevent weight gain) through dieting has been associated with disordered eating behaviors (e.g., binge

	eating), unhealthy weight control behaviors (e.g., restriction), depressive symptoms, and poor body satisfaction.^{4*} For this item, the parent pressures their child to change their eating habits to lose or control weight. <u>This item is specific for weight loss and weight maintenance.</u> The suggested diet (or change in eating habit) is imposed by the parent onto the child, who has little to no say in the matter. These statements often begin with or include “should” (e.g., you should eat fewer chips). Eating habits can include pressure to: • Increase intake of foods thought to contribute to weight loss or control (e.g., vegetables, high-fiber products). • Reduce intake of foods thought to contribute to weight gain (e.g., sweets). • Reduce overall calorie intake. • Strategically eating (or not eating) from specific food groups and/or macronutrients (e.g., eat fewer carbohydrates to lose weight) for weight loss/control. • Adopt a specific diet to lose weight (e.g., Atkins, paleo, veganism, etc.). Pressure to lose weight is different from encouragement to lose weight through dieting and should <u>not</u> be coded for this item See definition for item 4. Encouragement to lose weight through dieting. Present • Parent pressures their child to change eating habits to lose weight or control their weight. • Parent pressures their child to start a diet to lose weight or control weight. • Parent pressures child to restrict consumption of specific foods, food groups, or calories, in general, to lose weight or control weight. • Parent references a past occurrence of pressure to lose/control weight that appears to still be ongoing. Absent • The parent does not pressure the child at all to change their eating habits to lose weight or control their weight. • Parent <u>encourages</u> their child to eat healthier to better control their weight and or lose weight. • Parent pressures child to eat more to gain weight (this item is specific to weight loss). • Pressure to eat certain foods for outcomes that are not related to weight loss (e.g., health).

* A meta-analysis by Gillison et al. in 2016 examined together “encouragement to lose weight or diet” with “perceived pressure from parents to lose weight”.

		Parent communicates their <u>expectations</u> about eating to prevent weight gain, control weight, and or non-weight-related outcomes.*
PID	Timepoint	Examples
		Present
12103	3M	P: It is more a reflection on 'okay we have been eating a lot of junk in the summer we need to get back to <u>eating healthy habits and exercise</u>'... Baseball isn't that much movement, and it seems to happen at the end of every summer. There is <u>a little extra fluff on the body that just needs to go so</u> that he can get back in shape for flag football and basketball. I think it is important that everyone stays in shape... so we get through life and feel healthy. <i>Parent tells their child that he has to lose weight through exercise and dieting in preparation for flag football and basketball seasons. It is still pressure to lose weight even though the child is onboard.</i>
51220	3M	P: I've told you in the past. You can't keep eating why? What's going to happen? C: I'm going to get fat. P: No, I don't tell you that! You're going to get weight. <i>Parent references a past occurrence of pressure to eat healthy to maintain/lose weight that appears to still be ongoing.</i>
N/A	N/A	The doctor said you had to lose weight. We are starting Monday. There will be no more ice cream after dinner, we need to cut out the sweets entirely. <i>Parent is pressuring their child to change eating habits (restricting their intake of ice cream) for weight loss.</i>
N/A	N/A	You know you have gained a little weight this year and you said that it is bothering you. I am worried about it too. You should start watching what you eat so you can lose the bit of the weight you have gained before it becomes a real problem. <i>Parent uses "should statements" to encourage their child to monitor food intake. Should statements often come across as judgmental and as pressure to change behavior.</i>
		Absent
N/A	N/A	Well, what if we tried to snack less so that weight does not become a problem. It is better to have regular meals and a complete snack than to be snacking around all day. You don't even realize how much you are eating. <i>Parent provides a suggestion to help their child lose weight. This would be coded "present" for encouragement to lose weight through dieting, not pressure (B.1. Part 1, Item 4).</i>

* FASTask prompts ask parents to discuss the expectations they have for their child in terms of healthy eating habits.

N/A.	N/A	It is my expectation that you eat enough fruits and vegetables every day. This is really important so that you stay healthy and don't have trouble with your weight in the future. <i>Parent is communicating their expectations about eating habits, they are not pressuring or encouraging the child to change their behaviors in any way. This could be coded as "present" for weight-based outcomes (Part B.2. Item 2).</i>
NA	NA	I know you do not like it, but you have to eat more vegetables. They are good for you and will keep you healthy. <i>Parent is pressuring child to change eating behaviors for health, not weight loss.</i>
58223	OM	I do not like you eating junk. It makes your teeth rotten, you are going to gain weight, and it makes you unhealthy overall. <i>Parent is not pressuring the child to change their behaviors to lose weight. This would be coded as "present" for personal responsibility for weight (B.1. Part 1, Item 1) and weight-based outcomes (B.2. Part 2.)</i>

3. Parent pressures child to lose weight or control their weight through exercise.

Definition	Pressure to lose weight or control weight (e.g., prevent weight gain) through exercise has not been well-studied separate from pressure to lose weight through <i>dieting</i>. Pressure to lose weight through exercise is sometimes analyzed together with pressure to lose weight through dieting and has been associated with disordered eating behaviors (e.g., binge eating), unhealthy weight control behaviors (e.g., restriction), depressive symptoms, and poor body satisfaction.^{4*} For this item, the parent pressures their child to change their exercise habits or sedentary behaviors so their child can lose or control their weight. <u>This item is specific for weight loss and weight maintenance</u>. The change is imposed by the parent onto the child, who has little to no say in the matter. These statements often begin with or include "should" (e.g., you should start exercising more). Exercise habits can include pressure to: • Reduce screen time and replace with physical activity. • Increase time spent exercising or playing outside (e.g., walking) • Begin or continue a recreational sport • Switch sport or activity to one that is "better" for weight loss or can help prevent weight gain (e.g., running) • Participate in family-based physical activities Pressure to lose weight is different from encouragement to lose weight through exercise and should <u>not</u> be coded for this item. (See definition for item 5. Encouragement to lose weight through exercise). Present

* A meta-analysis by Gillison et al. in 2016 examined together "encouragement to lose weight or diet" with "perceived pressure from parents to lose weight".

		• Parent pressures their child to change current exercise habits to lose weight or control their weight. • Parent pressures their child to start a new exercise regimen or activity to lose weight or control weight. • Parent pressures child to reduce screen time (or sedentary behavior) and replace with physical activity to lose weight or control weight. • Parent references a past occurrence of pressure to lose/control weight that appears to still be ongoing. Absent • The parent does not pressure the child to change their exercise habits to lose weight or control their weight. • Parent <u>encourages</u> their child to exercise more to control their weight and or lose weight. • Comments about strength training or exercising more (or less) to gain weight. This item is specific to weight <i>loss</i>. • Pressure to exercise for outcomes that are not related to weight loss (e.g., health). • Parent communicates their <u>expectations</u> about exercise habits to prevent weight gain, control weight, and or non-weight-related outcomes.*
PID	Timepoint	Examples
		Present
12103	3M	P: It is more a reflection on 'okay we have been eating a lot of junk in the summer we need to get back to <u>eating healthy habits and exercise</u>'... Baseball isn't that much movement, and it seems to happen at the end of every summer. There is <u>a little extra fluff on the body that just needs to go</u> so that he can get back in shape for flag football and basketball. I think it is important that everyone stays in shape... so we get through life and feel healthy. <i>Parent tells their child that he has to lose weight through exercise and dieting in preparation for flag football and basketball seasons. It is still pressure to lose weight even though the child is onboard.</i>
N/A	N/A	You spend too much time on your computer. You should really get outside and exercise more. Do you want to get fat? <i>Parent uses "should statement" to pressure child to exercise more.</i>
N/A	N/A	P: I've told you before. You need to start exercising more or you're going to start gaining weight. <i>Parent references a past occurrence of pressure to exercise to maintain/lose weight that appears to still be ongoing.</i>

* FASTask prompts ask parents to discuss the expectations they have for their child in terms of healthy exercise habits.

NA	NA	You need to start a sport this year to start losing some of the weight you gained during COVID-19. You already had this last year off. <i>Parent is forcing their child to join a sport to lose weight.</i>
		Absent
62256	6M	You are going back to basketball; I am forcing that. Now you are not moving, and you are just sitting and eating. That is not good. I need you to keep it healthy. It is not for now; you are fine now but, I need you to stay fit for later on in life. Right? Later in life you want to be healthy and not sick all the time... But I would never just come to you and say you are fat. I would just call myself fat. <i>Parent is unclear whether they want the child to join basketball for weight or for health, even though the quote ends with weight-based statements.</i>
18200	0M	You should do yoga with me. What can I do to get you to do yoga with me? <i>Parent is pressuring the child to exercise for non-weight related reasons.</i>

4. Parent encourages child to lose weight or control their weight through dieting.

<i>Definition</i>	For this item, encouragement to diet includes parents suggesting and/or nudging their child to adopt a diet or change their eating habits to lose weight or prevent weight gain. Encouragement to diet has been associated with the development of unhealthy weight control behaviors, dieting, binge eating, reduced self-esteem, and a less favorable body image in children and adolescents.¹¹ Parents may encourage their child by nudging, offering suggestions, and or providing various forms of support (i.e., emotional, instrumental, informational, or appraisal support) for the child to begin a diet or change eating habits for weight loss or maintenance. <u>This item is specific for weight loss and weight maintenance.</u> Parents do not use “should statements” when encouraging their child to change eating habits. Encouragement to lose weight through dieting and pressure to lose weight through dieting are sometimes used interchangeably and grouped together for analytical purposes in published research;⁴ however, they are coded separately in this coding manual. For this item the parent is less forceful than in Item 2. Pressure to lose weight... through dieting. The suggested diet or change in eating habit can include encouragement to: • Reduce overall calorie intake. • Increase intake of foods thought to contribute to weight loss/control (e.g., vegetables, high-fiber products) • Reduce intake of foods thought to contribute to weight gain (e.g., sweets) • Strategically eat or avoid specific food groups and or macronutrients to lose/control weight (e.g., eat fewer carbohydrates to lose weight).

- Adopt a specific diet to lose/control weight (e.g., Atkins, paleo, keto, veganism, South Beach diet, etc.) Present - Parent offers help, support, or suggests that their child start a diet to lose/control weight. - Parent offers help, support, or suggests that their child change their eating habits to lose/control their weight. - Parent offers help, support, or suggests that their child restrict consumption of specific foods, food groups, and or calories to lose/control weight. - Child tells their parent they want to diet or eat differently to lose weight and the parent is supportive and encourages them to do so. - Parent references a past occurrence of encouragement to lose/control weight that appears to still be ongoing. Absent - The parent <u>pressures</u> their child to diet or change their eating habits to lose/control weight. - Parent tells their child they <u>should</u> diet or change their eating habits to lose/control weight. "Should statements" are coded in Item 2. Pressure to lose weight... through dieting - The parent encourages their child to diet or change their eating habits for non-weight-related outcomes (e.g., health, growth, or development). - Parent encourages their child to eat more foods or specific food groups (e.g., protein) to <u>gain weight</u>. - Parent communicates their <u>expectations</u> about eating to prevent weight gain, control weight, and or non-weight-related outcomes.*		
PID	Timepoint	Examples
		Present
N/A	N/A	Maybe we can snack a little less, especially after school when you are snacking on chips and things. Making these small, healthy changes can really help you keep your weight in check. <i>Parent provides a suggestion to the child that can help with weight control.</i>
N/A	N/A	That is why I always pre-cut all the fruits and vegetables for you. It can make it easier for you to choose healthier snacks so that you can monitor your weight better. <i>Parent references a past occurrence of encouragement to eat healthy to maintain/lose weight that appears to still be ongoing.</i>

* FAsTask prompts specifically ask parents to discuss the expectations they have for their child in terms of healthy eating habits.

NA	NA	Child: I don't like I'm getting a chubby; I'm bigger than most of my friends. At school they have these salad bars and I kind of want to start eating more salads for lunch. Parent: I think that's a great idea. Eating more vegetables is important for your health and they help you keep your weight in check. <i>Parent is supportive of the child's proposed change in eating habits to lost weight.</i>
NA	NA	I can help you do it! I have been doing Weight Watchers for a few months now and I love it and have already lost a few pounds. I can make you the same foods that I prepare for myself so that you can lose a little weight too. What do you think? Do you want to do it with me? <i>Parent provides support to help the child change their eating habits to lose weight.</i>
		Absent
NA	NA	I know you do not like it, but you should eat more vegetables. They are good for you. <i>Parent is encouraging the child to eat more vegetables for non-weight-related reasons, not weight loss.</i>
58223	OM	I do not like you eating junk. It makes your teeth rotten, you are going to gain weight, and it makes you unhealthy overall. <i>Parent is communicating an expectation about eating habits, not encouraging a change in eating habits. This would be coded as "present" for weight-based outcomes (B.1. Part 2).</i>

5. Parent encourages child to lose weight or control their weight through exercise.

Definition	For this item, encouragement to exercise includes suggesting and/or nudging their child to modify or maintain their exercise habits to lose weight or prevent weight gain. Encouragement to lose weight through exercise is not well-studied and is sometimes grouped with encouragement to <i>diet</i> for weight loss or weight control in published research. ⁴ However, a longitudinal study in non-Hispanic girls found parental encouragement to exercise for weight loss was significantly associated with greater concerns about weight and a higher Body Mass Index. Also, encouragement to exercise for weight loss was not effective in increasing objectively measured physical activity levels (i.e., accelerometers). ¹² Parents may encourage their child by nudging, offering suggestions, and/or providing various forms of support (i.e., emotional, instrumental, informational, or appraisal support) for the child to begin or continue exercise for weight loss or weight maintenance and/or modify sedentary behaviors. <u>This item is specific for weight loss and weight maintenance.</u> Parents do not use "should statements" when encouraging their child to change exercise habits.

	Encouragement to lose weight and pressure to lose weight are sometimes used interchangeably and grouped together for analytical purposes in published research;⁴ however, they are coded separately in this coding manual. The parent is less forceful than in Item 3. Pressure to lose weight... through exercise The suggested exercise or change in exercise habit can include encouragement to: • Reduce screen time and replace with physical activity. • Increase time spent exercising or playing outside (e.g., biking, playing with friends outside, recreational sports, dance, etc.) • Begin or continue a sport. • Switch sport or activity to one that is “better” for weight loss or can help prevent weight gain (e.g., running, soccer, basketball). <i>*The parent must <u>say</u> the change in sport is for “better” weight outcomes.</i> • Participate in family-based physical activities (e.g., hiking, family walks, etc.). Present • Parent offers help, support, or suggests that their child change current exercise habits to lose weight or control their weight. • Parent offers help, support, or suggests that their child start a new exercise regimen or activity to lose weight or control weight. • Parent offers help, support, or suggests that their child reduce screen time and increase exercise to lose weight or control weight. • Child tells their parent they want to exercise differently to lose weight and the parent is supportive and encourages them to do so. • Parent references a past occurrence of encourage to lose/control weight that appears to still be ongoing. Absent • The parent <u>pressures</u> their child to change their exercise habits to lose/control weight. • The parent encourages their child to change their exercise habits for non-weight-related outcomes (e.g., health, strength, improved performance in sports). • Parent encourages their child to exercise (e.g., strength training or weightlifting) to <u>gain weight</u>. • Parent communicates their <u>expectations</u> about exercise to prevent weight gain, control weight, and or non-weight-related outcomes.* • “Should statements.” These should be coded in Item 3. Pressure to lose weight... through exercise.

* FAsTask prompts specifically ask parents to discuss the expectations they have for their child in terms of healthy eating habits.

PID	Timepoint	Examples
		Present
NA	NA	Exercise can help you with the weight and it makes you stronger and feel good. We can make a goal to go outside to do exercise for at least 30 minutes. Maybe just a few times a week to start. We can do it together. What do you think? <i>Parent provides a suggestion and support to increase exercise for better weight outcomes. This is still coded as "present" even though the parent mentions non-weight-related outcomes.</i>
N/A	N/A	That is why I always invite you to come on walks with me. It can be a great exercise to burn a few extra Calories to lose weight. <i>Parent references a past occurrence of encouragement to exercise to maintain/lose weight that appears to still be ongoing.</i>
N/A	N/A	You might want to try getting outside more and playing with your friends instead of being on the computer all day. It's good for you to get outside and it will help keep you from gaining more weight. <i>Parent provides a suggestion to swap a sedentary behavior for an active behavior to prevent weight gain. Still coded as "present" even though the parent mentions a non-weight-related outcome.</i>
N/A	N/A	Your weight is a little higher than what doctors think is healthy. The doctor told us that. Have you thought about playing soccer instead of baseball? You don't move around all that much in baseball and soccer is a more active sport; you will burn more calories. <i>Parent suggests swapping from a less active sport to a more active one to "burn more calories" which is directly tied to weight management.</i>
		Absent
18200	0M	Do yoga with me! What can I do to get you to do yoga with me? <i>Parent is encouraging the child to exercise with them but, weight is not mentioned and so it is coded as "absent."</i>
NA	NA	I know you do not like it, but it is good for you to exercise regularly. Find something that you like. Pick anything. What do you want to try this year? <i>Parent is encouraging the child to increase their exercise but, it is coded as "absent" because there is no mention of weight loss or management.</i>
NA	NA	You should get outside and sweat. You need to get out there and exercise so you can get some control over your weight. All you do is sit around on your computer. <i>Parent uses a "should statement" to increase exercise for weight control. This is "present" for pressure to exercise for weight loss (B.1. Part 1. Item 3).</i>

6. Parent uses negative weight-based stereotypes

Definition	Weight-based stereotypes partly come from the belief that weight is a personal responsibility and moral failing.⁹ They can be defined as <i>“generalizations that individuals with overweight or obesity are lazy, gluttonous, lacking in willpower and self-discipline, incompetent, unmotivated to improve their health, non-compliant with medical treatment, and are personally to blame for their higher body weight”</i>.¹³ The negative characterization of people with obesity contributes to weight bias and negative attitudes and beliefs about people with obesity, which can lead to weight-based discrimination and victimization.^{8,14,15} Using weight-based stereotypes can bias the attitudes and beliefs of others is a source of weight stigma and can contribute to weight bias internalization* and self-devaluation. For this item, parents use weight-based stereotypes when talking about eating habits, exercise habits, and weight. It also includes instances where a parent does not correct their child’s use of weight-based stereotypes. Overt use of a stereotypes (e.g., people with obesity are lazy) and descriptions of stereotypes or stereotypic behaviors (e.g., people with obesity don’t exercise) are coded in this item. Other overgeneralizations about people with obesity can be harmful but, they are not stereotyping in the way defined in this item. For example, the assumption that all people with overweight or obesity are unhappy, want to lose weight, are unhealthy, or have an extreme elevated risk for mortality and comorbidities (e.g., diabetes and cardiovascular disease) are an oversimplification and exaggeration of the consequences of obesity. Although these comments are a form of stereotyping and can contribute to one’s weight stigma experience, they are excluded in this item. These comments are instead captured in Item 7. Parent uses serious negative outcomes to fearmonger obesity and Item 8. Parent describes people with obesity as unhealthy. Present • Parent uses overt, negative weight-based stereotypes. • Parent describes negative weight-based stereotypes or stereotypic behaviors (e.g., people with obesity eat too much, they just sit on the couch all day). • Parent is silent or agrees with their child who uses negative weight-based stereotypes or describes stereotypic behaviors. Absent • No weight-based stereotypes are used during the conversation.

* Weight bias internalization (WBI) is the process of applying negative weight-based stereotypes to oneself and contributes to self-devaluation. WBI is associated with various adverse outcomes in adults and youth, such as disordered eating behaviors and low self-esteem, and may act as a mediator in the relationship between weight stigma exposure and adverse health outcomes.

		• Parent corrects and/or confronts child use of overt, negative weight-based stereotypes. • Examples of serious or extreme adverse consequences related to weight gain, overweight, or obesity. • Negative assumptions about people with obesity.
PID	Timepoint	Examples
		Present
N/A	N/A	People who get fat are usually just lazy. <i>Parent uses an overt weight-based stereotype</i>
N/A	N/A	Well, they got fat by not taking care of themselves. <i>Parent uses an overt weight-based stereotype. This comment would <u>also</u> be coded as “present” for weight as a personal responsibility (B.1. Part 1. Item 1).</i>
N/A	N/A	Child: If they people who were fat would eat how they are supposed to and move around more they would lose the weight but, they just don’t. Parent: Right, you just have to follow the diet and take care of yourself. <i>Parent agrees with the child’s description of weight-based stereotypic behaviors. This statement would <u>also</u> be coded as “present” for weight as a personal responsibility (B.1. Part 1. Item 1).</i>
70251	0M	Parent: I know you have seen I have gained some weight but that’s because I am 8-months pregnant. There are some people who will gain 40-75 lbs when they’re pregnant and that’s a lot. There is no reason for anyone to gain up to 80 lbs unless they are overindulging. <i>Parent describes stereotypic behavior.</i>
		Absent
19199	3M	Parent: Well, I want you to exercise... Child: So that I don’t become unhealthy, and it becomes a habit, it’s like becoming an alcoholic... You become too [unsure of word used]... and then it’s just hard. And then you’re going to die earlier because you’re obese. Parent: (Silent). <i>Extreme or severe adverse outcomes are not stereotypes, as defined for this item. This dialogue would be coded as “present” for using serious adverse outcomes to fearmonger obesity (B.1. Part 1. Item 7).</i>

7. Parent uses serious negative outcomes to fearmonger obesity.

<i>Definition</i>	Use of serious negative outcomes related to obesity is often used by individuals and public health campaigns to motivate behavior change; however, fear tactics cultivate fear, stigma, and defensiveness in the target audience and often fail to produce a change in behavior. ^{16,17} Fear tactics are especially ineffective when individuals have low self-efficacy for the target behavior. ¹⁸ For this item, parents use serious or extreme negative outcomes when talking about weight gain, overweight/obesity, and behaviors associated with weight (e.g., eating in excess and sedentary habits) <u>to demonstrate weight gain, obesity, and/or overweight is bad and should be avoided.</u> The parent's discussion is simplistic and exaggerates the influence of obesity, overweight, or weight gain in leading to serious negative outcomes. The serious negative outcomes mentioned do not have to be health related (e.g., people will tease you) Serious or extreme negative outcomes can include: Present • Parent exaggerates or oversimplifies the relationship between obesity and chronic health conditions (e.g., diabetes, cardiovascular disease, elevated blood pressure, cancer) • Parent exaggerates the impact of obesity on physical health (e.g., infertility, joint pain), quality of life (e.g., are unhappy), and/or psychological health (e.g., depression). • Parent oversimplifies or exaggerates to link between weight/obesity and negative outcomes. • Parent oversimplifies the development of obesity and extreme gains in weight. • Parent describes extreme outcomes related to obesity/overweight/weight gain. • Child does any of the above bulleted items and the parent agrees or is silent. Absent • Parent describes extreme outcomes related to weight loss and extreme low body weights. This item <u>only</u> applies to weight gain, overweight, and obesity. • Parent provides a well-rounded discussion of the negative outcomes that are associated with unhealthy eating and exercise behaviors. Weight may be discussed but, it is not done in an extreme or exaggerated way.	
PID	Timepoint	Examples
		Present
62256	6M	Parent: Eat the right things. Not for weight but so that you don't get unhealthy later on in life... I know you watch the "My 600-lb Life" show. You have seen that. <u>That comes from having unhealthy</u>

		<u>eating habits</u>. Sometimes its medication... But a lot of the times it's people's eating habits. <i>Parent attributes unhealthy eating habits to gaining extreme amounts of weight. Even though the parent mentions that extreme gains in can be a result of medication, they focus on eating habits as the primary cause.</i>
45247	0M	Child: You can barely even move if you're overweight. Parent: Right. [Having overweight] makes life more difficult and causes medical situations... Develop diabetes, high cholesterol and then you have to go on a diet. <i>Child characterizes people with overweight as having extreme difficulty moving. While some people with excess weight may experience limited mobility, it is exaggerated in this dialogue. The parent agrees with the child and lists additional negative outcomes.</i>
19199	3M	Parent: Well, I want you to exercise... Child: So that I don't become unhealthy, and it becomes a habit, it's like becoming an alcoholic... You become too [unsure of word used]... and then it's just hard. And then you're going to die earlier because you're obese. Parent: (Silent). <i>Child compares obesity to alcoholism and addiction and exaggerates the link between obesity and mortality. This is an extreme and inaccurate characterization of the condition of obesity. The parent does not correct the child and is silent.</i>
N/A	N/A	Parent: You don't want to be unhealthy, do you? You want to live a long and healthy life, right? Well, you have to make sure you eat right and exercise and take care of yourself. Child: Because I will get fat. Parent: Right. And you don't want that right? Your health would suffer, and you wouldn't be able to play outside with your friends like you do now. Child: Because it would be hard to move and play. Yeah, I don't want to be slow. <i>Parent oversimplifies the link between weight gain/obesity and poor health, difficulty moving, and ability to be active. The parent is also creating fear around weight gain and "getting fat" by implying their child would no longer be able to play with their friends and would be unhealthy.</i> <i>This dialogue would also be coded as "present" for use of weight-based stereotypes (B.1. Part 1. Item 6).</i>
N/A	N/A	Parent: Well, no one wants to be overweight or fat. They aren't happy with themselves. That's why it is also hard for them to get motivated to exercise; they get depressed, and it becomes hard to do anything. This is why your dad and I are always on your case about getting outside and spending less time playing video games.

		<i>Parent overgeneralizes unhappiness and depression in people who are fat or overweight. The parent then uses the negative outcomes as “leverage” to encourage the child to play less video games and go outside more.</i>
		Absent
N/A	N/A	Eating well is important for your health. For example, we watch our salt and fat intake because we want to take care of our heart. Salt and fat also make food really delicious; it can sometimes be hard to stop eating foods high in salt and fat. Like chips! So, we also want to monitor our fat and salt, so we do not overeat. <i>Parent talks about eating well for health. Parent mentions overeating; however, it is a measured description of the role of high salt/fat foods have in distorting satiety cues and potentially leading to overeating.</i>
N/A	N/A	Child: Aunt Jaime has diabetes, right? That is because he is unhealthy and fat. Parent: Not exactly, you don’t get diabetes from just gaining weight. It’s complicated. Diabetes runs in our family and there are a lot of things that can lead to diabetes. For example, eating a lot of sweets and not eating enough fruits and vegetables. Exercise can help too. Your Aunt Jaime started exercising more because it helps with this thing called insulin, which is important for diabetes. She hasn’t lost any weight but, her diabetes is better. <i>Parent discusses the complexity of diabetes, behavior, and weight gain. Parent corrects the child who oversimplifies the link between weight and diabetes.</i>

8. Parent describes people with obesity as unhealthy. *

Definition	For this item, parents communicate that people with obesity/overweight or weight gain are unhealthy without any contextualization of other factors that can contribute to one’s health status. Simply having excess weight or gaining weight is described as unhealthy or as a general indicator for poor health. This item is different from negative weight-based stereotypes (Item 6). Although poor health or “unhealthy” is a stereotypic characteristic often used to describe people with obesity, it is coded separately in this tool. This item is different from using serious negative health outcomes to fearmonger obesity (Item 7). This item is specific to “unhealthy” or “poor health” in general, whereas the Item 7 uses extreme outcomes or oversimplifies the association between weight and negative outcomes. Present • Parent describes people with obesity or overweight as unhealthy. • Parent describes weight gain as unhealthy or “bad for health.”

* This construct was identified inductively by K. Rancaño (PI) and A. Grossman in a subset of randomly selected audio recordings from the SUPPER Project. The PI included this item in the final FASTask tool with support by her Thesis Committee.

	• Parent describes having excess weight as unhealthy without any context (e.g., “more weight,” “too much weight,” or “high body weight”). • Child describes people with obesity or overweight as unhealthy and parent agrees or is silent. • Child describes weight gain as unhealthy or “bad for health” and parent agrees or is silent. Absent • Parent or child uses negative weight-based stereotypes. • Parent or child uses serious negative outcomes to fear-monger obesity. • Parent describes weight loss and low body weight as unhealthy. This item is specific to weight gain, overweight, and obesity. • Parent describes weight loss or losing weight as healthy.	
PID	Timepoint	Examples
		Present
N/A	N/A	Child: If you weigh like, 300 pounds that’s bad. Parent: So true. It’s not healthy to weigh that much. <i>Parent agrees that weighing 300 pounds is unhealthy without any contextualization or explanation.</i>
N/A	N/A	People who are obese have poor health, they have conditions like heart disease and joint pain, which makes it hard for them to move and live a long life. <i>Parent clearly states people with obesity have poor health.</i>
N/A	N/A	Parent: You have to watch what you eat because you can start to put on weight and that isn’t good for you. You want to be healthy right? When you have obesity, you are not healthy; you get things like diabetes and heart disease. <i>Parent describes gaining weight as “not good for you” which can broadly be interpreted as bad for health. Especially with the next sentence when they directly link obesity with poor health.</i>
N/A	N/A	Parent: When you start putting on weight your health gets worse and, overtime, you can get really unhealthy. <i>Parent states gaining weight is directly linked to poor health.</i>
59302	3M	Parent: There are no real benefits about talking about weight, we don’t talk about it. Child: Well, except with COVID-19 and you talk about someone who is obese. Parent: Right, I comment that they are unhealthy, and they are getting sick because of that. But we don’t comment on other people’s weight. If I see someone at work and they are really sick

		because they are overweight, are those the comments you are talking about? <i>Parent states overweight/obesity is directly linked to poor health outcomes for COVID19.</i>
		Absent
15130	6M	Parent: The benefits are having good blood pressure and a healthy heart, because if you have a lot of weight, because of bad eating habits, that puts a lot of pressure on your joints and on your body to take care of itself. <i>Parent provides context for how excess weight can impact health (e.g., pressure on your joints). This is not a universal statement of people with obesity/weight gain being unhealthy.</i>
13126	6M	Parent: Reasons you see me eating hummus, celery, and cucumbers Child: To fast? Parent: No, not to fast, it is about losing weight and eating healthy.... Need to not just fast but continue eating healthy after the fast. <i>Parent describes weight loss or losing weight as healthy, which is conceptually different than describing weight gain or obesity as unhealthy.</i>
18156	0M	Parent: "So, I am heavy. I weight more than I should. Weigh more than is healthy." <i>Parent is not describing weight gain as unhealthy. She is describing her current weight as unhealthy, which does not meet the codebook definition for "present." There is not enough information to code as "present" since the parent may have been told by a healthcare professional that her weight is unhealthy.</i>
62256	6M	Parent: Eat the right things, not for weight but so you don't get unhealthy later on in life... I know you watch the 600 lb show. You have seen that. <u>That comes from having unhealthy eating habits.</u> Sometimes its medication... But a lot of the times it's people's eating habits. <i>Although the parent mentions "unhealthy" it is in relation to eating the right things. This is "present" for use of serious negative outcomes to fearmonger obesity (B.1. Part 1. Item 7).</i>
N/A	N/A	You need to exercise so you can stay strong and healthy. <i>Parent does not mention weight gain or obesity. They only link exercise to health.</i>

9. Parent is in favor of talking about weight, body shape, and size with their child.

Definition	One of the key targets of the Weight Talk Intervention is to encourage parents to <u>not</u> talk about their child's weight. Parents are instructed to focus instead on healthy eating and exercise habits for non-weight-related outcomes. Talking

	about a child's weight, body shape, or size is used by parents for various reasons including: to help motivate their child to change their eating or exercise habits; to raise concerns about their child's weight and weight-related adverse health outcomes; or as a method to revise eating and exercise habits at home. Talking about weight is not an effective strategy for changing behavior and can contribute to poor psychological and/or physical well-being.¹⁵ For this item, parents state they are in favor of talking about their child's weight throughout the conversation or directly in response to the FAsTask prompt.* Exceptions for when a parent can be in favor of talking about weight: • Do not include parents that are responding to their child's request to talk about their weight. • Do not include parents who bring up their child's weight because it was raised as a concern by a healthcare professional. Present: • Parent states that they talk about weight with their child. Parent may or may not provide their rationale for doing so. • Parent discusses the benefits of talking about weight. • Parent briefly mentions that talking about weight is okay (with or without any rationale). • Parent is inconsistent in their messaging about talking about weight. They mention that they are in favor of talking about weight AND not in favor of talking about weight. • Parent states that they <u>would</u> talk about weight with their child <u>if their child were to gain weight</u>. The child's weight gain is clearly discussed as problematic. • Child states any of the above and the parent does not intervene. Absent[†] • Parent does not mention talking about weight with their child. • Parent talks about their child's or other's weight during the recording but <u>does not</u> state that they are in favor of talking about weight with their child. • Parent uses weight-based outcomes but <u>does not</u> state that they are in favor of talking about weight with their child.

* FAsTask prompts ask parents to “*discuss together the possible benefits or risks of talking about weight or body shape, including: comments about your own weight or body shape; comments about other people's weight or body shape.*”

[†] It is possible to code “absent” for both “parent is in favor of talking about weight” AND “parent is not in favor of talking about weight.” In these instances, it is not clear from the conversation what the parent's attitudes/beliefs are regarding talking about weight. However, it is not possible to code “present” for both items.

		• Parent states that they are not in favor of talking about weight. Parent may or may not include their rationale. • Parent is in favor of talking about weight because their child has asked them to talk to them about it. • Parent is in favor of talking about weight because their healthcare professional has raised concerns about their child's weight. • Parent states they are not in favor of talking about weight, but they use stigmatizing language against people with overweight/obesity.
PID	Timepoint	Examples
		Present
70251	0M	P: We haven't spoken to you guys about your weight because you're active/healthy. You look great. You're at the weight you're supposed to be. Okay with the doctor. <u>But if you started to gain weight there is room for a discussion to see hey, what is going on.</u> Are you feeling sick? Consuming more? Need to see what is going on." <i>Parent clearly states that if the child were to gain weight, then they would talk about weight with their child (hypothetical scenario).</i>
18188	0M	Parent: When I talk about your body, I say that you are in shape. Sometimes, when you have gained weight, I tell you because you have to keep that in mind so that we can take care of ourselves and monitor what we eat and the exercise that we do. <i>Parent clearly states they talk about their child's weight. Even though they say they use the word "in shape" they specifically refer to weight gain and then list behaviors they can use to lose weight.</i>
N/A	N/A	We talk about weight so that we can keep track and stay healthy. <i>Parent clearly states they talk about weight and include their rationale.</i>
18188	0M	I also tell you [when you have gained weight] because you have to keep that in mind so we can take care of ourselves and monitor what we eat and the exercise we do. It is important to talk about weight and body shape so we can take measures to help us monitor our weight and figure out what we need to change. <i>Parent is clear in stating that they talk about weight, they note it is important for monitoring behaviors and weight.</i>
11128	3M	P: ...Eating healthy and exercising isn't about the weight, it's about taking care of your body. C: When my parents talk to me and my weight/body shape, they're not shaming me it's to make sure I eat healthy. They care about if I am healthy and not what I look like. <i>Implies that parent talks about the child's weight and body shape as a strategy to encourage healthy eating habits. Even though the parent states eating and exercise is not about weight, it is clear from the child's comment that they talk</i>

		<i>about weight/body shape as a way to promote healthy eating habits in their child.</i>
N/A	N/A	P: We don't really talk about weight at home, we focus more on health and how we feel. C: Right, except when tell dad he needs to exercise because he is getting a belly. P: [laughs] Right, but we are just joking! And dad really does need to be exercising more. <i>Inconsistency in parent messaging.</i>
		Absent
N/A	N/A	I don't really think we talk about your body weight. Besides just saying like you have got to eat more meat to get bigger but, I think your body weight is normal <i>Parent mentions talking about their child's body size but, it is not clear from this statement that they are in favor of talking about weight. Further, the parents says they do not think they talk about weight at home, this suggests the parent is not in favor of talking about weight <u>even though</u> they may do so. The adjective "bigger" is also ambiguous, does it relate to weight or height?</i>
N/A	N/A	My family used to talk to me all the time about my weight. As a kid, I remember my mom used to say things about how my clothes fit and how I would look better if I lost some weight. I know she didn't mean to, but it hurt my feelings. <i>Parent uses a personal experience that illustrates how they personally did not like it when their mom talked to them about their weight but, they never state whether or not they talk about weight at home. This is ambiguous and is therefore coded as "absent."</i>
N/A	N/A	P: We do not talk about our weight or body shape in our household because we don't believe in shaming people for their bodies. We eat well and exercise regularly so that we don't have to worry about our weight. If you do the right things your body it will find a healthy weight naturally. People that gain a lot of weight just aren't doing the rights things, but we don't talk about those things. <i>Parent is clearly state that they do not talk about weight at home but has a negative bias against weight gain as they describe weight as a personal responsibility. This statement would be coded "present" for personal responsibility for weight but "absent" for in favor of talking about weight.</i>

B.2. Part 2

In this section, items capture the estimated frequency of the construct during the audio recorded conversation on a 5-point scale (i.e., 1 time, 2 times, 3 times, 4 times, 5 or more times). The scale has a ceiling of "5 times or more" because there were concerns that coders would not be able to accurately count occurrences, which would increase measurement error.

1. Are any weight-based outcomes mentioned when discussing healthy dietary and exercise habits?

<i>Definition</i>	One of the key targets of the Weight Talk Intervention is to encourage parents to avoid talking weight-based outcomes when discussing eating and exercise habits. Parents are instructed to focus on non-weight-based outcomes instead. Discussing direct or indirect weight-based outcomes while discussing the importance of healthy eating and exercise habits creates a connection between these health behaviors with weight. This is problematic because it reinforces weight as a personal responsibility. Furthermore, weight-based goals are ineffective at for long-term behavior change. Direct weight-based outcomes are outcome that focus on weight. These may include, but are not limited to: • Gain or lose weight. • Change body composition (e.g., reduce fat mass). This does <u>not</u> include increases in muscle mass for <i>strength</i>. • Change in body shape (e.g., smaller waist, larger biceps, or muscles to look “better”). • Change in body size. This does <u>not</u> include changes in height. Indirect weight-based outcomes are outcomes that are indirectly tied to weight. These may include, but are not limited to: • Maintaining energy balance by burning off calories with exercise. • Maintaining energy balance by restricting food intake or avoiding specific foods. For this item, the parent mentions weight-based outcomes while discussing the importance of having healthy eating and exercise habits. Weight-based outcomes may come up at any point during the audio-recorded conversation or directly in response to the FAsTask prompt.* Present • Parent mentions a weight-based outcome (indirectly or directly related to weight) when discussing exercise and dietary habits. • Child mentions a weight-based outcome and the parent agrees OR is silent. <u>Count as SEPARATE occurrences:</u> • Different weight-based outcomes are mentioned in the same sentence. • Different weight-based outcomes are mentioned at different times during the conversation. • The <u>same</u> weight-based outcome is mentioned more than once at <u>different</u> times during the conversation. <u>DO NOT count as separate occurrences:</u>

* The FAsTask prompts ask the parent and child to “please discuss together the possible benefits of having healthy eating habits and being physically active.”

		- The <u>same</u> weight-based outcome is mentioned more than once <u>in the same sentence</u> or <u>in proximity</u> in the conversation. For this tool, this qualifies as an emphasis on the weight-based outcome and not as a separate occurrence. Absent - Child mentions a weight-based outcome but, <u>the parent intervenes</u> by explaining that non-weight-based outcomes are more important - Child mentions a weight-based outcome but, <u>the parent tries to shift</u> the conversation toward non-weight-based outcomes. - Parent does not mention any weight-based (directly or indirectly related to weight) outcomes. - Parent mentions a health, social, or emotional outcome that is associated with weight (e.g., blood pressure, cholesterol, disease risk, depression, self-esteem). - Parent mentions a weight-based outcome because it is related to a health condition the child has that directly impacts their weight (e.g., cystic fibrosis, chronic obstructive pulmonary disease, Prader-Willi syndrome, etc.).
PID	Timepoint	Examples
		Present
11127	0M	Child: If I eat a lot of junk food, I like exercise because I can burn it all off. Parent: Mmmhmm. <i>Child describes burning off calories from junk food as a benefit that comes from exercise (indirect weight-based-outcome). The parent does not correct or redirect the conversation to focus on non-weight-based outcomes related to exercise.</i> 1 occurrence of weight-based outcome.
11127	3M	Parent: Do you know why I want you to eat healthy? Child: To have a healthy body... So that you don't get giant. Parent: Right. It is important to take care of ourselves. <i>Child describes preventing weight gain as an outcome of healthy eating. The parent does not correct or redirect the conversation to focus on non-weight-based outcomes.</i> 1 occurrence of weight-based outcome. 1 occurrence of C. Part 2. Non-weight-based outcome (i.e., healthy body).
19199	3M	Child: I have the exercise habits I do so that I don't get obese and then getting obese becomes a habit and you're doing it when you get older. And if you get obese, you're going to die. Parent: Well, I want you to exercise... Child: <i>[Interrupts parent]</i> So I don't become unhealthy, and it becomes a habit. It's like becoming an alcoholic, you become too...

		and then it's just hard. And then you're going to die earlier because you're obese. <i>Child describes preventing obesity as a benefit of exercise. Although the child mentions obesity three times, they occur in proximity of each other and therefore only count as one occurrence.</i> 1 occurrence of weight-based outcome.
19199	6M	Child: Eating too much junk food will make someone become overweight. So, restricting junk food is bad because it can make someone become obsessed and they can become overweight in the future. <i>Child describes becoming overweight as an outcome related to excess junk food intake. The parent does not correct or redirect the conversation to focus on non-weight-based outcomes. This comment would also be coded as "present" for B.1. Part 1 (Item 1) Personal responsibility for weight.</i> 1 occurrence of weight-based outcome.
N/A	N/A	Sometimes when I know I have eaten too much, like during the holidays, I will be extra careful about what I eat. For example, on Thanksgiving I usually have a very light breakfast and lunch because I know I will be eating a lot at dinner. That's how I have been able to keep my weight where it is for so long and why my tummy is still flat. <i>Parent describes restricting food intake to maintain weight and keep a flat stomach. Maintaining weight and a flat stomach are two separate weight-based-outcomes.</i> 2 occurrences of weight-based outcome.
		Absent
15130	6M	Parent: Benefit is we cannot ignore the fact that what you eat and how much you exercise can affect how much you weigh and what your body looks like. For example, if you do a lot of pushups, you're going to get bigger muscles. But it can also make us obsessed about how we look and not how we feel and good things to fuel our body. <i>Parent acknowledges that eating/exercise habits can impact weight and physical appearances but makes an effort to note that it is not what is most important. Highlights instead how one feels and fueling one's body well.</i> 0 occurrences of weight-based outcome.
20157	3M	Parent: Like you said, it [exercise] does burn off the Calories. So, if you eat a lot of Calories then you need to exercise to burn that off of you will be unbalanced, there will be more calories coming in than going out and you can end up potentially gaining fat. But exercise does other things too other than burning off Calories like, you get stronger, bigger muscles, recover faster, run faster, and fewer injuries.

		<i>Parent intentionally re-directs or pivots the conversation away from the weight-based outcome toward other non-weight-based outcomes.</i> <i>0 occurrences of weight-based outcome.</i>
N/A	N/A	I don't really think we talk about your body weight. Besides just saying like you gotta eat more meat to get bigger but I don't know, I think your body weight is normal. You're a little short but that's not so bad because you're still small. <i>Parent mentions eating more meat to get "bigger", but it is unclear if she is referring to the child's height, weight, or body shape.</i> <i>0 occurrences of weight-based outcome.</i>
N/A	N/A	It's important to eat well so that you don't develop diabetes. <i>Parent mentions eating well to prevent disease; not weight-based-outcomes are mentioned.</i> <i>0 occurrences of weight-based outcome</i>

B.3. Part 3

In this section, items capture the estimated frequency of the construct during the audio recorded conversation on a 5-point scale (i.e., 1 time, 2 times, 3 times, 4 times, 5 or more times). The scale has a ceiling of "5 times or more" because there were concerns that coders would not be able to accurately count occurrences, which would increase measurement error.

1. Weight-based teasing directed to the child, self, or others.

Definition	Weight-based teasing includes jokes or unkind remarks about one's weight, body shape, or body size. This form of teasing is a source of weight stigma and can contribute to weight bias internalization in children. One of the key targets of the Weight Talk Intervention is to encourage parents to avoid all weight-based teasing at home. Parents are instructed to intervene if other family members engage in weight-based teasing with each other. For this item, the parent teases their child, themselves, or others about their weight, body shape, or size during the audio recording. This item only applies to what the parent says, not the child or other individuals they may be heard on the recording. <u>Directionality</u> Each type of weight teasing occurrence is coded according to the directionality of the comment. • Parent to the child: Parent teases the child or makes a joke about the child's weight or body shape. • Parent to themselves: Parent teases themselves about their own weight or body shape. • Parent to others: Parent teases others about their weight or body shape Present

	• Parent makes a joke or teases the child, themselves, or others about their weight, body size, or body shape. • Parent or child discusses a <u>past occurrence</u> of weight teasing <u>from the parent in the audio recording</u> and communicates that it is ongoing. • Parent is silent or agrees with a weight-based teasing remark made by the child, other family members, or other individuals heard on the recording. <u>Count as SEPARATE occurrences:</u> • Different teasing remarks about weight are made in the same sentence. • Different teasing remarks about weight are made at different times during the conversation. • The <u>same</u> teasing remark about weight is made more than once at <u>different</u> times during the conversation. <u>DO NOT count as separate occurrences:</u> • The <u>same</u> teasing remark is mentioned more than once <u>in the same sentence</u>. For this tool, this qualifies as an emphasis and not as a separate occurrence. Absent • Parent mentions weight teasing by <u>other family members, peers, or individuals</u> towards the child, self, or others but, does not engage in the teasing themselves. • Parent intervenes when the child engages in weight teasing toward themselves or others. • Parent provides an example or hypothetical situation of weight teasing. • Parent makes a critical comment about weight toward their child, self, or others. This is coded in B. Part 4. Negative or critical comments about weight. • Parent makes a positive or complimentary comment about weight toward their child, self, or others. This is coded in B. Part 5. Positive or complimentary comments about weight.	
PID	Timepoint	Examples
		Present
18200	0M	Parent: I don't even know what jokes I have said... Child: Sometimes I will say something looks big and you will say 'just like you'... Parent: [Laughs] but you know I don't think that, right? Really... have I ever said you're big? Child: No... but sometimes in jokes. Parent: What do I usually say about you and your body? Child: Good things... Parent: Okay, so don't make it sound like I say things that are mean, like really.

		<i>Although the teasing does not occur during the recording, it is clear by the parent-child interactions that the parent has not stopped teasing or making jokes about the child's weight.</i> 1 occurrence of parent-to-child weight teasing.
N/A	N/A	Parent: I mean sometimes we make small jokes and stuff, but we don't mean anything by it. Like when Daddy is serving himself seconds and we tease him about his belly? Child: Yeah, he really does have a jiggly belly. <i>Parent describes existing weight-based teasing from the parent directed to the other parent in the household. There is no indication that the teasing has stopped.</i> 1 occurrence of parent-to-other teasing.
		Absent
11127	3M	Sometimes, we might say "oh wow, that person is a whale," but that is not nice, and we should not do that. <i>Hypothetical situations and/or examples of weight teasing are not counted.</i> 0 occurrences of parent-to-other teasing.

B.4. Part 4.

In this section, items capture the estimated frequency of the construct during the audio recorded conversation on a 5-point scale (i.e., 1 time, 2 times, 3 times, 4 times, 5 or more times). The scale has a ceiling of "5 times or more" because there were concerns that coders would not be able to accurately count occurrences, which would increase measurement error.

1. Negative or critical comments about weight or body shape directed to the child, self, or others.

Definition	Negative or critical comments about weight include derogatory, disparaging, or judgment talk comments about one's weight, body shape, or size. These comments are often appearance-based (e.g., your tummy is too big) but can also be about one's actual weight (e.g., you're too heavy, too skinny). Negative or critical comments about weight, body shape, or size is a form of weight stigma and can contribute to weight bias internalization in children. One of the key targets of the Weight Talk Intervention is to encourage parents to avoid all negative or critical comments about weight (negative weight talk) at home. Parents are instructed to intervene if other family members engage in negative weight talk with each other. For this item, the parent makes negative or critical comments about weight directed toward their child, themselves, or others. This item is specific to the parent in the audio recording. Weight teasing from other family members, peers, or other individuals are not included. <u>Directionality</u> Each type of negative or critical comment about weight is coded according to the directionality of the comment. Parent to the child: Parent makes a negative or critical comment about their child's weight or body shape.

	• Parent to themselves: Parent makes a negative or critical comment about their own weight or body shape. • Parent to others: Parent makes a negative or critical comment about other people’s weight or body shape. Present • Parent makes a negative or critical comment toward the child, self, or others about their weight, body size, or body shape. • Parent or child discusses a <u>past occurrence</u> of negative weight talk <u>from the parent in the audio recording</u> and communicates that it is <u>ongoing</u>. • Parent is silent or agrees with a negative or critical comment about weight made by the child, other family members, or other individuals heard on the recording. <u>Count as SEPARATE occurrences:</u> • Different negative or critical comments about weight are made in the same sentence. • Different negative or critical comments about weight are made at different times during the conversation. • The <u>same</u> negative or critical comment about weight is made more than once at <u>different</u> times during the conversation. <u>DO NOT count as separate occurrences:</u> • The <u>same</u> negative or critical comment about weight is mentioned more than once <u>in the same sentence</u>. For this tool, this qualifies as an emphasis and not as a separate occurrence. Absent • Parent discusses negative or critical comments about weight by <u>other family members, peers, or individuals</u> towards the child, self, or others.* • Parent provides an example of negative or critical comments about weight. This is not directed toward anyone. • Parent intervenes when the child makes a negative or critical comment about their own weight, the parent’s weight, or other’s weight. • Parent makes a teasing remark weight toward their child, self, or others. This is coded in B. Part 3. Weight-based teasing. • Parent makes a positive or complimentary comment about weight toward their child, self, or others. This is coded in B. Part 5. Positive or complimentary comments about weight.	
PID	Timepoint	Examples

* If weight talk from other parents or family members is discussed during the conversation do not code as an occurrence of weight talk. Code the parent participant's response. The focus of the intervention is the parent, we only hope that it will impact other family members as well.

		Present
13126	6M	Parent: You see what I am eating? Cucumbers, celery, and carrots? This isn't about what other people think, no one has ever looked at me and told me "you're fat." ...I have to eat in a certain way and be aware of my own body so that I can change because I want to lose weight. I am doing this for me. <i>Parent describes themselves needed to lose weight, which is a critical description of her current weight status.</i> 1 occurrence of parent-to-self negative weight talk.
13126	0M	Parent: I am fat. Child: You are not fat, Mom Parent: [Scoffs] yeah, okay. <i>Parent describes themselves as fat.</i> 1 occurrence of parent-to-self negative weight talk
70251	3M	Parent: Some people will gain like 45 pounds when they are pregnant and that is too much. <i>Parent makes critical comment about women gaining too much weight while pregnant.</i> 1 occurrence of parent-to-others negative weight talk
11127	3M	Parent: I wouldn't want anyone talking about how I am overweight, even though it's true. <i>Parent describes themselves as overweight.</i> 1 occurrence of parent-to-self negative weight talk
28192	3M	Parent: I was really fat. Child: How do you know that you were fat? Parent: You know that you are fat when your clothes don't fit. Like when your shirt is too small. <i>Parent describes themselves as fat twice, however, they occur in proximity and therefore this counts as one occurrence.</i> 1 occurrence of parent-to-self negative weight talk
71231	6M	Parent: So, I tell you that you are underweight so that you know. And you can eat more and gain weight.
N/A	N/A	Parent: With COVID we have all been a little lazy. You're starting to put on weight because we aren't moving enough. <i>Parent tells their child they are gaining weight in a critical way.</i> 1 occurrence of parent-to-child negative weight talk.
		Absent
20157	0M	Child: I don't want to become fat.

		Parent: You won't become fat-fat. C: Like you. P: I am not fat. You even said that I look like that "after" in the commercial. So... C: I said that a couple of months ago... <i>Parent intervenes when the child makes a negative or critical comment the parent's weight.</i> <i>0 occurrence of parent-to-self negative weight talk.</i>
N/A	N/A	Child: But you said I was overweight. The doctor said so. Parent: Yes, the doctor said that you are overweight because of a measure they use but, we all come in different body shapes and sizes. These measures do not work as well in people with curves, like us. You are healthy, you eat well, and you exercise so, do not worry about the overweight stuff. <i>Child describes an occurrence of when the parent has described the child as overweight, however, the parent clarifies that this was communicated by a healthcare professional. It was not intended as a critical or negative comment about their child's weight. This would also be coded as "present" for C. Part 1 (Item 5). Body diversity.</i> <i>0 occurrences of parent-to-child negative weight talk</i>
11127	6M	Child: Well, someone at my school... Parent: Sasha, are you going to be mean? What were you going to say? Child: I don't want to say. Not on this. <i>Does not count as an occurrence because it did not happen on the recording.</i> <i>0 occurrences of parent-to-child negative weight talk</i>
67228	0M	Parent: He had a point when he had a little more weight on him. When he was 9 or 10 years old. Now he is 13. We never really made that an issue. <i>It is not sufficiently clear from this comment whether the parent is critical about their child's weight.</i> <i>0 occurrences of parent-to-child negative weight talk</i>
15162	6M	Parent: We don't go around saying you are skinny, you are fat, you need to lose weight. We don't really talk like that in this house. Do we? Child: Sometimes. Dad will say oh you're so fat, you're so skinny. Parent: Dad does?! Child: yeah! And then he will be like "I need to lose some weight" Parent: Okay, dad says that about himself kind of joking. Child: Well once dad said it to me. And sometimes he says it to Sean and Lila.

		Parent: I thought that he did and that he kind of stopped. You noticed it? Child: I feel like he stopped but he does it like once a month. Parent: About himself. I think he is trying to be funny. And he says that they are skinny and that they need to eat more. <i>The child describes an occurrence of negative weight talk by the <u>other parent</u> in the household. Only comments by the parent on the recording count toward this item.</i> 0 occurrences of parent-to-child negative weight talk

B.5. Part 5

In this section, items capture the estimated frequency of the construct during the audio recorded conversation on a 5-point scale (i.e., 1 time, 2 times, 3 times, 4 times, 5 or more times). The scale has a ceiling of “5 times or more” because there were concerns that coders would not be able to accurately count occurrences, which would increase measurement error.

1. Positive or complimentary comments about weight or body shape directed to the child, self, or others.

Definition	Positive or complimentary comments include verbal praise or compliments about one's weight, body shape, or size. These comments are often appearance-based (e.g., you look good) but can also be about weight specifically (e.g., you are the right weight). Positive comments about weight, or body shape may contribute to weight stigma or internalization of weight bias if one deviates from the complimented weight, body shape, or body size that was once viewed as desirable or acceptable. Positive weight talk may positively reinforce harmful behaviors if individuals are praised for their weight or body weight while using unhealthy eating and exercise habits (e.g., restrictive eating and excessive exercise behaviors) to meet or maintain a specific weight, body shape, or body size. Evidence on the adverse effects of positive weight talk is inconsistent. Reducing positive or complimentary comments about weight or body shape is not one of the key targets of the Weight Talk Intervention, however, this tool serves as a conservative measure of a stigmatizing conversation about weight and therefore includes instances of positive weight talk as “stigmatizing.” For this item, the parent makes positive or complimentary comments about weight directed toward their child, themselves, or others. This item is specific to the parent in the audio recording. Weight teasing from other family members, peers, or other individuals are not included. <u>Directionality</u> Each type of positive or complimentary comment about weight is coded according to the directionality of the comment. • Parent to the child: Parent makes a positive or complimentary comment about their child's weight or body shape. • Parent to themselves: Parent makes a positive or complimentary comment about their own weight or body shape.

	• Parent to others: Parent makes a positive or complimentary comment about other people's weight or body shape. Present • Parent makes a positive or complimentary comment toward the child, self, or others about their weight, body size, or body shape. • Parent uses a weight classification category to describe weight <u>AND</u> specifically qualifies the classification as "good" or "desirable" (e.g., you are at a normal weight, and this is good). • Parent or child discusses a <u>past occurrence</u> of positive weight talk <u>from the parent in the audio recording</u> and verbally notes that it is <u>ongoing</u>. • Parent is silent or agrees with a positive or complimentary comment about weight made by the child, other family members, or other individuals heard on the recording. <u>Count as SEPARATE occurrences:</u> • Different positive or complimentary comments about weight are made in the same sentence. • Different positive or complimentary comments about weight are made at different times during the conversation. • The <u>same</u> positive or complimentary comment about weight is made more than once at <u>different</u> times during the conversation. <u>DO NOT count as separate occurrences:</u> • The <u>same</u> positive or complimentary comment about weight is mentioned more than once <u>in the same sentence</u>. For this tool, this qualifies as an emphasis and not as a separate occurrence. Absent • Parent uses a weight classification category to describe weight <u>AND DOES NOT</u> qualify the classification as "good" or "desirable". (e.g., you are at the right weight for your age). • Parent discusses positive or complimentary comments about weight by <u>other family members, peers, or individuals</u> towards the child, self, or others.* • Parent provides an example of a positive or complimentary comment about weight. This is not directed toward anyone. • Parent provides positive or complimentary comments about the body as it related to <u>physical function or capacity</u> (e.g., strength, speed) • Parent makes a teasing remark weight toward their child, self, or others. This is coded in B. Part 3. Weight-based teasing.

* If weight talk from other parents or family members is discussed during the conversation do not code as an occurrence of weight talk. Code the parent participant's response. The focus of the intervention is the parent, we only hope that it will impact other family members as well.

		Parent makes a negative or critical comment about weight toward their child, self, or others. This is coded in B. Part 4. Negative or critical comments about weight.
	Timepoint	Examples
		Present
71231	OM	P: You are at the perfect weight, right? Because we went to the doctor, and they weighed you. It is good you are at a good weight... <i>1 occurrence of parent-to-child positive weight talk. Parent clearly uses a weight classification provided by a healthcare provider AND describes that weight as good and/or desirable.</i>
11127	OM	P: I have never spoken to you about your weight. I think you are perfect. <i>Parent describes the child's weight as "perfect." This would also be coded "present" for C. Part 1 (Item 4) body acceptance.</i> <i>1 occurrence of parent-to-child positive weight talk.</i>
11117	OM	Parent: I saw your biceps last night, they look good. Parent: You have a great body. <i>Parent describes the child's body shape (bicep) as desirable, or looking good and describes their body as "great."</i> <i>2 occurrences of parent-to-child positive weight talk.</i>
20158	OM	Child: I like my body shape and weight. Parent: That's good! You have a wonderful body shape. <i>Parent describes the child's body shape as wonderful.</i> <i>1 occurrences of parent-to-child positive weight talk.</i>
		Absent
		Parent: Right, we talk about you gaining weight. You are healthy because your weight is high because it is harder for people with cystic fibrosis to gain weight. Doctors want you at the 50th percentile for weight for your age. Right now, you are at the 20th percentile for weight. Child: Is that good or bad? Parent: It isn't good or bad, it is just a number. <i>Parent uses a weight classification category to describe weight and does not qualify the classification as "good" or "desirable."</i> <i>0 occurrences of parent-child positive weight talk.</i>
N/A	N/A	You have a healthy weight because your Body Mass Index says that your weight is in a healthy range. That is what the doctor said. <i>Parent describes their child's weight as "healthy" in reference to the Body Mass Index, which is a tool used to classify weight by healthcare providers.</i>

		<i>0 occurrences of parent-child positive weight talk.</i>
20158	OM	You have <u>strong</u> legs and tush. <i>Parent describes their child's legs in a positive way, but the compliment is focused on <u>function</u> and not <u>appearance</u>. Therefore, it does not count toward positive weight talk.</i> <i>0 occurrences of parent-child positive weight talk.</i>
N/A	N/A	Gaining weight during puberty is normal. It's part of development. <i>Parent describes weight in neutral terms, where "normal" refers to growth development.</i> <i>0 occurrences of parent-child positive weight talk.</i>
67228	OM	He had a point when he had a little more weight on him when he was 9 or 10. We never made that an issue. Now, family members will comment that he is losing weight and getting skinnier, but that is not the point. He is maturing. <i>Parent does not clearly state that getting skinnier is "better." Instead, she notes that he is "maturing." Further, comments are from other family members and not the parent in the audio recording.</i> <i>0 occurrences of parent-child positive weight talk.</i>
		P: What have I said about being 60 lbs.? C: That it is fine? P: I think it is very normally for a 10-year-old to be 60 lbs. C: It is? P: It is. I think Lindsay weighs more than you and its very normally for her to be whatever size she is, she is taller than you. She doesn't look fat but, that is just how she is. What about Sam? She is shorter than you, she probably weights a little more than you. But her body type is wider, nothing wrong with that. There are many body types, shapes, and forms. <i>Parent discusses weigh in neutral terms. This would also be coded as "present" for C.1 (Item 5) body diversity.</i> <i>0 occurrences of parent-child positive weight talk.</i>

C. Non-Stigmatizing Weight Conversation Items

C.1. Part 1

1. Weight as a complex condition

<i>Definition</i>	Weight as complex condition identifies the various, interrelated factors (i.e., individual and external) that determine an individual's weight, body size, and body shape. ¹⁹ Individuals that recognize weight as a complex condition are aware of and accept the complex etiology of obesity. This framing helps

	invalidate the stigmatizing framework of individuals being “personally responsible” for obesity and weight.^{8,13} For this item, parents state that many factors beyond individual behavior, such as eating and exercise habits, influence the development and maintenance of obesity, weight status, body size, and body shape (e.g., weight gain, weight maintenance, weight loss, and changes in body composition such as fat mass and muscle mass). Parents do not need to disregard the role of individual behavior on weight status, the development of obesity is complex and individual behavior is <i>part of</i> the equation. The general message parents should communicate is that it is hard to lose and control weight <i>because</i> weight/obesity is complex and caused by various factors. Other behaviors and external factors include: • Genetics • Physiology (e.g., changes in metabolic rate, hormone balance) • Psychology (e.g., mood, depression, anxiety) • Behaviors (e.g., sleep, screen time, incidental physical activity) • Medications (e.g., those that influence appetite, hormonal balance, and/or weight status) • Physical environmental (e.g., food deserts, access to recreational areas). • Social environment (e.g., peer and familial norms) • Economic factors (e.g., financial and time cost of fresh, unprocessed foods and food waste). Present: • Parent states that other factors (individual or external) contribute to the development of overweight/obesity or weight status, body size, or body shape. The factors mentioned <u>do not include</u> eating or exercise habits. • Parents states that individual behaviors influence weight AND that individuals have limited control over their weight, body size, and body shape because other external factors play a significant role. • Parent states that weight loss and control is complicated or difficult but, does not list the specific various factors that make it complicated or difficult. • Parent talks about weight as a complex condition AND blames individuals for their weight status. • Child speaks about external factors that may determine weight, and parent agrees or says nothing. Absent: • Parent only mentions eating and exercise habits as the primary contributors to weight. This is the most common understanding of obesity which plays into weight/obesity as a personal responsibility.

		• Parent-child conversation exclusively focuses on individual, controllable factors that influence weight. • Parent mentions an external factor related to weight but does not use it as a tool to explain obesity or weight gain/loss as complex.
PID	Timepoint	Examples
		Present
18150	OM	P: So, do you think kids have a lot of control over what food they get? C: No. P: So maybe it's not someone's fault what their weight looks like. It definitely doesn't matter, and I don't think anyone should make comments about others because it's not anyone's fault....Some things are just genetic and you can't change.
20158	OM	C: People who eat better are skinnier P: Well, sometimes people have a fast metabolism, and they are just skinny. They [people with obesity/overweight] can work hard to lose weight but often they don't lose the weight. It's not because they are not trying, it's just hard. <i>Parent is not clear about what other factors make weight loss hard, but they acknowledge that is more than just working hard to lose weight. They also note the role of metabolic rate in determining one's weight and body shape.</i>
70251	OM	Parent: There are things you can eat without getting fat. It's more the overconsumption of things. Moderation is okay. It's when you have a lot of one thing... that's when you gain weight. Especially if you're not exercising, then you can't burn off the food. That's why people start to gain weight. Or some people have a slow metabolism, and they can't keep up with it. <i>Parent describes weight as being controlled by an external factor (i.e., metabolism) and describes weight as a personal responsibility.</i>
N/A	N/A	There are a lot of things that can cause obesity, like your genetics and the environment. It is complicated and hard to keep in control but, at the end of the day, you are responsible for your weight and your health. So, you have to work hard and overcome whatever obstacles might get in your way to getting at to your best, healthy weight. <i>Parent is clear in describing obesity/weight as complicated and lists a couple of external factors that are beyond one's control. This is sufficient to mark "present" for this item. These comments would also be "present" for weight as a personal responsibility since the parent still places blame on individuals for their weight, despite the complexity/difficulty of obesity (B.1. Part 1. Item 1).</i>
20158	OM	For a lot of people, their body weight and shape are what they inherited. Losing weight isn't as simple as "just go out and exercise" or "just eat a little less."

		<i>Parent mentions genetics as an external factor and clearly notes that weight is not a simple condition.</i>
		Absent
66239	3M	If you eat a lot, you will weigh a lot. If you eat less, you will weigh less. <i>Parent does not mention weight as a complicated/complex condition at all. This comment would be “present” for weight as a personal responsibility since the parent puts responsibility on individuals for their weight via exercise/dieting (B.1. Part 1. Item 1).</i>
70251	0M	C: People gain weight because they just don’t exercise enough. P: Well, some people don’t have the outlets or opportunities to exercise like you do. <i>This is insufficient for this item. Although the parent acknowledges the external factors influence an individual’s ability and access for exercise, they do not discuss obesity or weight as complex conditions.</i>
58223	0M	Child: I know that if I eat a lot of junk food, I will gain a lot of weight. Parent: Right. That is why it’s important to watch what you eat. <i>Parent does not mention weight as a complicated/complex condition at all.</i>
N/A	N/A	Weight is a matter of balancing what you eat with how much you exercise. Some things can make it hard to get that balance right, but the most important thing is what you eat and how much you exercise. <i>This is insufficient for this item. Although the parent acknowledges that weight loss is hard but, they do not discuss obesity or weight as complex conditions.</i>
17278	6M	When I do speak to you about your weight, it isn’t necessarily about your weight as it is about needing to feed your body because your body needs nutrients and because you have a naturally high metabolism.... And you are basically losing weight in your sleep, I have to make sure that you eat. <i>This is insufficient for this item. Parent mentions an external factor related to weight but does not use it as a tool to explain obesity or weight gain/loss as complex.</i>

2. Parent promotes healthy eating for health and well-being, not weight.

Definition	Parents should encourage healthy eating for health, well-being, and/or other outcomes that are unrelated to weight because conversations that focus on weight can contribute to weight stigma.¹⁴ For this item, parents promote healthy eating for health and well-being, not weight loss, weight gain or weight maintenance. They discuss the beneficial outcomes that come from healthy eating which do not include those that are related to weight (e.g., fat loss, weight loss, etc.).

Non-weight related beneficial outcomes may include but are not limited to:

- Overall health
- Improved longevity
- Avoidance of nutrient deficiency and or encouraging nutrient adequacy
- Improve energy levels
- Mental clarity
- Improved mental health and mood
- Physical strength
- Age-appropriate development and growth.
- Enjoyment, pleasure, feelings of community, and or self-expression through sharing and eating food.

If weight-based outcomes are mentioned, more emphasis* is placed on the non-weight-based outcomes.

- *** Emphasis can include the number of times they mention non-weight-based outcomes (i.e., they mention the non-weight-based outcomes significantly more than weight-based outcomes, which are only mentioned in passing). or verbally stating non-weight-based outcomes are more important.*

Weight-related outcomes may include but are not limited to:

- Using healthy eating to counteract indulgences (e.g., restricting food intake after eating sweets to maintain energy balance)
- Weight loss, gain, or maintenance
- Changes in body shape or size
- Changes in body composition (e.g., fat mass and muscle mass).

Present:

- Parent **only** promotes healthy eating (or discourages unhealthy eating) for outcomes unrelated to weight at least once during the conversation. Weight-based outcomes are never mentioned.
- Parent promotes healthy eating (or discourages unhealthy eating) for outcomes unrelated to weight **AND** mentions at least one weight-related outcome (e.g., weight loss); however, **the parent communicates outcomes unrelated to weight are more important.**

Absent:

- Parent **only** promotes healthy eating (or discourages unhealthy eating) for weight-related outcomes.
- Parent does not mention any beneficial outcomes unrelated to weight.
- Parent promotes **weight gain** for medical reasons (e.g., cystic fibrosis, development) as recommended by a healthcare provider.

		- Parent promotes healthy eating (or discourages unhealthy eating) with <u>equal emphasis</u> on weight-related AND non-weight related outcomes. The parent does not mention outcomes unrelated to weight are more important. - Parent promotes healthy eating (or discourages unhealthy eating) with <u>more emphasis</u> on weight-related than non-weight related outcomes. The parent does not mention outcomes unrelated to weight are more important. - Parent does not discuss healthy eating or associated beneficial outcomes.
PID	Timepoint	Examples
		Present
N/A	N/A	Your brain is foggy if you don't eat a good breakfast. You need to eat healthy with well-balanced meals to keep your mind sharp. <i>Parent mentions a beneficial outcome unrelated to weight.</i>
18200	3M	We eat fruits and vegetables to get the vitamins that your body needs. When you eat well you feel better and when you don't you don't feel great- tired, lethargic. <i>Parent mentions a beneficial outcome unrelated to weight.</i>
N/A	N/A	Child: Not eating junk food is important so I don't get fat. Parent: Yep, not gaining too much weight is important and junk food can make you gain weight but, we don't ask you to eat your vegetables or to stop eating so many chips because of weight. <u>What is important is how eating unhealthy makes you feel.</u> When you eat too much junk you feel low-energy and tired. If you don't eat properly your body won't get the nutrients that it needs to grow strong. <i>Parent agrees with the child that unhealthy eating can lead to weight gain; however, they emphasize the importance of outcomes unrelated to weight.</i>
58223	0M	I don't like you eating junk, it is bad for your teeth, your skin, you can gain weight, and you can get diabetes. I am really scared of diabetes because I know people that have died and lost limbs from diabetes. <i>Parent mentions weight gain in passing, more emphasis is on non-weight related outcomes.</i>
		Absent
N/A	N/A	Eating healthy is important for a lot of reasons. When you eat healthy you keep your weight healthy, you feel better, and you will be healthier in general as an adult. That is why we are always on your case about the snacking and desserts because <u>keeping a healthy weight is really important</u> for your health.

		<i>Parent restates that healthy eating is really important for “keeping a healthy weight” (i.e., weight management). Although the parent mentions that keeping a healthy weight is important for health, the parent is emphasizing <u>weight management</u> as the key factor for why eating healthy is important.</i>

3. Parent promotes exercise for health and well-being, not weight.

Definition	Parents should encourage regular exercise and physical activity for health, well-being, and/or other outcomes that are unrelated to weight because conversations that focus on weight can contribute to weight stigma.¹⁴ For this item, parents promote regular exercise and physical activity for health and well-being, not weight loss, weight gain, or weight maintenance. They discuss the beneficial outcomes that come from regular exercise and physical activity which <u>do not</u> include those that are related to weight (e.g., fat loss, weight loss, etc.). This item also includes conversations that focus on replacing or reducing sedentary activities (e.g., playing video games, television, computer, etc.) and increasing active play for health and well-being. <u>Non-weight related beneficial outcomes may include but are not limited to:</u> • Overall health • Improved longevity • Bone health, growth, and development • Improve energy levels • Mental clarity • Improved mental health and mood • Physical strength • Age-appropriate development and growth. • Enjoyment, pleasure, feelings of community, and or self-expression through exercise, sports, and physical activities If weight-based outcomes are mentioned, more emphasis* is placed on the non-weight-based outcomes. • *Emphasis can include the number of times they mention non-weight-based outcomes (i.e., they mention the non-weight-based outcomes significantly more than weight-based outcomes, which are only mentioned in passing). or verbally stating non-weight-based outcomes are more important. <u>Weight-related outcomes may include but are not limited to:</u> • Using exercise to counteract indulgences (e.g., burn off calories) • Weight loss, gain, or maintenance • Changes in body shape or size • Changes in body composition (e.g., fat mass and muscle mass). Present:

	- Parent <u>only</u> promotes physical activity (or discourages sedentary behaviors) for outcomes unrelated to weight at least once during the conversation. Weight-based outcomes are never mentioned. - Parent promotes physical activity (or discourages sedentary behaviors) for outcomes unrelated to weight <u>AND</u> mentions at least one weight-related outcome (e.g., weight loss); however, the parent communicates outcomes unrelated to weight are more important. Absent: - Parent <u>only</u> promotes exercise or physical activity (or discourages sedentary behaviors) for weight-related outcomes. Parent does not mention any outcomes unrelated to weight. - Parent promotes <u>weight gain</u> for medical reasons (e.g., cystic fibrosis, development) as recommended by a healthcare provider. - Parent promotes exercise or physical activity (or discourages sedentary behaviors) with <u>more emphasis</u> on weight-related than non-weight related outcomes. The parent does not mention that outcomes unrelated to weight are more important. - Parent promotes exercise or physical activity with <u>equal emphasis</u> on weight-related <u>AND</u> non-weight related outcomes. The parent does not mention that outcomes unrelated to weight are more important. - Parent does not discuss exercise, physical activity, or sedentary behaviors.	
PID	Timepoint	Examples
		Present
N/A	N/A	Dad exercises for energy, mental clarity; it helps with the work he does. That is why we want you to stay physical active. <i>Parent communicates exercise is important for non-weight-based outcomes and never mentions a weight-based outcome.</i>
18188	3M	We should do exercise daily so that our body stays healthy and strong. We expect you to be active and spend less time seated and playing games. We hope you will go for a walk because your body needs to function properly, and exercise helps with that. <i>Parent communicates exercise is important for non-weight-based outcomes and never mentions a weight-based outcome.</i>
		Absent
11127	0M	Child: Yeah, I eat too much junk food sometimes, but exercise burns off the junk food, so I just exercise. Parent: Right.

		<i>Child mentions exercising is important for a weight-based outcome (i.e., to offset an indulgence of too much junk food). The parent does not correct the child which marks this as “absent.” If the parent had mentioned that exercise is important for other non-weight-based outcomes <u>and</u> put more emphasis on the non-weight-based outcomes this would have been coded as “present.”</i>
N/A	N/A	We exercise because it’s good for our heart and it helps us keep our weight in check. <i>Parent mentions a non-weight-based outcome (heart health) and a weight-based-outcome (keep weight in check) with equal emphasis.</i>

4. Parent communicates body acceptance

Definition	Body acceptance is the process of accepting and valuing one’s body <i>as it is</i>. All body shapes, sizes and weights are viewed equally and an individual’s body shape, size, weight, and/or composition are separate from an individual’s value and self-worth. For this item, at minimum, the parent communicates that a person’s body shape, size, or weight is accepted as it is. Parents can also communicate that individuals are valued and accepted at any size or bodyweight; however, this is not required to be coded as “present” for this item. Typically, a parent that communicates body acceptance will also communicate body diversity (C.1. Part 1. Item 5) because to accept one’s body as it is you are likely to also agree that bodies come in different sizes and shapes. However, it is not necessary to express body diversity to select “present” for this item (see “Absent” examples below). Present • Parent communicates that one’s body is acceptable as it is, regardless of the size, shape, physical ability, or adherence to a standard (e.g., cultural and/or social beauty standards). • Parent expresses that all body shapes and sizes are acceptable by emphasizing that a person’s value comes from attributes unrelated to weight and body shape/size. Weight and body shape are not what matter. Absent: • Parent does not discuss accepting one’s own or other’s body size, shape, or weight <i>as it is</i>. • Parent communicates to their child that they should strive for a specific, ideal body shape, size, or weight. • Parent notes changes in body weight are important for their child’s health <u>as noted by a healthcare professional.</u> • Parent associates one’s value, worth, and acceptance with one’s weight. They may express a need or desire to change one’s body shape,

		size or weight, abilities, to better fit personal “ideal” body shape or standards set by beauty, fitness, or cultural norms. Parent has inconsistent messaging of body acceptance. Parent communicates that all bodies and weights are acceptable and subsequently puts conditions on which body type or weight are acceptable.
PID	Timepoint	Examples
		Present
67228	0M	Child: As for my weight and body shape, I’m getting taller, but that will tend to help me get better at sports. I do a lot and my weight, is going help me a lot as well. Especially if I’m eating. Parent: Right, and as we talked about <u>it’s not about weight or body shape</u>. It is more about how you feel, and your body tells you how you feel... <u>It’s more about how people treat us. It’s not about others’ weight and body shape. We don’t really care about that.</u> <i>Parent communicates that weight and body shape are not what is important. Instead, parent puts emphasis on how one feels and how people are treated.</i>
12203	6M	Parent: Well, we don’t talk about people’s body weight because it is not a good idea. There is a risk in doing that I don’t think people should be judged about their shape or weight, it matters what kind of person you are and not what you look like. <i>Parent communicates that a people’s body shape or weight is not a metric by which to judge people. Emphasizes weight is not what matters but who you are as a person.</i>
17278	6M	Parent: But when I say those things... [child interrupts] Child: It’s a joke. Parent: [continues] ... I hope it doesn’t bother you because it is not important, and you are beautiful from the inside out. What your body looks like carries no weight as far as I am concerned. <i>Parent communicates body acceptance and that her child is valued and accepted as she is, independent of her weight/body shape.</i>
N/A	N/A	We all come in different sizes and people of different weights and body shapes can do all sorts of things. Some people are fast, some people are strong, some people are big, and some people are small. It doesn’t matter, we are all different and wonderful as we were made. <i>Parent communicates that all bodies are accepted no matter the differences in physical ability and/or appearance.</i>
N/A	N/A	It doesn’t matter what you look like. You are wonderful as you are. You don’t have to change anything about your body if you don’t want to. That isn’t what matters. What matters is that you are good person.

		<i>Parent clearly communicates that the child's self-worth has nothing to do with their body weight. Parent communicates that their child's body is accepted as it is and does not have to change.</i> <i>Example of a parent communicating body acceptance <u>without</u> body diversity.</i>
N/A	N/A	I have never spoken to you about your weight because weight is not what is most important. You are perfect just the way you are. <i>Parent communicates that their child's body weight is "perfect" (i.e., accepted) without specifying any conditions. This statement would also be coded as "present" for B. Part 5. Positive weight talk.</i>
		Absent
???	OM	Child: When I was little, I was a little chubby like in kindergarten. I am just happy that I am still not chubby. Because I don't want to be chubby. P: why not? C: because who wants to be chubby? <i>Parent does not correct the child to communicate that her body is acceptable as it is, even if she still felt like she was "chubby."</i>
18156	OM	P: Well, you know is true [that I am overweight], it is what it is. C: It is your unique way. P: Right. <i>Parent is accepting of her own bodyweight but does not communicate that all bodies are acceptable as they are.</i>
67228	OM	[There was a point in time] when he had a little more weight on him. When he was 9 or 10 years old. Now he is 13. We never really made that an issue because we focus more on being healthy... He is getting a lot taller, slimmer and people in the family may think you are losing weight and are skinnier but, your body is maturing and you're getting taller which is why you are slimming down He is careful about what he eats but isn't cautious, he isn't like "oh I am going to get fat" that isn't what matters it's about being healthy. <i>Parent does not state that his weight or body shape is not an issue <u>because</u> it is acceptable and valuable as it is. Instead, she focuses on <u>health</u> which is distinct from <u>acceptance</u>.</i>
18188	OM	Parent: When I talk about your body, I say that you are in shape. Sometimes, when you have gained weight, I tell you because you have to keep that in mind so that we can take care of ourselves and monitor what we eat and the exercise we do. <i>Parent communicates that gaining weight is problematic (i.e., would have to take care of ourselves and change eating/exercise habits). This implies that larger or higher body weights are less acceptable than smaller or lower body weights.</i>
N/A	N/A	People with larger bodies are not healthy. You don't want that for yourself. <i>Parent communicates that larger bodies are not healthy, which would be undesirable (you don't want that for yourself). Thus, larger bodies are not</i>

		communicated as being unacceptable. This is also an example of B. Part 1 (Item 8) Parent describes people with obesity as unhealthy .
N/A	N/A	Well, curves are good. It is okay that you're putting on a little weight, boys like that. Our family has always had curves, it's genetic. <i>Parent communicates that a specific body type (curvy) is more desirable than another (non-curvy). This is an example of comparing and contrasting body types which does not communicate body acceptance. This statement would also be coded as "present" for B. Part 5. Positive weight talk.</i>
N/A	N/A	Once you start losing a little bit of weight and start doing more exercise to feel stronger you will feel better and more confident about yourself. It's important to feel good about your body. <i>Parent communicates that the child's weight would be better if they lost weight because they would feel "stronger", "better," and "more confident." The parent does not communicate that the child's weight is acceptable as it is.</i>
N/A	N/A	Parent: All bodies are perfect as they are. Child: Well, I think I have gotten a little chubby this year. I don't like it. Parent: You are not chubby. If you were chubby, you would be overweight and that would not be good for you. But you are fine as you are now. Don't worry about that. <i>Parent has inconsistent messaging regarding body acceptable. First, they state that all bodies are perfect as they are and then they state that if their child was overweight or chubby it would be problematic. This does not communicate body acceptance.</i>
N/A	N/A	Being too heavy is a problem because you cannot move freely, you are physically limited in the things you can do. <i>Parent communicates that bodies that are not as heavy are better because they can move "freely." This uses physical ability as a condition for accepting a body size.</i>

5. Parent communicates body diversity.

Definition	Body diversity is the recognition of the diversity across individuals in body size, shape, and weight. In accepting and normalizing the diversity body weight, size, and shape, society can reduce the blame that is often placed on individuals who are perceived as having overweight/obesity.²⁰ For this item, at minimum, the parent communicates that people can have different body weights, shapes, and sizes. The parent can also recognize that health, success, happiness, etc. can be achieved at many body sizes, shapes, and weights; however, this recognition is not necessary to be coded as "present." Present: Parent mentions that people come in different body weights, shapes, and sizes.

		• Parent mentions that individuals can be healthy at different shapes, sizes, and weights. • Parent mentions that individuals can excel in numerous activities at a variety of shapes, sizes, and weights (e.g., athletics, academics, etc.). • Parent rejects the idea of a single “ideal body.” Absent: • Parent does not discuss diversity in body sizes, shapes, or weight. • Parent communicates that there is an ideal body shape, size, or weight.
PID	Timepoint	Examples
		Present
N/A	N/A	Parent: People come in all sorts of shapes and sizes. <i>Parent clearly communicates diversity in body weight/shape/size.</i>
N/A	N/A	Parent: We all come in different shapes and sizes. Being big doesn't mean you are not healthy. Focus on eating well and exercising and your body will stay healthy. <i>Parent communicates that health can be achieved at many different body sizes.</i>
N/A	N/A	Parent: Of course, people who are fat can be good athletes! Athletes and runners come in all shapes and sizes. There is a running group in our neighborhood for women who are fat or larger bodied, and they compete all the time. You must be strong and fit to run like those women. It doesn't matter their size. <i>Parent communicates that people with a diverse range of body sizes/weights can be good at running and athletics.</i>
		Absent
18188	0M	Parent: When I talk about your body, I say that you are in shape. Sometimes, when you have gained weight, I tell you because you have to keep that in mind so that we can take care of ourselves and monitor what we eat and the exercise that we do. <i>Parent does not communicate at any diversity in body shape, size, or weight. This comment would also be coded as “absent” for C. Part 1 (Item 4). Body acceptance.</i>
N/A	N/A	Parent: All bodies are perfect. Child: Well, I think I have gotten a bit chubby. Parent: No, you are not chubby. If you were chubby, you would be overweight and that is not healthy. <i>Parent notes a specific body type (i.e., not chubby) and characterizes it as unhealthy and does not mention anything about diversity in weight.</i>

6. Parent is not in favor of talking about weight, body shape, and size with their child.

<i>Definition</i>	One of the key targets of the Weight Talk Intervention is to encourage parents to <u>not</u> talk about their child's weight. Parents are instructed to focus on healthy eating and exercise habits for non-weight-related outcomes. For this item, parents state they are <u>not</u> in favor of talking about their child's weight throughout the conversation or directly in response to the FAsTask prompt.* Exceptions for when a parent can be in favor of talking about weight: • Do not include parents that are responding to their child's request to talk about their weight. • Do not include parents who bring up their child's weight because it was raised as a concern by a healthcare professional. Present: • Parent states that they are not in favor of talking about weight. Parent may or may not include their rationale. • Parent talks about weight because their child has asked them to talk to them about it. • Parent is in favor of talking about weight because a healthcare professional has raised concerns about their child's weight. • Parent states that they <u>would still not</u> talk about weight with their child <u>if their child were to gain weight</u>. ○ The only circumstance under which the parent would talk to their child about their weight is if 1) the child has invited them to do so, 2) they are talking with a healthcare professional about their child's weight, or 3) a parent wants to discuss sudden or significant weight loss out of concern for their child's health, growth, and/or development. • Child states any of the above and the parent agrees or is silent. Absent [†] • Parent states that they talk about weight with their kids and/or others. Parent may or may not provide their rationale for doing so. • Parent discusses the benefits of talking about weight. • Parent briefly mentions that talking about weight is okay (with or without any rationale).

* FAsTask prompts ask parents to “*discuss together the possible benefits or risks of talking about weight or body shape, including: comments about your own weight or body shape; comments about other people's weight or body shape.*”

[†] It is possible to code “absent” for both “parent is in favor of talking about weight” AND “parent is not in favor of talking about weight.” In these instances, it is not clear from the conversation what the parent's attitudes/beliefs are regarding talking about weight. However, it is not possible to code “present” for both items.

		Inconsistencies in parent messaging about talking about weight.
PID	Timepoint	Example
		Present
N/A	N/A	Parent: We don't talk about your weight at home because my parents spoke with me a lot about my weight, and it didn't make me feel very good. I don't want that for you but, if you want to talk about it, we can. <i>Parent clearly states they will only talk about their child's weight if their child wants to.</i>
		Absent
N/A	N/A	Parent: I don't really think we talk about your body weight. Besides just saying like, 'you have to watch what you eat sometimes because obesity runs in our family.' <i>They are not in favor of talking about weight, however, this would be coded as "present" for B. Part 1 (Item 1) Personal responsibility for weight.</i>
N/A	N/A	My family used to talk to me all the time about my weight. As a kid, I remember my mom used to say things about how my clothes fit and how I would look better if I lost some weight. I know she didn't mean to, but it hurt my feelings. <i>Parent uses a personal experience that illustrates how they personally did not like it when their Mom talked to them about their weight but, they never state whether or not they talk about weight at home. This is ambiguous and is therefore coded as "absent."</i>

C.2. Part 2.

In this section, items capture the estimated frequency of the construct during the audio recorded conversation on a 5-point scale (i.e., 1 time, 2 times, 3 times, 4 times, 5 or more times). The scale has a ceiling of "5 times or more" because there were concerns that coders would not be able to accurately count occurrences, which would increase measurement error.

1. Are any non-weight-based outcomes mentioned when discussing healthy dietary and exercise habits?

<i>Definition</i>	One of the key targets of the Weight Talk Intervention is to encourage parents to talk about non-weight-based outcomes when discussing healthy eating and exercise habits and to avoid weight-based outcomes. Encouraging healthy eating and exercise habits for non-weight-based outcomes are more likely to foster healthy relationships with food and exercise and to promote long-term behavior change and adoption. Non-weight-based outcomes include any outcome that does not directly or indirectly relate to one's weight. These may include but, are not limited to: - Mental health (e.g., mood, anxiety, depression, etc.). - Physical health (e.g., better control of blood glucose/diabetes, physical fitness, etc.).

	• Social benefits (e.g., socializing with friends during sports, being with family during a meal, etc.). • Physiological benefits (e.g., hunger, intuitive eating [eating in response to hunger cues], staying active, blood sugar, etc.) • Sensory benefits (e.g., soreness feeling good, taste good, enjoyment, satisfying cravings, etc.). For this item, the parent mentions non-weight-based outcomes while discussing healthy eating and exercise habits. Non-weight-based outcomes may come up at any point during the audio-recorded conversation or directly in response to the FAsTask prompt.* Present • Parent mentions a non-weight-based outcome when discussing exercise and dietary habits. • Child mentions a non-weight-based outcome and the parent agrees OR is silent. <u>Count as SEPARATE occurrences:</u> • Different non-weight-based outcomes are mentioned in the same sentence. • Different non-weight-based outcomes are mentioned at different times during the conversation. • The <u>same</u> non-weight-based outcome is mentioned more than once at <u>2</u> times during the conversation. <u>DO NOT count as separate occurrences:</u> • The <u>same</u> non-weight-based outcome is mentioned more than once <u>in the same sentence</u> or <u>in proximity</u> in the conversation. For this tool, this qualifies as an emphasis on the weight-based outcome and not as a separate occurrence. Absent • Parent does not mention any non-weight-based outcomes, either directly or indirectly related to weight.	
PID	Timepoint	Examples
		Present
N/A	N/A	It is important to not eat so much sugar to keep your energy levels up. You know how you always feel tired after eating a lot of candy? <i>Parent mentions energy levels as an outcome related to eating behaviors.</i> 1 occurrence of non-weight-based outcome.

* The FAsTask prompts ask the parent and child to “please discuss together the possible benefits of having healthy eating habits and being physically active.”

N/A	N/A	You're right. Exercising more will help you get better at basketball too, you'll get faster, and you can keep your weight healthy. <i>Parent mentions improved athletic performance as an outcome related to exercising. They also mention weight maintenance, which would be coded as B. Part 2. Weight-based outcomes.</i> 1 occurrence of non-weight-based outcome. 1 occurrence of weight-based outcome.
		Absent
N/A	N/A	We exercise so much because we want to keep our weight in check. <i>Parent mentions weight management as a benefit of exercise.</i> 0 occurrences of non-weight-based outcome

D. Blinding

The tool captures whether the coder can identify to which group the participant dyad was randomized to capture any potential bias in coding.

D.1. To what group do you think this parent-child dyad was randomized to?

1. Substance use (Intervention)
2. Nutrition, Exercise, & Weight (Control)
3. I don't know

V. References

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Appendix C. Weight Stigma Family Assessment Task Worksheet (Structured)

Instructions: Complete this worksheet while listening to the audio-recorded conversation. It is recommended that you take notes during the first and second time you listen to the recording. These notes will help you score the conversation and will act as a record if discrepancies in scores between coders need to be discussed and resolved.

PID:		Timepoint :		Coder:	
	(5 to 6 digits)		(0M, 3M, 6M)		(First, Last)

1. Stigmatizing items

Personal responsibility
<u>Encourage</u> to lose/maintain weight through dieting/exercise
<u>Pressure</u> to lose/maintain weight through dieting/exercise
Negative weight-based stereotypes
Serious negative outcomes to fearmonger obesity
People with obesity/weight gain as unhealthy
Weight talk (weight teasing, negative weight talk, and positive weight talk)

2. Outcomes related to healthy eating and exercise

WEIGHT-based Outcomes	NON-WEIGHT-Based Outcomes

3. Non-stigmatizing items

Weight as a complex condition
Healthy eating/exercise for health and well-being (not weight loss)
Body acceptance
Body diversity

4. Talking about weight

In favor	NOT in favor

5. Other

Words to describe weight
Important quotes

Appendix D. Weight Stigma Family Assessment Task Worksheet (Unstructured)

Instructions: Complete this worksheet while listening to the audio-recorded conversation. It is recommended that you take notes during the first and second time you listen to the recording. These notes will help you score the conversation and will act as a record if discrepancies in scores between coders need to be discussed and resolved.

PID:		Timepoint :		Coder:	
(5 to 6 digits)		(0M, 3M, 6M)		(First, Last)	

Stigmatizing Items

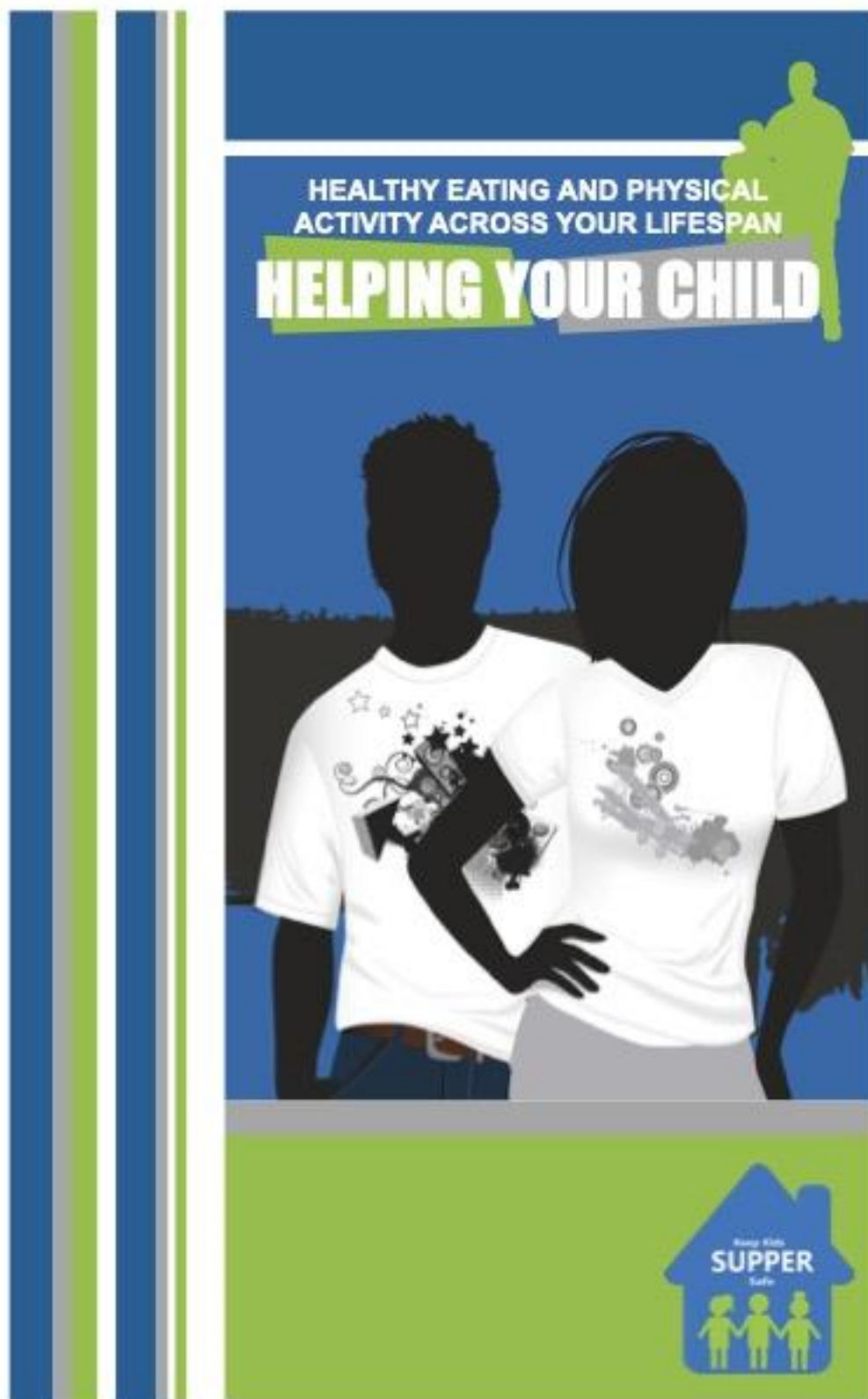
Non-Stigmatizing Items

Weight-based Outcomes	Non-Weight-Based Outcomes

Words to describe weight

Important quotes

Appendix E. Intervention Handbook



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INTRODUCTION

This booklet is part of the Healthy Eating & Physical Activity Across Your Lifespan Series from the Weight-control Information Network (WIN). The series offers health tips for readers at various life stages, including adulthood, pregnancy, parenthood, and later life. The entire series is also available in Spanish.

Visit WIN's
website to view
all WIN
publications at
[http://www.win.
niddk.nih.gov](http://www.win.niddk.nih.gov).

How can I use this booklet?

This publication is one of many handy guides from WIN that can help you and your family. You can use the tips in this booklet to take an active role in helping your child learn healthy habits.

Parents and other adults can guide children in making healthy food choices and becoming more physically active. One of the best ways to do this is to practice healthy eating and staying physically active as a family.



Practice
staying
physically
active as a
family

How can a healthy pregnancy help my child?

Eating healthy, being physically active, and gaining a proper amount of weight during pregnancy can lead to fewer risks at delivery for both Mom and baby. Moms who achieve and maintain a healthy weight before and during pregnancy may also reduce their babies' later risks of obesity and other health problems.

How will healthy eating and physical activity help my child?

All children need healthy eating and physical activity. Healthy eating and physical activity may help children:

- Grow.
- Learn.
- Build strong bones and muscles.
- Maintain a healthy weight.
- Reduce future chances of developing diabetes and heart disease.
- Feel good about themselves.

All children
need healthy
eating and
physical
activity.



HEALTHY HABITS

How can I help my child form healthy habits?

Parents play a big part in shaping children's habits on eating and physical activity. When parents eat foods that are lower in fat and added sugars and high in fiber, children learn to like these foods as well. If your child does not like a new food right away, don't be upset. Children often need to see a new food many times before they will try it.

Parents have an effect on children's physical activity habits as well. See the end of this brochure for resources that can help you and your child. Continue reading to learn about specific actions you can take to help your child develop healthy habits.



Children often
need to see a
new food many
times before
they will try it.

A powerful
example for
your child is
to be active
yourself



Be a role model

A powerful example for your child is to be active yourself. You can set a good example by going for a walk or bike ride instead of watching TV, playing a video game, or surfing the Internet. Playing ball or jumping rope with your children shows them that being active is fun.

Talk about being healthy

Take the time to talk to your children about how a certain food or physical activity may help them. For example, when going for your daily walk, bring your children with you and let them pick the route. Discuss how walking helps you feel better and is a fun way to spend time together. It also offsets inactive time spent in front of TV screens or computers.

Use your children's food choices as teaching moments. Speak up when you see unhealthy eating habits. Direct children to healthier options or say, "You can have a little of that, but not too much." Talk to them about why an overly salty or heavily sugared snack is not the best choice.

You can also praise your children when they choose a healthy item like fruit or yogurt. Use comments like these:

- "Great choice!"
- "You're giving your body what it needs with that snack!"
- "I like those too."



Use your
children's
food choices
as teaching
moments.

With physical activity, try upbeat phrases like these to keep your child excited:

- "You run so fast, I can hardly keep up!"
- "You are building a strong, healthy heart!"
- "Let's walk 10 more minutes to make us stronger."

Believe in the power to change

Know that eating healthy and moving more are the basics of being fit. Work together as a family to form healthy habits.

Promote good health beyond your family

Other adults may play a role in your child's life, too. You can share ideas about healthy habits with them.

For instance, many parents work outside the home and need other adults to help with child care. Caregivers like other family members, day care providers, babysitters, or friends may shape your child's eating and activity habits. Talk to your child's caregivers to make sure they offer healthy snacks and meals. Check that caregivers are also

Make sure
your child's
caregivers
offer healthy
snacks and
meals.



providing plenty of active playtime and limiting time with TV or inactive video games. If your child is in school, you can help promote healthy eating and physical activity in several other ways:

- Find out more about the school's breakfast and lunch programs. Ask for input on menu choices.
- Support physical education and after-school sports at your child's school.
- Take turns with other parents watching your children play outside.

Consider other influences

Your children's friends and the media can also affect eating and activity choices. Children may choose to go to fast food places or play video games with their friends instead of playing tag or other active games. TV ads try to persuade children to eat high-fat foods and sugary drinks. You can teach your children to be aware of these pressures.

To do so, speak with your children about choices while you watch TV and surf the Internet with them. Talk about how media outlets sell products or values through famous football or basketball players, cartoon figures, and made-up images. Use programs and ads to spark chats about your values. These talks may help your child make healthy choices outside the home.

TV ads try to persuade children to eat high-fat foods and sugary drinks.

HEALTHY EATING

What should my child eat?

Just like adults, children need to eat a wide variety of foods. Every 5 years, the U.S. Government releases a set of guidelines on healthy eating (see Resources at the end of this booklet). The guidelines suggest balancing calories with physical activity. The guidelines also recommend improving eating habits to promote health, reduce the risk of disease, and reduce overweight and obesity.

The guidelines encourage Americans ages 2 years and older to eat a variety of healthy foods.

Suggested items include the following:

- Fruits, vegetables, unsalted nuts and seeds, and whole grains
- Fat-free or low-fat milk and milk products
- Lean meats, poultry, seafood, beans and peas, soy products, and eggs

Like adults,
children need
to eat a wide
variety of
foods.



The guidelines also suggest reducing salt (sodium), refined grains, added sugars, and solid fats (like lard, butter, and margarine). Added sugars and solid fats often occur in pizzas, sodas, sugar-sweetened drinks, desserts like cookies or cake, and fast foods. These foods are the main sources of high fat and sugar among children and teens.

Another important guideline is to make sure your children eat breakfast to spark the energy they need to focus in school. Eating breakfast is often linked to better performance at school in children and teens.



Make sure your children eat breakfast to spark the energy they need to focus in school.

How can I help my child eat better?

Some tips to consider are these:

Use less fat, salt, and sugar

- Cook with fewer solid fats. Use olive or canola oil instead of butter or margarine.
- Bake or roast instead of frying.

Be mindful of
how you use the
following:



You can get a crunchy texture with “oven-frying” recipes that involve little or no oil.

- Choose and prepare foods with less salt. Keep the salt shaker off the table. Have fruits and vegetables on hand for snacks instead of salty snacks like chips.
- Limit the amount of sugar your child eats. Choose cereals with low sugar or with dried fruits as the source of sugar.

Reshape the plate

- Make half of what is on your child's plate fruits and vegetables.
- Avoid oversized portions.

The MyPlate icon and web address are provided courtesy of the U.S. Department of Agriculture.



Four for Fitness

Experts note that most Americans don't get enough **potassium, calcium, vitamin D, and dietary fiber**. Calcium builds strong bones and teeth. Potassium helps lower blood pressure and reduces bone loss. Vitamin D supports bone health. Dietary fiber promotes normal digestion, regulates blood sugar levels, and may reduce future risk for various chronic diseases, like heart disease and type 2 diabetes.

Here are some ways you can boost your children's intake of these nutrients.

- Dish up more fruit for breakfast, snacks, and desserts. Add dark green, red, and orange vegetables to stews and soups. Add beans (black, kidney, pinto), peas, and lentils to casseroles and salads. For meal planning ideas and healthy recipes, see Nutrition.gov in the Resources at the end of this booklet.
- Serve more low-fat milk and milk products. If your child cannot digest much lactose, serve lactose-free products. Lactose is the sugar in milk that may cause some people stomach pain and bloating when they drink milk or eat milk products. Your child can also try soy or rice drinks enriched with calcium or vitamin D.
- Be active with your child outside in the sunlight to improve vitamin D levels naturally. Serve fresh, frozen, or canned salmon, shrimp, and light tuna (not albacore). For young children, you may serve fish in small portions totaling up to 12 ounces each week.
- Replace at least half of the refined grains (breads, pasta, rice) your child eats with whole-grain foods. Eat more bran. Check Nutrition Facts labels to find products high in dietary fiber. Look at the ingredients list to be sure that whole grains are one of the first items.

Try serving this



or this



Think about the drink

- Serve water or low-fat or fat-free milk more often as the drink of first choice.
- Reduce the amount of sugar-sweetened sodas and fruit-flavored drinks that your child drinks.
- Offer fresh fruits, which has more fiber than juice, more often than 100% fruit juice.

Offer healthy snacks

- Try to keep healthy food in the house for snacks and meals for the whole family.
- Offer such snacks as sliced apples, oranges, pears, and celery sticks. Or try whole-grain bread served with low-fat cheese, peanut butter, or soy nut butter.
- Give your children a healthy snack or two in addition to their three daily meals to keep them energized.
- Read nutrition labels. Some foods, like snack bars, are not as healthy as they seem.

Limit fast food

- Order a side fruit bowl or salad instead of fries.
- Ask for sandwiches to be prepared without sauce.
- Order "small." Avoid super-sizing.

Share food time as family time

- Eat sit-down, family meals together and serve everyone the same thing.

Healthy Snack Ideas*

- Fresh, frozen, or canned vegetables or fruit served plain or with low-fat yogurt
- Pretzels or air-popped popcorn sprinkled with salt-free spice mix
- Homemade fruit smoothies made with fat-free milk or yogurt and frozen or fresh fruit
- Dry cereals (with no added sugars) served plain or with low-fat or fat-free milk

*Children of preschool age and younger can easily choke on foods. These foods may be hard to chew, small and round, or sticky. Examples are hard vegetables, whole grapes, hard chunks of cheese, raisins, nuts and seeds, and popcorn. Select snacks with care for children in this age group.



- Involve your children in planning and preparing meals. Children may be more willing to eat the dishes they help prepare.

Involve your
children in
planning and
preparing
meals.



- Try to limit how much you eat out to control the calories, salt, and fat your children eat. To serve more homemade meals, cook large batches of soup, stew, or casseroles and freeze them as a time saver. For handy tips on quick and easy homemade meals, check out the ChooseMyPlate information in the Resources section of this booklet.
- Limit eating at home to specific areas such as the kitchen or dining room.

PHYSICAL ACTIVITY

How does physical activity help my child?

Like adults, children should be physically active most, if not all, days of the week. Experts suggest at least 60 minutes of moderate physical activity daily for most children. Walking fast, bicycling, jumping rope, and playing basketball, soccer, or hopscotch are all good ways for children to be active. Parents play a big role in helping kids to get up and get moving.

Aim for your child to get at least 60 minutes of moderate physical activity each day.

How can I help my child be more active?

- Be a role model for your children. If they see you being physically active and having fun, they are more likely to be active and stay active.
- Involve the whole family in activities like hiking, biking, dancing, or playing basketball.
- Focus on fun. You can do a lot of walking during trips to the zoo or park.
- Include children in family activities like walking the dog, washing the car, or mowing the lawn.
- Sign your children up for after-school programs or lessons in a sport they enjoy.
- Team up with your children to play sports or dance video games that get everyone moving.

Limit how
much time
your child is:

Watching TV

Playing video
games

Listening to
music on
hand-held
devices

Reduce inactive screen time

Sitting while using computers, hand-held devices, or TVs for hours at a time may reduce your child's active playtime. Limit your child's screen time watching TV, playing inactive computer and video games, or listening to music on hand-held devices while sitting down. Tips to reduce your child's screen time are these:

- Do not use screen time as a way to reward your child.
- Set up a family game night and turn off all the screens in your home.
- Limit screen time and remove screens from your child's bedroom.

What should I do if I think my child is overweight or obese?

Children who are overweight are more likely to become adults who are overweight. These children may develop type 2 diabetes and other serious health problems. Weight problems can also lead to stress, sadness, and low self-esteem in children.

Because children grow at different rates at different times, it is not always easy to tell if a child is overweight. For example, it is normal for boys to have a growth spurt in weight and catch up in height later. Ask your health care provider

to measure your children to tell you if they are in a healthy range for their age and gender. If your provider tells you that your child is overweight, you can help by directing your attention to behaviors you and your family can engage in that support health in the long term. Focus on helping your child eat a variety of nutritious foods and be active in fun and enjoyable ways.

How can I help my child?

- Do not put your child on a diet to lose weight unless your health care provider tells you to.
- Avoid putting severe limits on what your child eats. Doing so may interfere with her or his growth.
- Accept and love your child at any weight. Doing so will boost self-esteem.



Accept and
love your child
at any weight.
Doing so will
boost self-
esteem.

- Involve the whole family in healthy eating and physical activity habits.
- Help your child find ways other than food to handle setbacks or mark successes.
- Talk with your health care provider if you are concerned about your child's eating habits or weight.

Involve the whole family in healthy eating and physical activity habits.



Remember, you play the biggest role in your children's lives. You can help your children learn healthy eating and physical activity habits to follow for the rest of their lives. To download and share this and other WIN materials, visit <http://www.win.niddk.nih.gov>.

More resources are listed on the following pages.

RESOURCES

Academy of Nutrition and Dietetics

120 South Riverside Plaza

Suite 2000

Chicago, IL 60606-6995

Toll-free number: 1-800-877-1600

<http://www.eatright.org>

American Academy of Pediatrics

141 Northwest Point Boulevard

Elk Grove Village, IL 60007-1098

Phone: 847-434-4000 or 1-888-227-1770

<http://www.aap.org>

ChooseMyPlate.gov

<http://www.choosemyplate.gov>

Dietary Guidelines for Americans, 2015-2020

U.S. Department of Agriculture (USDA)

U.S. Department of Health and Human Services

<http://www.dietaryguidelines.gov>

Food and Nutrition Information Center

USDA

National Agricultural Library

10301 Baltimore Avenue

Room 105

Beltsville, MD 20705-2351

Phone: 301-504-5414

<http://www.nal.usda.gov/fnic>

Let's Move!

<http://www.letsmove.gov>

Media Smart Youth

<http://www.nichd.nih.gov/msy>

National Diabetes Education Program

<http://yourdiabetesinfo.org>

Nutrition.gov

National Agricultural Library
Food and Nutrition Information Center
Nutrition.gov Staff
10301 Baltimore Avenue
Beltsville, MD 20705-2351
<http://www.nutrition.gov>

President's Council on Fitness, Sports & Nutrition

1101 Wootton Parkway
Suite 560
Rockville, MD 20852
Phone: 240-276-9567
<http://www.fitness.gov>
<http://www.presidentschallenge.org>

We Can! (Ways to Enhance Children's Activity and Nutrition)

National Heart, Lung, and Blood Institute Health Information Center

Attention: Website

P.O. Box 30105

Bethesda, MD 20824-0105

Toll-free number: 1-866-359-3226

<http://www.nhlbi.nih.gov/health/index.htm>

Weight-control Information Network

1 WIN Way

Bethesda, MD 20892-3665

Phone: 202-828-1025

Fax: 202-828-1028

Toll-free number: 1-877-946-4627

Email: WIN@info.niddk.nih.gov

<http://www.win.niddk.nih.gov>

Inclusion of resources is for information only and does not imply endorsement by NIDDK or WIN.

Why should I participate in clinical trials?

Participants in clinical trials can play a more active role in their own health care, gain access to new research treatments before they are widely available, and help others by contributing to medical research. For more information, visit <http://www.clinicaltrials.gov>.

The Weight-control Information Network (WIN) is a national information service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), part of the National Institutes of Health (NIH). WIN provides the general public, health professionals, and the media with science-based, up-to-date, culturally relevant materials and tips. Topics include healthy eating, barriers to physical activity, portion control, and eating and physical activity myths.

Both NIDDK scientists and outside experts review publications produced by WIN. This publication was reviewed by Sandra G. Hassink, M.D., F.A.A.P., Director of the Nemours Obesity Initiative and Assistant Professor of Pediatrics at the A. I. duPont Hospital for Children in Wilmington, DE.

This publication is not copyrighted. WIN encourages users of this brochure to duplicate and distribute as many copies as desired.

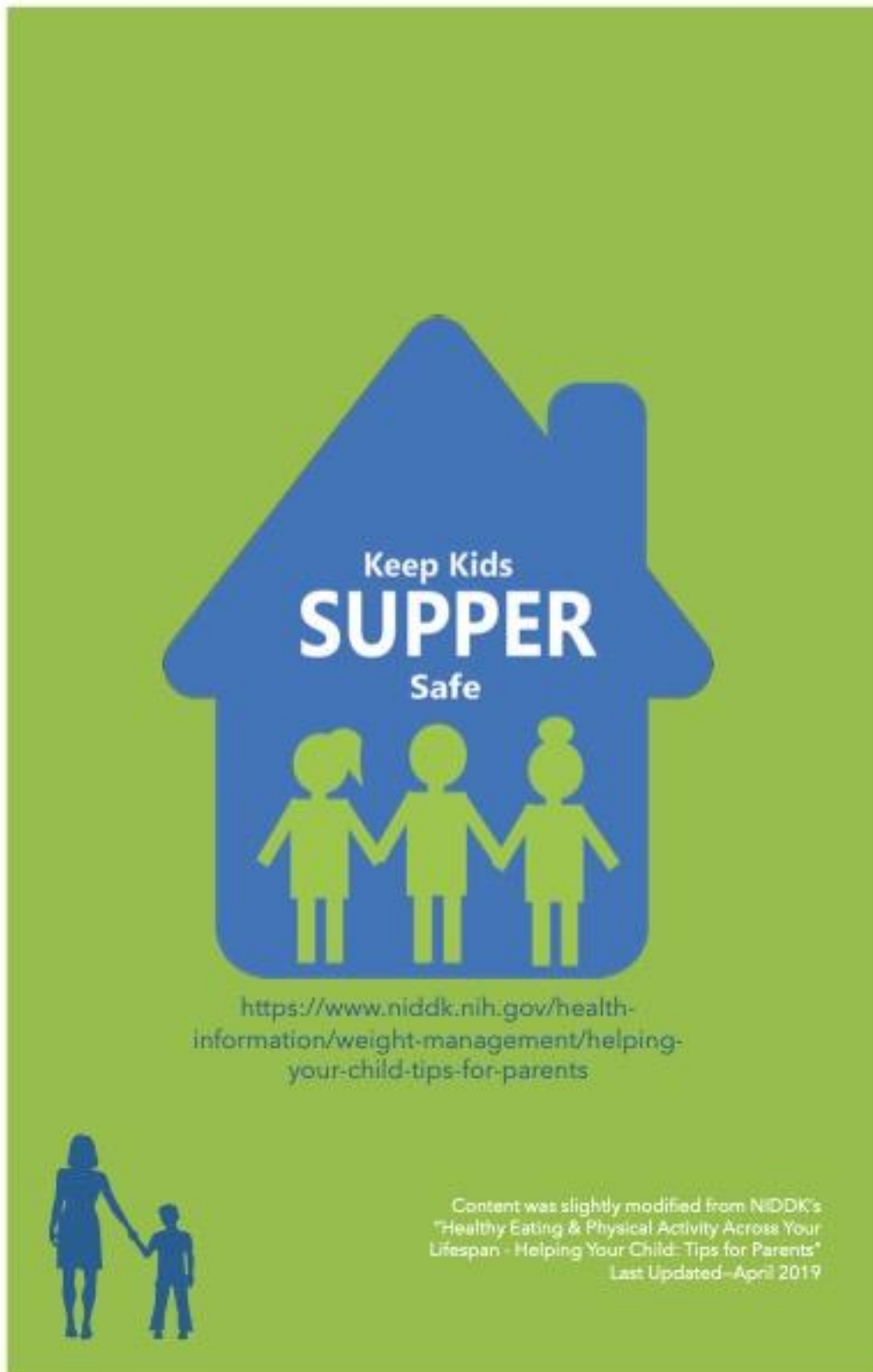
The Lifespan Series includes the following publications:

- Fit for Two: Tips for Pregnancy
- Helping Your Child: Tips for Parents
- Better Health and You: Tips for Adults
- Young at Heart: Tips for Older Adults

Spanish-language publications in the Lifespan Series include the following:

- Consejos para la futura mamá
- Cómo ayudar a su hijo
- Cómo mejorar su salud: consejos para adultos
- Sugerencias para personas mayores

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Updated January 2012



Keep Kids
SUPPER
Safe

<https://www.niddk.nih.gov/health-information/weight-management/helping-your-child-tips-for-parents>

Content was slightly modified from NIDDK's
"Healthy Eating & Physical Activity Across Your
Lifespan - Helping Your Child: Tips for Parents"
Last Updated - April 2019

Appendix F. Intervention Weight Stigma Pamphlet

Talking About Weight

What parents need to know

Childhood and adolescence are periods of growth for kids. Their bodies are changing dramatically, and with these changes, they can start to feel self-conscious or uncomfortable in their own skin. For some preteens and teens, weight can become a sensitive issue. The way parents/guardians and other family members talk about weight can affect their child's well-being.

It is best to avoid making comments about your child's weight or body size. These kinds of comments, also called "*weight talk*," can be harmful and distressing for your child. This is especially true when weight talk comes from parents/guardians and other family members.

About 33% of parents report having conversations about weight with their child. While most parents mean well, weight talk can be harmful to their child's mental and physical health. Children who experience frequent weight talk are more likely to:

- Have lower self-esteem and feel depressed or anxious
- Be less satisfied with their bodies
- Develop unhealthy eating habits, like binge eating or restrictive eating

Words are powerful. The language you use shapes your child's worldview. Parents need to be careful of the words they use when talking about their own weight and someone else's weight or physical appearance, especially in front of your child.

Think about your word choice. Weight is a sensitive topic and the words often used to describe weight can be hurtful, judgmental, and stigmatizing. Avoid words like "chubby," "fat," or "obese." Try to not to label people as "bad" or "lazy" because of their weight. This kind of weight talk can send a negative message about body image to your child.

Set an example. You are an important role model for your child. The way you talk about weight, including your own weight, sets an example for your child. Saying things like "this outfit makes me look fat," can influence how your child views their own body. Whenever possible, shift conversations from body weight to healthy lifestyle behaviors that the whole family can engage in.



Helping your child make decisions that support a healthy weight

Support your child by focusing conversations on health and healthy behaviors. Too often the goal for making healthier choices is to lose or gain weight or look better. Talk with your child about how eating healthy and being active can impact his or her health. Eating nutritious foods and being active can help your child:

- Stay focused in school
- Build strong bones and muscles
- Increase their confidence
- Stay healthy now and in the future

Making healthy lifestyle choices and building habits is challenging and takes time. Your support and encouragement can help your child stay motivated. Some of the best ways to help your child build healthy habits is for you to lead by example, make changes together as a family, and praise your child's efforts when they make a healthy choice, like choosing fruit for a snack instead of chips, or drinking water instead of soda.

Avoid "should" statements. Saying things like "you shouldn't eat that" can feel judgmental. Instead, you can help make it easier for your child to make healthy choices by:

- Keeping healthy snacks in easy-to-reach places.
- Encouraging your child to play outside with your family pet.
- Letting your child choose some of the fruits and vegetables you buy.
- Planning physically active family activities, like hiking or bike riding.



Build your child's self-esteem. Self-esteem comes from many sources—not just how you look. To help boost your child's self-esteem and confidence, remind your child of all the things that make them great.

- Recognize their successes, no matter how small.
- Compliment them on qualities and behaviors that are not related to their weight.
- Praise them for being a good friend, being responsible with their chores, or working hard to do well in school.

Eating healthy and being active is about health and well-being.

Remind your child that eating healthy and being physically active is good for their health. Building these habits now can have positive, long-lasting effects.



Content partially adapted from: University of Connecticut Rudd Center for Food Policy & Obesity.

Images: World Obesity Federation Image Bank

The SUPPER Project: Last Updated April 2019

Appendix G. Text Messages

The following is the list of text messages that are sent to participants in the Familial Weight Talk group as booster tips and reminders throughout the three-month intervention period (specific to the gender of their child). Two messages are sent each week for 13 weeks months. One introduction test message is sent at the time of enrollment to orient the respondent, equaling a total of 27 messages (13 weeks x 2 messages/week + 1 orientation message = 27). The messages reference the page number of the handbook from which the information is drawn. Each message is repeated two times throughout the study period.

Introduction text message:

1. Thank you for participating in the SUPPER Project! We'll be sending you 2 messages a week for 3 months. Each will have a page number referencing the handbook.

Weekly text messages (each will be repeated twice throughout the study period):

2. One of the best things you can do to help your child make healthy choices is to practice being physically fit and eat healthily as a family. p1
3. You have the power to help your child be physically active! Be a role model for your child by being physically active. p4
4. Limit the amount of time your child spends on a screen—have a family game night or do something physically active together instead. p16
5. Remember to have fun! Children need at least 1 hour of physical activity each day. Try to get it with family activities and active games your child likes. p15
6. It often takes a few times for a child to be willing to try a new food. Don't be discouraged. Try involving your child in meal preparation. p14
7. Keep healthy snacks (like sliced fruit or whole-grain bread & peanut butter) around the house to make it easier for your child to make healthy choices. p10
8. Talk to your child about why it's important to eat healthy and stay active. You can use advertisements as teaching opportunities. p7
9. Be careful with the words you use to talk about your own and your child's weight. Avoid negative words like "fat" "bad" "chubby" or "lazy." (Handout)
10. Celebrate the healthy changes (like choosing water instead of soda) your child has made instead of focusing on weight. (Handout)
11. Take care to not make negative comments about your own weight or appearance in front of your child—it can send negative messages about body image. (Handout)
12. Try to avoid making "should" statements when your child is making choices about food or exercise. Instead, model the behaviors you want to see. (Handout)
13. Remember self-esteem comes from more than just how you look. Build your child's self-esteem by complimenting the qualities that make them great. (Handout)
14. Don't focus on weight. Focus on eating healthy and being physically active to promote health and well-being. (Handout)

Appendix H. Magnet

Eat Healthy Be Active

Be active and make healthy food choices as a family.

Model healthy choices so your child can be strong & healthy for the rest of their life!



Appendix I. Referral Packet

*** Referral packets differed by location ***

1. Salem and North Shore Area

RESOURCES FOR PARENTS AND GUARDIANS

Las organizaciones con hispanohablantes están marcadas con (). Organizaciones sin marcas pueden tener recursos en Español. Si necesita sus servicios, recomendamos que se ponga en contacto con ellos.*

Family Health Centers and Services (Centro de Salud Familiar y Servicios)		
*Salem Family Health Center	47 Congress Street Salem, MA 01970 Phone: 978-744-8388 Website: https://www.nschi.org/locations/salem-family-health-center/	- Primary care - Outreach & enrollment services - Languages: Spanish, English & Portuguese
Salem YMCA	1 Sewall Street Salem, MA 01970 Phone: 978-744-0351 Website: https://www.northshoreymca.org/locations/salem-ymca	- Wellness classes and programs - Youth, teen and family programs - Summer Food Service Program for Children
Salem Park, Recreation and Community Services	401 Bridge St Salem, MA 01970 Phone: 978-744-0180 Email: pobrian@salem.com Website: https://www.boston.gov/community-centers	Variety of services including yoga, dance, sports, family fun nights
Other Resources (Otros Recursos)		
*Booklet on Healthy Eating and Physical Activity Across Your Lifespan	Website: https://www.niddk.nih.gov/health-information/weight-management/helping-your-child-tips-for-parents#lifespan <i>Booklet comes from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)</i> En Español: https://www.niddk.nih.gov/health-information/informacion-de-la-salud/control-de-peso/ayudar-su-hijo	Information to help parents guide their children in making healthy diet & nutrition choices and being physically active.
Farmer's Market	Derby Square Thursdays 3-7PM Phone: 978-744-0004 x 115 Website: http://salemfarmersmarket.org/	- Provides a social gathering of purchasing locally grown or prepared foods - Accepts SNAP/EBT cards for purchasing certain foods - Healthy Incentive Program for rewards on eligible fruits and vegetables
Farm Direct Coop	Farm Direct Coop P.O. Box 1146 Marblehead, MA 01945 Phone: 877-332-3276 Website: http://www.farmdirectcoop.org/	- Farm Direct Coop is a multi-farm co-op that has served Marblehead, Melrose and Salem for 25 years bringing the freshest local food to their communities - As part of the Community Aid fund, healthy food is available to volunteers

2. Boston Public Schools Area

RESOURCES FOR PARENTS AND GUARDIANS

Las organizaciones con hispanohablantes están marcadas con (). Organizaciones sin marcas pueden tener recursos en Español. Si necesita sus servicios, recomendamos que se ponga en contacto con ellos.*

Family Health Centers and Services (Centro de Salud Familiar y Servicios)		
YMCA of Greater Boston	Many YMCA branch locations (check website for full listing) Website: https://ymcaboston.org/	- Wellness classes and programs - Youth, teen and family programs - Summer Food Service Program for Children
Boston Community Centers	Many Community Center locations (check website for full listing and map) Website: https://www.boston.gov/community-centers	Wide variety of services including Family Gym, aquatics programs, and adult and youth sports
The Dimock Center	55 Dimock Street Roxbury, MA 02199 Phone: 617-442-8800, x1324 Website: https://dimock.org	Health Center serving Roxbury, Dorchester, and Jamaica Plain
Project HOPE	550 Dudley Street Roxbury, MA 02119 Phone: (617) 442-1880 Email: info@prohope.org Website: https://www.prohope.org/programs-2	Offers low-income women with children access to education, jobs, and housing services
*Codman Square Health Center	637 Washington Street Dorchester, MA 02124 Phone: (617) 825-9660 Website: http://www.codman.org/	- Multi-lingual health center Fluent in Haitian Creole, Spanish, French and more
Cambridge Health Alliance	1493 Cambridge Street Cambridge, MA 02139 Phone: 617-665-1000 Website: http://www.challiance.org/Services/ServicesHome.aspx	CHA provides a wide range of services with a special focus on primary care, community wellness and prevention
East Boston Neighborhood Health Center	<i>Taylor Building:</i> 10 Gove Street <i>Cradock Building:</i> 20 Maverick Square East Boston, MA 02128 Phone: 617-569-5800 Website: https://massfoodtrustprogram.org/funded-projects/2019/7/12/east-boston-neighborhood-health-center	EBNHC increases food access and health education
Fair Foods	Many distribution sites Website: http://www.fairfoods.org/dollarbag.html	- Non-profit organization providing healthy produce at an affordable price - Two-dollar a bag sites in the Boston Metro Region
Daily Table	450 Washington Street Dorchester, MA 02124 Website: https://dailytable.org/store-location/dorchester/	Offers affordable food options, recipes, classes, and more
Other Resources (Otros Recursos)		
*Booklet on Healthy Eating and Physical Activity Across Your Lifespan	Website: https://www.niddk.nih.gov/health-information/weight-management/healthy-eating-physical-activity-for-life/helping-your-child-tips-for-parents?dkrd=/health-information/weight-management/helping-your-child-tips-for-parents#lifespan <i>Booklet comes from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)</i> En Español: https://www.niddk.nih.gov/health-information/informacion-de-la-salud/control-de-peso/ayudar-su-hijo	Information to help parents guide their children in making healthy diet & nutrition choices and being physically active.
Farmers Markets	Website: https://www.visit-massachusetts.com/state/farmers-markets/ Hay Market: http://www.haymarketboston.org/new-page	Information on farmers markets all over Massachusetts

3. Lowell and Lawrence Area

RESOURCES FOR PARENTS AND GUARDIANS

Las organizaciones con hispanohablantes están marcadas con (*). Organizaciones sin marcas pueden tener recursos en Español. Si necesita sus servicios, recomendamos que se ponga en contacto con ellos.

Family Health Centers and Services (Centro de Salud Familiar y Servicios)		
Greater Lowell Family YMCA	35 YMCA Drive Lowell, MA 01852 Phone: 978-454-7825 Website: http://www.greaterlowellymca.org	- Wellness classes and programs - Youth, teen and family programs - Summer Food Service Program for Children
Merrimack Valley YMCA	Many Community Center locations (check website for full listing and map) Website: https://www.mvymca.org/locations/	
Lowell Community Health Center*	161 Jackson Street Lowell, MA 01854 Phone: 978-937-9700 Website: https://www.lchealth.org/	- Health Center providing affordable and quality healthcare to families in Lowell - Offers Adult Medicine, Family Medicine, OB/GYN, HIV Services, and Pediatrics Offers translation services in 28+ languages via staff trained in medical interpretation
Greater Lawrence Family Health Center*	Many Primary Care and Pharmacy Centers, School-Based Health Centers, and Community-Based Programs (check website for full listing and hours) Website: https://glfhc.org/locations/	- Health Center providing comprehensive healthcare to families in the Merrimack Valley - Offers Primary Care, Laboratory Services, Specialty Care, Urgent Care, Behavioral Health, Pediatrics, HIV Services, and Transgender Care All providers speak Spanish, and live translation services available in 17 languages
Greater Lawrence Community Action Council*	305 Essex Street Lawrence, MA 01840 Phone: 978-681-4905 (number to the Community Service Center) Email: csc@glcac.org Website: https://www.glcac.org	Offers social services, child care, WIC (Woman, Infants, and Children) services, ESL training for adults, immigration and tax assistance, and youth employment services
Community Teamwork	155 Merrimack Street Lowell, MA 01852 Phone: 978-459-0551 Website: http://www.commteam.org/	Offers adult education and workforce training, child care, WIC/SNAP assistance, housing assistance, energy assistance, and financial counseling and education
Other Resources (Otros Recursos)		
*Booklet on Healthy Eating and Physical Activity Across Your Lifespan	Website: https://www.niddk.nih.gov/health-information/weight-management/helping-your-child-tips-for-parents#lifespan <i>Booklet comes from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)</i> En Español: https://www.niddk.nih.gov/health-information/informacion-de-la-salud/control-de-peso/ayudar-su-hijo	Information to help parents guide their children in making healthy diet & nutrition choices and being physically active.

Appendix J. Action Plan

The following is a list of questions that make up the Action Plan for the familial weight talk group. It is completed by the participant parent during the first intervention session. The goal of the Action Plan is to help the participant increase their self-efficacy for specific behaviors by creating goals for healthy eating, exercise, and familial weight talk, identify individuals who can help them achieve those goals, identify barriers, and practice through role-playing.

Eating And Exercise Habits and Weight

1. How do you think you can improve your child's eating and/or exercise habits?
2. Make a plan. Include the steps you will take and the day and time you will start your plan.
3. The most important reasons I want to improve my child's eating and exercise habits are:
4. Things I can do to help me improve my child's eating and exercise habits are:
5. How do you think you can improve the way you talk about weight (weight talk) in your household?
6. Make a plan. Include the steps you will take and the day and time you will start your plan.
7. The most important reasons I want to improve the way I talk about weight (weight talk) in my household are:

8. The ways people can help me improve my child's eating and exercise habits and improve the way I talk about weight (weight talk):

Person	Possible Ways to Help

9. What are some things that might make it hard for you to improve your child's eating and exercise habits and the ways you talk about weight your household?

Challenges/Obstacles	Possible Solutions

10. Role play a scenario with the interventionist. Make any notes to help you remember what you've learned/practiced.

11. I am confident I can make these changes because:

Appendix K. Adherence Questionnaire

Instructions: The questions below are about the “*Healthy Eating and Physical Activity Across Your Lifespan: Helping Your Child*” handbook. For each of the questions listed below, circle the best answer for each item. Only circle one answer for each question. Squares shaded in grey will be completed by the interventionist.

Did you read the handbook about physical activity and nutrition called “*Healthy Eating and Physical Activity Across Your Lifespan: Helping Your Child*”?

- a. Yes, read completely
- b. Yes, read some but not all
- c. No, did not read it at all
- d. Did not receive handbook

Did you read the insert about weight talk called *Talking about Weight: What parents need to know*?

- a. Yes, read completely
- b. Yes, read some but not all
- c. No, did not read it at all
- d. Did not receive insert

1. Children should get at least how many minutes of moderate physical activity each day? a. 15 minutes b. 30 minutes c. 60 minutes d. 90 minutes		6. How should you “re-shape your plate”? a. Make half the plate whole grains b. Make half the plate fruits and vegetables c. Make half the plate lean meats/protein d. Make half the plate dairy	
2. Because parents are a powerful example for their child, they should take part in physical activity and healthy eating to help their child develop these habits too. a. True b. False		7. Playing outside, in the sunlight, with your child can help them get vitamin D naturally. a. True b. False	
3. What are some ways to increase physical activity in your child? a. Be a role model for your child and be physically active b. Limit screen time c. Encourage your child to play a sport d. Be physically active as a family and play fun, active games together e. All of the above f. None of the above		8. If you think your child is above average weight, you should: a. Put your child on a diet b. Put specific limits for your child on what they can and cannot eat c. Give your child specific rules for how much exercise they should do d. Involve the whole family in physical activity and healthy eating habits e. All of the above f. None of the above	

4. Which is the best way to help your child to eat healthy: a. Prohibit your child from ever eating any foods that are unhealthy b. Never allow unhealthy foods in your house c. Practice healthy eating as a family d. Only eat fruits and vegetables		9. What should you do if your child does not want to try a new food the first time you offer it to them? a. Never offer it again to avoid a bad relationship with food b. Offer it again at a later time because it takes time for a child to try a new food c. Force your child to try it because they won't know if they like it until they do d. Swap the new food for something you know they like	
5. Which of the following is the <u>most important</u> influence on your child's eating behaviors and physical activity: a. Peers b. Other caregivers c. Media (TV commercials, advertisements, etc.) d. Parents e. Teachers		10. Eating healthy and being physically active will help your child: a. Build strong bones b. Stay focused in school c. Maintain a healthy weight d. Feel good about themselves e. All of the above f. None of the above	

Answer Key* C, A, E, C, D, B, A, D, B, E

***Not included in participant version.**

Appendix L. Interventionist Checklist

Instructions: Refer to the checklist during and after the session to ensure all steps are completed. Make notes if a task was not completed or was not completed fully. Can include other notes for reference, if needed. Use as reference when completing Fidelity Survey.

Session 1

Participant Name:	Date:	Time:	Location:

Session 1	Done?	Notes
Greeting	☐	
Ask permission, then start audio recording	☐	
Review expectations – yours and parent's	☐	
Ask about parent values	☐	
Parent completes Adherence Questionnaire	☐	
Highlight key points from the Handbook: • Make dietary/exercise changes as a family • Encourage a balanced diet and regular exercise habits • Focus on non-weight related outcomes • Minimize weight talk in the household	☐	
Complete Action Plan with parent	☐	
Practice/role play scenarios with parent	☐	
Remind parent of Referral Packet	☐	
Ask if any additional questions	☐	
Take photo of Action Plan	☐	
Set time and date for Session 2	☐	

Session 1 – Post Session Tasks	Done?	Notes
Upload Action Plan to Box Folder	☐	
Score Adherence Questionnaire		
Upload Adherence Questionnaire to Box	☐	
Upload audio recording of session to Box Folder	☐	
Complete Fidelity Survey on REDCap	☐	
Update Interventionist Tracker	☐	
Notify PM and/or Interventionist Supervisor of any issues encountered during the session	☐	

Appendix M. Interventionists Notes Worksheet

Participant Name: _____ **Interventionist Initials:** _____

****Remember to share with them their ID to complete the survey**

Session 1

Values

Take notes on the values discussed during sessions. Reference these values throughout Session 1 and 2.

Action Plan Goals

Write goals and plans to complete goals. Upload completed Action Plan to Box.

Nutrition Goals:

Exercise Goals:

Weight Talk Goals:

Scheduled Session 2

Date: ____/____/20____

Time: _____

Session 2**Action Plan Goals**

Write progress on goals and any new goals set. Refer to Action Plan on Box if needed.

Nutrition Goals:

Exercise Goals:

Weight Talk Goals:

Other Notes:

Appendix N. Interventionists Values Assessment Worksheet**Things that are important to me**

Instructions: Think about what is most important to you in your life. Mark the values below that are important to you. You can mark as many as you like. You do not need to mark a value for each section.

Good relationships

- ☐ Friends – to have close and supportive friends.
- ☐ Family – to maintain close relationships with my family.
- ☐ Tolerance – to accept and respect those different from me.
- ☐ Faithfulness – to be loyal and reliable in relationships.

Culture

- ☐ Ethnic/Racial identity.
- ☐ Traditions and rituals – celebrating holidays and events, family recipes.
- ☐ Activities – dancing, cooking foods, and listening to music that characterize my cultural background.
- ☐ Being a member of my community – participating/advocating for issues that affect my community.
- ☐ Other _____

Positive Attitude

- ☐ Self-esteem – to like myself just as I am.
- ☐ Hope – to maintain a positive and optimistic outlook.
- ☐ Setting and achieving goals – to know what I want to do and find ways to do it.
- ☐ Other _____

Spirituality

- ☐ Inner peace – to experience personal peace.
- ☐ Self-knowledge – to have a deep, honest understanding of myself.
- ☐ Religion – to know and understand God'.
- ☐ Other _____

General Lifestyle

- ☐ Adventure – to have new and exciting experiences.
- ☐ Industry – to work hard and well at my life tasks.
- ☐ Simplicity – to live simply with minimal needs.
- ☐ Health – to be proactive about leading a healthy lifestyle.

Creativity Knowledge

- ☐ Creativity – to have new and original ideas.
- ☐ Knowledge – to learn and possess valuable knowledge.
- ☐ Other _____

Appendix O. Interventionists Training PowerPoint (Part 1. Structure)

HEALTHY EATING, PHYSICAL ACTIVITY, & WEIGHT STIGMA

Interventionist Training for the SUPPER Project

Katherine M. Rancano, MS
Comparison Condition

TRAINING OUTLINE

1. Welcome and Introductions
2. Overview of the Study
3. Interventionist Roles & Responsibilities
4. Structure of the sessions
5. Questions?



1. WELCOME & INTROS

Name

Where are you from?

What has been the best part of your week so far?

2. Study overview

2. STUDY OVERVIEW

1. The SUPPER Project
2. Introduction to negative familial weight talk

2. Study overview

1. The SUPPER Project



- Delivers a family-based, brief, and universal preventative intervention to parents of 5th, 6th, and 7th graders.
- Two groups:



Substance Use



Negative Familial Weight Talk

Your role: Deliver the ~~in-person~~ ^{virtual} and phone sessions as part of the intervention for the **negative familial weight talk** group.

2. Study overview

2. NEGATIVE FAMILIAL WEIGHT TALK

Undermines adolescent well-being

Associated with **poor mental health** and **unhealthy weight control behaviors** and **disordered eating** (1)



Adverse outcomes track into adulthood (1, 2)



Early adolescents are vulnerable to **weight stigma**. (3)



1. Gillson et al. (2016) Preventive Medicine
2. Puhl et al. (2017) Preventive Medicine
3. Smeltzer (2006) Annual Review of Psychology

3. SESSION STRUCTURE

1. Rapport
2. Action Plan
3. Key points
4. Closing the session

1. BUILD RAPPORT

Rapport is the creation of "a positive, trusting relationship."⁽¹⁾

1. Talk about the values that are important to the participant.
2. Active listening
3. Tune in with the participant's communication style
4. Flex your competence

“Tell me a little bit about what is important to you and your family...”

PURPOSE:

- Builds common ground right at the beginning.
- Facilitates setting goals that align with what is important to them.
- Reinforces feelings of respect.

¹. Smalley (2010) "Basic and Advanced Counseling Skills: Skilled Counselor Training Model"

1. BUILD RAPPORT

1. Talk about the values that are important to the participant
2. **Active listening**
3. Tune in with the participant's communication style
4. Flex your competence

PURPOSE:

- Facilitates empathetic understanding.
- Participant feels heard
- Increases likelihood of honest conversation.

1. BUILD RAPPORT

1. Talk about the values that are important to the participant
2. **Active listening**
3. Tune in with the participant's communication style
4. Flex your competence

1. Simple reflections

“

PARENT: "Every afternoon I remind my kids that it is their "free play time." They get an hour every day where they can do whatever they want as long as they are active and not in front of a screen."

YOU: "It sounds like you already create regular opportunities for exercise for your kids. Is that right?"

”

1. BUILD RAPPORT

1. Talk about the values that are important to the participant
2. **Active listening**
3. Match the participant's communication style
4. Flex your competence

1. **Simple reflections**

2. **Affirmations**



1. BUILD RAPPORT

1. Talk about the values that are important to the participant
2. **Active listening**
3. Match the participant's communication style
4. Flex your competence

BEST PRACTICES:

- Put your phone on "do not disturb."
- Find a quiet place for the session.
- Give yourself time between sessions so you don't have calendar reminders going off and you don't feel rushed.
- Arrive early to allow for pre-session prep.
- **Give them your full attention!**

1. **Simple reflections**

2. **Affirmations**

3. **Be completely free of distractions**



3. Session Structure

1. BUILD RAPPORT

1. Talk about the values that are important to the participant
2. **Active listening**
3. Match the participant's communication style
4. Flex your competence

BEST PRACTICES:

- Lean slightly in (if in-person)
- Angle body toward participant
- Keep eye contact**
- Nodding your head

**Make note of where your camera is for virtual sessions to ensure you're "making eye contact"

1. **Simple reflections**
2. **Affirmations**
3. **Be completely free of distractions**
4. **Body language to show you are engaged**



3. Session Structure

1. BUILD RAPPORT

1. Talk about the values that are important to the participant
2. **Active listening**
3. Match the participant's communication style
4. Flex your competence

CLOSE-ENDED QUESTIONS begin with:

- Is / are
- Do / did
- Would / will
- Could / can
- Was / were
- Have / has
- Which
- Who
- When
- Where

OPEN-ENDED QUESTIONS begin with:

- What
- How
- Why (sometimes)

1. **Simple reflections**
2. **Affirmations**
3. **Be completely free of distractions**
4. **Body language to show you are engaged**
5. **Open-ended questions & words of encouragement**

- “
- "Mhmm."
 - "Go on..."
 - "Uh-huh."
 - "Tell me more about that..."
- ”

3. Session Structure

1. BUILD RAPPORT

1. Talk about the values that are important to the participant
2. **Active listening**
3. Match the participant's communication style
4. Flex your competence

1. *Simple reflections*
2. *Affirmations*
3. *Be completely free of distractions*
4. *Body language to show you are engaged*
5. *Open-ended questions & words of encouragement*

PRACTICE:

Convert these questions as they are **open-ended**.

1. Can you think of a time when someone in has said something critical or hurtful about someone's weight at home?
2. Are there eating habits you would like to see change?
3. Does she play any sports?
4. Is his weight something your are concerned about?



REMEMBER:
what, how, and
sometimes ... why

3. Session Structure

1. BUILD RAPPORT

1. Talk about the values that are important to the participant
2. Active listening
3. **Match the participant's communication style**
4. Flex your competence



1. BUILD RAPPORT

1. Talk about the values that are important to the participant
2. Active listening
3. Tune in with the participant's communication style
4. **Flex your competence**

BEST PRACTICES:

- Practice before your first session.
- Review materials before the session so the information is fresh.
- Refer to the resources provided in training.
- Do not make something up if you're not sure.
- Correct misinformation at a later date.
- Communicate honestly with your supervisor about your readiness, ask questions, and express concerns. **You are part of team and we're here to help!**



1. BUILD RAPPORT

1. Talk about the values that are important to the participant
2. Active listening
3. Tune in with the participant's communication style
4. **Flex your competence**

BEST PRACTICES:

- Nudge the participant to brainstorm goals and strategies.
- Always ask permission before providing a suggestion.

NOTE OF CAUTION:

- Your expertise is limited to the **content of the session**.
- Participants are the experts of their own lives. You rely on them to share with you what might work for them and their family.



2. COMPLETE ACTION PLAN

1. **Create a goal for healthy eating OR regular exercise.**
2. Create a goal to minimize negative familial weight talk OR continue best practices.
3. Discuss *why* each goal is personally important.
4. Identify and discuss barriers to implementing goals.
5. Role play with the participant
6. Ask the participant to self-assess their confidence level for completing goals.

BEST PRACTICES:

- Should be feasible within two weeks.
- Limit to **one goal for healthy eating** and **one goal for exercise**.
- Encourage parent to continue to adhere to recommendations if healthy eating or exercise is not a problem.
- Try to get at least one goal written for either healthy eating or exercise.

2. COMPLETE ACTION PLAN

The SUPER Project: Control Action Plan
Version 2.0, 10 Apr 2019



Eating and Exercise Habits and Weight

1. How do you think you can improve your child's eating and/or exercise habits?
2. Make a plan. Include the steps you will take and the day and time you will start your plan.

SCENARIO:

"My child **refuses to eat any vegetables**. I don't know how to help.... I have tried absolutely everything. He also spends all day just **snacking on sweets** and I am not sure how to get him to stop. It is really impossible to get him to **eat breakfast**. Maybe I can start by **adding fruit** to his smoothies in the morning..."

SCENARIO!

2. COMPLETE ACTION PLAN

1. Create a goal for healthy eating OR regular exercise.
2. **Create a goal to minimize negative familial weight talk OR continue best practices.**
3. Discuss *why* each goal is personally important.
4. Identify and discuss barriers to implementing goals.
5. Role play with the participant
6. Ask the participant to self-assess their confidence level for completing goals.

2. COMPLETE ACTION PLAN

5. How do you think you can improve the way you talk about weight (weight talk) in your household?

6. Make a plan. Include the steps you will take and the day and time you will start your plan.

SCENARIO:

"This isn't a problem for us. We don't tease or talk about weight in our house. None of us have a problem with our weight. My partner and I work hard to make sure Lily is active and eats well. I tell her it is important so that weight does not become an issue for her."

SCENARIO!

2. COMPLETE ACTION PLAN

5. How do you think you can improve the way you talk about weight (weight talk) in your household?

6. Make a plan. Include the steps you will take and the day and time you will start your plan.

SCENARIO :
"I would never tease my child about his weight. We do not do that. Ever."



2. COMPLETE ACTION PLAN

1. Create a goal for healthy eating OR regular exercise.
2. Create a goal to minimize negative familial weight talk OR continue best practices.
3. **Discuss why each goal is personally important.**
4. Identify and discuss barriers to implementing goals.
5. Role play with the participant
6. Ask the participant to self-assess their confidence level for completing goals.

2. COMPLETE ACTION PLAN

3. The most important reasons I want to improve my child's eating and exercise habits are:

7. The most important reasons I want to improve the way I talk about weight (weight talk) in my household are:

CIRCLE BACK TO VALUES:

- Weave in the values you discussed at the beginning of the session.
- Take note of values that were not previously mentioned.
- Reinforces that the goal is important to them and aligns with their value system.



2. COMPLETE ACTION PLAN

1. Create a goal for healthy eating OR regular exercise.
2. Create a goal to minimize negative familial weight talk OR continue best practices.
3. Discuss *why* each goal is personally important.
- 4. Identify and discuss barriers to implementing goals.**
5. Role play with the participant
6. Ask the participant to self-assess their confidence level for completing goals.

2. COMPLETE ACTION PLAN

The ways people can help me improve my child's eating and exercise habits and improve the way I talk about weight (weight talk):

Person	Possible Ways to Help

SCENARIO 1: The participants creates a goal to begin weekend hikes as a family. You ask him/her who might be able to help to plan the hikes and he/she tells you: **"well I guess my partner... but he/she won't help me with this."**

SCENARIO!

2. COMPLETE ACTION PLAN

SCENARIO!

SCENARIO 2: The participant wants to add fresh fruit to her child's breakfast every morning. You ask him/her what might get in the way of adding fruit to her child's breakfast and he/she tells you: **"Oh, I won't have any trouble with this. I make his breakfast every morning and he eats what I give him."**

8. What are some things that might make it hard for you to improve your child's eating and exercise habits and the ways you talk about weight your household?

Challenges/Obstacles	Possible Solutions

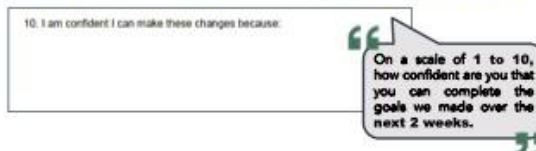
2. COMPLETE ACTION PLAN

1. Create a goal for healthy eating OR regular exercise.
2. Create a goal to minimize negative familial weight talk OR continue best practices.
3. Discuss why each goal is personally important.
4. Identify and discuss barriers to implementing goals.
5. **Role play with the participant**
6. Ask the participant to self-assess their confidence level for completing goals.



2. COMPLETE ACTION PLAN

1. Create a goal for healthy eating OR regular exercise.
2. Create a goal to minimize negative familial weight talk OR continue best practices.
3. Discuss why each goal is personally important.
4. Identify and discuss barriers to implementing goals.
5. Role play with the participant
6. **Ask the participant to self-assess their confidence level for completing goals.**



3.KEY POINTS

1. Discuss key points throughout the session, tailored to the participant
2. Bring up each key point naturally, so it flows with the session and completion of the action plan



Parents are
role models



Make changes
as a family



Eat a **balanced**
diet



Get **60 minutes**
of exercise



Eliminate
weight stigma

3.KEY POINTS

1. Discuss key points throughout the session, tailored to the participant
2. Bring up each key point naturally, so it flows with the session and completion of the action plan

3.KEY POINTS



3. Session Structure

The ISMPPM Project Control Action Plan
Version 2.0, 10 Apr 2019

Eating and Exercise Habits and Weight

1. How do you think you can improve your child's eating and/or exercise habits?

2. Make a plan. Include the steps you will take and the day and time you will start your plan.

5. How do you think you can improve the way you talk about weight (weight talk) in your household?

6. Make a plan. Include the steps you will take and the day and time you will start your plan.

4.CLOSING THE SESSION

3. Session Structure

1. Review all the goals set to ensure you are on the same page.
2. Revise the key points.
3. Emphasize the purpose: To eliminate weight teasing and critical comments about weight at home.
4. Ask if they have any other questions.

4.CLOSING THE SESSION

1. Review all the goals set to ensure you are on the same page.
2. **Revise the key points.**
3. Emphasize the purpose: To eliminate weight teasing and critical comments about weight at home.
4. Ask if they have any other questions.

4.CLOSING THE SESSION

1. Review all the goals set to ensure you are on the same page.
2. Revise the key points.
3. **Emphasize the purpose: To eliminate weight teasing and critical comments about weight at home.**
4. Ask if they have any other questions.

4. CLOSING THE SESSION

1. Review all the goals set to ensure you are on the same page.
2. Revise the key points.
3. Emphasize the purpose: To eliminate weight teasing and critical comments about weight at home.
4. **Ask if they have any other questions.**

5. INTERVENTION FIDELITY

1. **What is intervention fidelity?**
2. How do we measure it?
3. What is cross contamination?
4. How do we measure it?

DEFINITION:

- Fidelity is the extent to which an intervention is delivered to participants as it was designed.

PURPOSE:

- Identifies when refresher trainings are needed.
- Helps interventionists ensure they are delivering high-quality sessions.
- Allows researchers to examine the quality of the study.
- Can help researchers replicate the study.

5. INTERVENTION FIDELITY

1. What is intervention fidelity?
2. **How do we measure it?**
3. What is cross contamination?
4. How do we measure it?

BEST PRACTICES:

- Complete the survey immediately after you complete Session 1 and Session 2.
- Be honest; there is no penalty for making errors.

Self-Administered Survey

Please complete the survey below.

Thank you!

Choose your Session Paper:
☐ Substance Use
☒ Nutrition, Physical Activity, Weight Talk

Participant Supply ID (ID#):

Please select your paper:

Choose a feedback:
☒ Session 1 (pre-intervention)
☐ Session 2 (follow-up)

REDCap Link:
<https://onlinestate.tulane.org/redcap/survey/index.php?r=AYN8HXN94T>

5. INTERVENTION FIDELITY

1. What is intervention fidelity?
2. How do we measure it?
3. **What is cross contamination?**
4. How do we measure it?

DEFINITION:

- Cross contamination occurs when content from the comparison group crosses over into the experimental group.

WHY IS IT IMPORTANT?:

- When cross contamination occurs the "true" effect of the intervention appears weaker.



5. INTERVENTION FIDELITY

1. What is intervention fidelity? 2. How do we measure it? 3. What is cross contamination? 4. How do we measure it?	Did you talk about any of the following during the session? Mark all that apply. * must provide value ☐ Did not discuss any ☐ Parental SU Messaging ☒ Parent expectations about child SU ☐ Parent strategies to improve parent/child communication about SU (not necessarily about SU) ☐ Talking regularly with your child ☐ Strategies for their child to say "no" ☐ Eating high-quality meals frequently

1. Guidance on high-quality messages about substances use.

5. INTERVENTION FIDELITY

1. What is intervention fidelity? 2. How do we measure it? 3. What is cross contamination? 4. How do we measure it?	Did you talk about any of the following during the session? Mark all that apply. * must provide value ☐ Did not discuss any ☐ Parental SU Messaging ☒ Parent expectations about child SU ☐ Parent strategies to improve parent/child communication about SU (not necessarily about SU) ☐ Talking regularly with your child ☐ Strategies for their child to say "no" ☐ Eating high-quality meals frequently

1. Guidance on high-quality messages about substances use.

2. Guidance on how to provide clear expectations about their child using substances.

5. INTERVENTION FIDELITY

1. What is intervention fidelity?
2. How do we measure it?
3. What is cross contamination?
4. **How do we measure it?**

Did you talk about any of the following during the session? Mark all that apply.
* Must provide value

- ☐ Did not discuss any
- ☐ Parental SU Messaging
- ☐ Parent expectations about child SU
- ☐ Parent strategies to improve parent/child communication about SU (not necessarily about SU)
- ☐ Talking regularly with your child
- ☐ Strategies for their child to say "no"
- ☒ Eating high-quality meals frequently

1. **Guidance on high-quality messages about substances use.**
2. **Guidance on how to provide clear expectations about their child using substances.**
3. **Provide strategies on how to improve communication quality with their child.**
4. **Encourage the parent to talk regularly with their child, not just about substances.**
5. **Share strategies for how their child can say "no" to substances.**

5. INTERVENTION FIDELITY

1. What is intervention fidelity?
2. How do we measure it?
3. What is cross contamination?
4. **How do we measure it?**

Did you talk about any of the following during the session? Mark all that apply.
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- ☐ Did not discuss any
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2. **Guidance on how to provide clear expectations about their child using substances.**
3. **Provide strategies on how to improve communication quality with their child.**
4. **Encourage the parent to talk regularly with their child, not just about substances.**
5. **Share strategies for how their child can say "no" to substances.**
6. **Encourage the parent to eat high-quality family meals frequently.**

Quality does *not* refer to what is eaten or served at the meal. Quality refers to the quality of the atmosphere and interactions between family members during family meals.

3. Session Structure

5. INTERVENTION FIDELITY

1. What is intervention fidelity?
2. How do we measure it?
3. What is cross contamination?
4. **How do we measure it?**

Did you talk about any of the following during the session? Mark all that apply.
* must provide value

- ☐ Did not discuss any
- ☐ Parental SU Messaging
- ☐ Parent expectations about child SU
- ☒ Parent strategies to improve parent/child communication about SU (not necessarily about SU)
- ☐ Talking regularly with your child
- ☐ Strategies for their child to say "no"
- ☐ Eating high quality meals frequently

1. **Guidance on high-quality messages about substances use.**
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3. **Provide strategies on how to improve communication quality with their child.**

3. Session Structure

5. INTERVENTION FIDELITY

1. What is intervention fidelity?
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Did you talk about any of the following during the session? Mark all that apply.
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- ☐ Eating high quality meals frequently

1. **Guidance on high-quality messages about substances use.**
2. **Guidance on how to provide clear expectations about their child using substances.**
3. **Provide strategies on how to improve communication quality with their child.**
4. **Encourage the parent to talk regularly with their child, not just about substances.**

2. Study overview**TASKS:**

1. Read the NIDDK **handbook**.
2. Read the **handout**, "Talking about weight: What parents need to know".
3. Review **assigned readings** on weight stigma and bias internalization and come with questions.

NEXT TIME...

1. Review the content of the session (key points)
2. Structure of Session 2

Appendix P. Interventionists Training PowerPoint (Part 2. Content)

HEALTHY EATING, PHYSICAL ACTIVITY, & WEIGHT STIGMA

Interventionist Training for the SUPPER Project

Katherine M. Rancario, MS
Comparison Condition

TRAINING OUTLINE

1. Session 2 Structure
2. Nutrition & Exercise Key Points
3. Negative Familial Weight Talk Key Points
4. General Key Points

1. SESSION 2 STURCTURE

SESSION 2 COMPONENTS

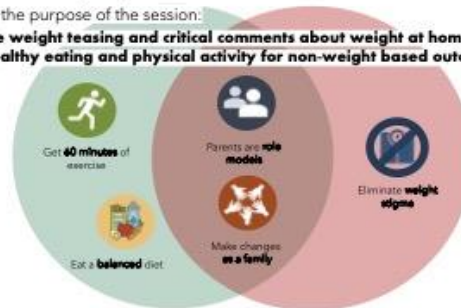
1. Review goals set during session
 1. **If goal is met**
 1. Praise parent for their effort (affirmations).
 2. Ask them how it went.
 3. Who helped them achieve the goal?
 4. How do they feel about continuing to work on the goal?
 2. **If goal is not met,**
 1. Discuss barriers and obstacles
 2. Talk through a new or modified plan
2. Briefly review key points throughout the discussion - remember you only have 30 minutes.
3. Close the session
 1. Last time you are meeting.
 2. All future questions should be directed to the SUPPER Project team via email.

BEFORE WE GET TO KEY POINTS. . .

REMEMBER FROM PART 1 OF OUR TRAINING:

1. Weave in them in throughout your conversation.
2. Clearly state the purpose of the session:

**To eliminate weight teasing and critical comments about weight at home
Promote healthy eating and physical activity for non-weight based outcomes.**



2. Nutrition & Exercise Key Points

2. NUTRITION & EXERCISE KEY PTS

1. Eat a balanced diet
2. Get 60 minutes of physical activity each day

2. Nutrition & Exercise Key Points

Healthy Eating and Physical Activity Across Your Lifespan: *Tips for Parents*

National Institute on Diabetes and Digestive and Kidney Disease
(NIDDK)



2. Nutrition & Exercise Key Points

EAT A **BALANCED** DIET



1. We define a balanced diet as **eating foods from each food group**.
 - Kids tend to eat less from the fruits, vegetables group.
 - Focus on increasing whole grains.
 - Use MyPlate as an illustrative example.
2. Other relevant points you can make:
 - Repeated exposure to new foods.
 - Giving kids a choice and exercising autonomy makes it more likely they will try a new food.
 - Involving kids in cooking increases the likelihood that they will eat it.
 - Focus on what kids should eat more of and note a limit on salt, fat, and sugar

NOTE OF CAUTION:

- Do not mention **family meals** as a strategy for improving child dietary behaviors.
- The "other relevant points" depend on what the parent says during the session.



60 MINUTES OF EXERCISE

2. Nutrition & Exercise Key Points



1. Important for kids to get **an hour of moderate-vigorous physical activity every day.**
2. Other relevant points you can make:
 1. Monitor and limit screen time for kids.



3. Weight Talk Key Points

3. NEGATIVE FAMILIAL WEIGHT TALK KEY PTS

1. Eliminate negative weight talk from family members
2. Focus on non-weight related outcomes

3. Weight Talk Key Points

REMEMBER:

1. Negative familial weight talk undermines adolescent well-being: mental health, physical health, and behaviors.
2. About **one-third** of parents, fathers and mothers separately, have engaged in negative familial weight talk directed to their child

Associated with **poor mental health** and **unhealthy weight control behaviors** and **disordered eating** (1)



Adverse outcomes track into adulthood (1, 2)



Early adolescents are vulnerable to **weight stigma**. (3)



1. Gilsson et al. (2016) *Preventive Medicine*, 2. Fuhl et al. (2017) *Preventive Medicine*, 3. Smeitana (2006) *Annual Review of Psychology*

3. Weight Talk Key Points

Talking About What: What parents need to know

The SUPPER Project Team

**CIRCLE BACK TO VALUES:**

- Weave in the values you discussed at the beginning of the session.
- Take note of values that were not previously mentioned.
- Reinforces that the goal is important to them and aligns with their value system.



Talking About Weight: What parents need to know

Children and adolescents are placed at greater risk when their bodies are stigmatized, and when weight stigma, along with dieting, is the only response to overweight or obese youth. This is especially true when weight stigma is combined with other risk factors for poor health outcomes, such as low socioeconomic status, racial/ethnic minority status, and limited access to healthcare.

It is important to avoid making comments about your child's weight or body size. These comments can contribute to weight stigma, which is associated with poor health outcomes. Instead, focus on promoting healthy behaviors and positive body image.

Weight stigma is a form of discrimination that can lead to poor health outcomes. It is important to avoid making comments about your child's weight or body size. Instead, focus on promoting healthy behaviors and positive body image.

3. Weight Talk Key Points

ELIMINATE NEGATIVE WEIGHT TALK FROM FAMILY



1. Forms of negative weight talk include weight-based **teasing**, **critical comments** about weight or health behaviors (e.g., eating and exercise habits), and sometimes **"should" statements**.
2. **Intervene** if negative familial weight talk occurs.
3. Parents should **self-monitor** their own engagement in negative weight talk directed at themselves, their child, and others.

3. Weight Talk Key Points

FOCUS ON NON WEIGHT-RELATED OUTCOMES



- Weight is not the best indicator of health.
- Focus on **outcomes unrelated to weight**.
- Encourage boosting self-esteem through affirmations and recognizing progress and effort.
- Remind kids to think of how they feel when they eat healthy and exercise (e.g., energy levels, focus, strength).

CIRCLE BACK TO VALUES:

- Focus on outcomes or benefits that are important to the child, parent, or whole family unit. (e.g. family time together.)



HOW START TALKING ABOUT NEGATIVE WEIGHT TALK **WITHOUT** **SHAMING THE PARENT.**

3. Weight Talk Key Points



1. Note that it's pretty common
 - "30% of mothers and fathers, separately engage in some form of negative weight talk."
2. Make it clear you know parents or family members do not intend to cause harm.
3. Provide real-life examples, but keep the conversation focused on them.
 - "I have done a lot of these sessions and many parents like you struggle with the same thing...."
4. Weight talk can take many forms
 - Weight teasing.
 - Critical comments about body shape (e.g., lanky arms)
 - Less obvious comments about food or exercise that imply weight control (e.g., should you really be eating so much ice cream?).
 - Comments about themselves ***
5. Do not criticize the parent if they do engage in weight talk.
 - Pivot and discuss the reasons for why it is important to not do it.
 - Turn it into a goal and discuss strategies to eliminate it.

5. General Key Points

4. GENERAL KEY PTS

1. Parents are role models
2. Make changes as a family

5. General Key Points

PARENTS ARE **ROLE MODELS**

1. Parents shape their child's eating habits and exercise habits
2. Parents mold their child's attitudes and beliefs about weight and body shape.
3. During early adolescents, parents are still critical role models.



5. General Key Points

CHANGES **AS A FAMILY**

1. Creates a supportive environment.
2. Reinforces role modeling from parents and other family members.
3. Everyone benefits from eating health, exercising, and reducing their exposure to weight stigma.



SOME **OBSTACLES** YOU MIGHT EXPERIENCE

- Negative familial weight talk applies to all families, even if they do not view weight as a “problem” in their household.
- Parent says something critical about weight while creating the healthy eating/exercise goals.
 - Take note and address during the negative weight talk section.
- Parent contradicts themselves...
 - “We never say mean things or critical things about weight. No one is fat in our house. We eat well and exercise all the time.”
- Any others?

PARENT SAYS **THEIR CHILD WANTS TO TALK ABOUT WEIGHT**

- Remind them that it is OKAY to discuss weight. Talking about weight should not be avoided. *It is the way we discuss it that matters.*
- Be sensitive.
- Practice what the parent can say with the **Action Plan - Role-playing**

Topics that Might Come Up	Possible Responses
Pressure to conform to societal norms	Be yourself Encourage self esteem independent on weight/body Discuss deceptive ideal body norms (e.g., photoshop) Discuss differences in body types.
New awareness of body changes	Puberty, growth spurt.
Comments that reinforce weight bias	Explain why they are hurtful and false.
It is just a joke, no one takes it seriously	Reflect on past experiences and impact on self-esteem. Evidence to the contrary
Others?	How might you respond?

Appendix Q. Child Demographic Survey

PID: _ _ _ _ _	Date:	School Code:	Initials of Data Collector:

Ref #	Question	Response Options	Response
D01	Do you prefer to communicate in Spanish or English?	1. English 2. Spanish	
D02	What is your birthdate?	DD/MMM/YYYY	
D15	What is your grade? <i>(If it is summer vacation, please indicate the grade you will be entering in the fall)</i>	1. 5 th grade 2. 6 th grade 3. 7 th grade	
D16	What is your gender?	1. Boy 2. Girl 3. Other	
D17	Specify <i>(if you chose other)</i> :		
D03	Do you consider yourself Hispanic or Latino/a?	0. No 1. Yes	
D04	Which of the following best describes you? <i>Check <u>all</u> that apply.</i>	1. Mexican/Mexican American 2. Puerto Rican 3. Cuban/Cuban American 4. Dominican 5. Central/South American 6. Other Hispanic or	
D05	Please specify <i>(if you chose Other Hispanic or Latino/a)</i> :		
D06	Which of the following best describes you? <i>Check <u>all</u> that apply.</i>	1. Black or African American 2. White 3. American Indian or Alaskan Native 4. Asian 5. Native Hawaiian or Other Pacific Islander 6. Other	

D07	Please specify (if you chose <i>Other</i>).		
D08	Were you born in the United States?	0. No 1. Yes	
D09	What country were you born in?	_____	
D10	Do you speak another language in addition to English at your home?	0. No, English only 1. Yes, Spanish (Español) 2. Yes, other	
D11	Yes, other, specify language:		
D12	Do you speak mostly [<i>other language</i>] or English with <u>YOUR BROTHER/SISTERS</u> or do you use both about the same?	0. Not applicable (do not have brothers or sisters) 1. Mostly [<i>other language</i>] 2. Both about the same 3. Mostly English	
D13	Do you speak mostly [<i>other language</i>] or English with <u>YOUR PARENTS</u> or do you use both about the same?	1. Mostly [<i>other language</i>] 2. Both about the same 3. Mostly English	
D14	How many years have you lived in the United States?	_____ years	

Appendix R. Child SUPPER Survey

*** Only survey items that are related to this dissertation are listed and highlighted in yellow below. ***

For completeness, the section header for unrelated items is listed.

Section 0. PRACTICE PROBLEMS

Section 1: HOUSEHOLD STRUCTURE

Section 2: COMMUNICATION

- 2.1 Parent-Adolescent Communication Scale
- 2.2 Frequency of parent-child communication about substance use
- 2.3 Other Conversations about Drugs/Alcohol
- 2.4 Targeted Parent-Child Communication About Drugs
- 2.5 Comfort level talking about drugs/alcohol
- 2.6 Health/Weight-Related Conversations
- 2.7 Negative weight talk

Section 3: EATING, EXERCISE, & WEIGHT

- 3.1 Dietary Intake
- 3.2 Physical Activity Levels
- 3.3 Child's own weight description
- 3.4 Weight Bias Internalization Scale – Modified
- 3.5 Weight stigma experience by peers
- 3.6 Weight stigma experience by family

Section 4: USING SUBSTANCES

- 4.1 Cigarette Definition
- 4.2 Smoking Expectancies (Positive and Negative Outcome Expectancies of Smoking)
- 4.3 Cigarette Willingness
- 4.4 Cigarette Use
- 4.5 Other tobacco products use
- 4.6 Cigarette Intentions
- 4.7 Affiliation with Cigarette-Smoking Peers
- 4.8 Peer Norms about Cigarettes
- 4.9 E-Cigarette Definition
- 4.10 E-cigarette expectations
- 4.11 E-cigarette willingness
- 4.12 E-cigarette use
- 4.13 E-cigarette intentions
- 4.14 Affiliation with e-cigarette using peers
- 4.15 Peer Norms about E-cigarettes
- 4.16 Alcohol Definition
- 4.17 Alcohol Expectancies (Short Alcohol Expectancy Scale)
- 4.18 Alcohol Willingness

- 4.19 Alcohol Use
- 4.19 Alcohol Use
- 4.20 Alcohol Intentions
- 4.21 Affiliation with Alcohol drinking peers
- 4.22 Peer Norms about Alcohol
- 4.23 Marijuana Definition
- 4.24 Marijuana Expectancies (Marijuana Effect Expectancy Questionnaire – Brief)
- 4.25 Marijuana Willingness
- 4.27 Marijuana Intentions
- 4.28 Affiliation with Marijuana using peers
- 4.29 Peer Norms about Marijuana
- 4.30 Other Drugs Definition
- 4.31 Other Drug expectancies
- 4.32 Other drugs willingness
- 4.33 Other drug use
- 4.34 Other drug intentions
- 4.35 Affiliation with other drug using peers
- 4.36 Peer Norms about other drugs
- 4.37 Parental Attitudes Towards Use

Section 5: HOW YOU FEEL ABOUT YOURSELF

- 5.1 Self Esteem (Rosenburg Self-Esteem Scale)
- 5.2 Mental Health

Section 6: YOUR HOME & NEIGHBORHOOD

- 6.1 Family Meal Descriptive
- 6.2 Family Dinner Index
- 6.3 Perceived Neighborhood Disorder

Section 7: ABOUT YOU

- 7.1 Social Desirability Scale

[START OF CHILD SURVEY]

PID: _ _ _ _ _	Date:	School Code:	Initials of Data Collector:

Var Name	Item
cintro	Thank you for taking the time to complete this survey. Your responses are very important to us. Please read each question carefully before answering. Filling out this survey is your choice. You do not have to answer any questions unless you choose to. All the information you share with us will be kept private. It will not be seen by anyone, besides the people working on the study. The survey is expected to take about 1 hour to complete. Try to complete the entire survey in one sitting. If you need to stop and finish the survey at a later time, you can do so. If you have any questions about the survey, please contact our study team at (617) 636-3587 or e-mail us at thesupperproject@tufts.edu. Throughout the survey, when we say “parent” we mean your parent or guardian that is in the study with you. When taking this survey, you agree to: 1. Complete the survey yourself without assistance from anyone, except a study team member; 2. <u>Not</u> share your responses with your parent; and 3. <u>Not</u> watch or help your parent complete their survey By clicking “continue” you agree to the above statements. Thank you for your help!

Section 0. PRACTICE PROBLEMS

Var Name	Item	Response Options	Response
cpracintro01	We are going to walk you through a few practice questions to make sure you feel comfortable completing the survey in this format. Throughout the survey, if you skip a question you will be asked whether you skipped the question on purpose or if it was a mistake. If it was a mistake, you will be able to answer the question. If you skipped the question because you did not want to answer it, you can leave it blank.		
cprac01	Which is your favorite season?	1. Spring 2. Summer	

	If winter is your favorite season, you can choose the “Other” button and type your answer in the text box.	3. Fall 4. Other	
cprac01_spec	Please specify:		
cprac02	This is an example of a question where you can choose more than one answer. “Check all that apply” will tell you when you can select more than one answer. Which of the following are shapes? (Check all that apply)	1. Triangle 2. Dog 3. Circle 4. Square	
cpracintro03	The next question is a practice grid question. It is important that you make a choice for each row before clicking on the “next” button. How much do you agree with the following statements? (Select <u>one</u> answer for each line)		
cprac03	Winter is cold	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cprac04	Dancing is fun	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cprac05	Pizza is delicious	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cprac06_hours	In the last practice question, you need to type in the amount of time in the format below. About how much time does it take you to get to school? Number of hours to get to school:	<i>Write number of hours.</i>	
cprac06_min	Number of minutes to get to school:	<i>Write number of minutes.</i>	

	The survey will now begin.		

Section 1: HOUSEHOLD STRUCTURE

Var Name	Item	Response Options	Response
chsfintr o	We define household members as people who sleep and eat in the same residence as you most of the time.		
chsf01	How many people currently live in your household (include yourself)?	<i>Number value.</i>	
chsf02	For each person living in the household with you, list their name and the corresponding number of their relationship <u>to you</u>. 1. Biological mother 2. Biological Father 3. Step-mother 4. Step-father 5. Adoptive mother 6. Adoptive father 7. Foster mother 8. Foster father 9. Grandmother 10. Grandfather 11. Biological sister 12. Biological brother 13. Step-sister 14. Step-brother 15. Foster sister 16. Foster brother 17. Adopted sister 18. Adopted brother 19. Other and specify	<i>For example: You live with your mother (Lisa), and little brother (John).</i> <i>HH Member 1 Name: Lisa</i> <i>Relationship: 1</i> <i>HH Member 2 Name: John</i> <i>Relationship of HH Member 2: 12</i> <i>It does not matter the order that you list your household members.</i> <i>If you respond "19. Other", specify the relationship.</i>	

Section 2: COMMUNICATION

2.6 Health/Weight-Related Conversations

Var Name	Item	Response Options	Response
chwrcintro	The following set of questions are about conversations you have had with your parent/guardian in the study with you about eating habits or physical activity. DO NOT include the audio-recorded conversation you had with your parent using the Parent-Child Conversation Prompts for the SUPPER Project.		
chwrc01	How often in the past [time_point] has your parent had a conversation with you about healthy eating habits?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
chwrc02	How often in the past [time_point] has your parent had a conversation with you about being physically active?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
chwrc03	How often in the past [time_point] has your parent had a conversation with you about <u>your</u> weight or size?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
chwrc04	How often in the past [time_point] has your parent mentioned to you that you weigh too much?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
chwrc05	How often in the past [time_point] has your parent mentioned to you that you should eat differently in order to lose weight or keep from gaining weight?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
chwrc06	How often in the past [time_point] has your parent mentioned to you that you should exercise in order to lose weight or to keep from gaining weight?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	

2.7 Negative weight talk

Var Name	Item	Response Options	Response
cnwtintro	How often in the past [time_point] has your parent/guardian in the study with you done or said the following to you:		
cnwt01	Said you were fat?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
cnwt02	Teased or made fun of you about the size and shape of your body?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
cnwt03	Said you should go on a diet?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
cnwt04	Said that you eat food that will make you fat?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
cnwt05	Said that you would look better if you were thinner?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
csnwt01	<u>Said about themselves</u> that they were fat or that they needed to go on a diet to lose weight?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
cnwtintro02	How often in the past [time_point] has <u>your other parent/guardian (the one NOT in the study with you)</u> done or said the following to you:	0. I do not have another parent/guardian besides the one in the study with me 1. I have another parent/guardian besides the one in the study with me	
cnwt06	Said you were fat?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	

cnwt07	Teased or made fun of you about the size and shape of your body?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
cnwt08	Said you should go on a diet?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
cnwt09	Said that you eat food that will make you fat?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
cnwt10	Said that you would look better if you were thinner?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
csnwt02	Said about themselves that they were fat or that they needed to go on a diet to lose weight?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
cnwtintro03	How often in the past [time_point] has/have your sibling/s or other child/ren living in your house done or said the following to you:	0. I do not have another parent/guardian besides the one in the study with me 1. I have another parent/guardian besides the one in the study with me	
cnwt11	Said you were fat?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
cnwt12	Teased or made fun of you about the size and shape of your body?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
cnwt13	Said you should go on a diet?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week	

		4. Almost every day	
cnwt14	Said that you eat food that will make you fat?	0. Never 1. A few times in the past <u>[time point]</u> 2. A few times a month 3. A few times a week 4. Almost every day	
cnwt15	Said that you would look better if you were thinner?	0. Never 1. A few times in the past <u>[time point]</u> 2. A few times a month 3. A few times a week 4. Almost every day	
csnwt03	Said about themselves that they were fat or that they needed to go on a diet to lose weight?	0. Never 1. A few times in the past <u>[time point]</u> 2. A few times a month 3. A few times a week 4. Almost every day	

Section 3: EATING, EXERCISE, & WEIGHT

3.4 Weight Bias Internalization Scale - Modified

Var Name	Item	Response Options	Response
cwbismintro	The following statements are about how you feel about your current weight. Read each statement below and answer with how much you agree or disagree with each statement.		
cwbism01	I am less attractive than most other people because of my weight.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cwbism02	I feel anxious about my weight because of what other people might think of me.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cwbism03	I wish I could drastically change my weight.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cwbism04	Whenever I think a lot about my weight, I feel depressed.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cwbism05	I hate myself for my weight.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cwbism06	My weight is a major way that I judge my value as a person.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree	

		5. Agree 6. Strongly agree	
cwbism07	I don't feel that I deserve to have a really fulfilling social life because of my weight.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cwbism08	I am OK being the weight that I am.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cwbism09	Because of my weight, I don't feel like my true self.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cwbism10	Because of my weight, I don't understand how anyone attractive would want to like me or date me.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	

3.5 Weight stigma experience by peers

Var Name	Item	Response Options	Response
cwsp01	Have you ever been <u>teased or made fun of</u> by <u>other people your age</u> because of your weight?	0. No 1. Yes	
cwsp02	During the past [<u>time point</u>], have you been <u>teased or made fun of</u> by <u>other people your age</u> because of your weight?	0. No 1. Yes	
cwsp03	Have you ever been <u>treated unkindly</u> by <u>other people your age</u> because of your weight?	0. No 1. Yes	
cwsp04	During the past [<u>time point</u>], have you been <u>treated unkindly</u> by <u>other people your age</u> because of your weight?	0. No 1. Yes	

Weight stigma experience by family members

Var Name	Item	Response Options	Response
cwsf01	Have you ever been <u>teased or made fun of</u> by <u>family members</u> because of your weight?	0. No 1. Yes	
cwsf02	During the past [<u>time point</u>], have you been <u>teased or made fun of</u> by <u>family members</u> because of your weight?	0. No 1. Yes	
cwsf03	Have you ever been <u>treated unkindly</u> by <u>family members</u> because of your weight?	0. No 1. Yes	
cwsf04	During the past [<u>time point</u>], have you been <u>treated unkindly</u> by <u>family members</u> because of your weight?	0. No 1. Yes	

Appendix S. Parent Demographic Survey

PID: _____	Date:	School Code:	Initials of Data Collector:

Ref #	Question	Response Options	Skip	Response
D01	We are now going to ask you a few questions about you and your household structure.			
D02	What is <u>your</u> relationship to [name of eligible child]?	1. Biological parent 2. Step-parent 3. Adoptive parent 4. Foster parent 5. Grandparent 6. Legal guardian 7. Other		
D03	Please specify <u>your</u> relationship to the child.		Only appears if D02= 7. Other	
D30	What is your gender?	1. Female 2. Male 3. Non-binary / third gender 4. Prefer to self-describe 5. Prefer not to say		
D31	Please specify:		Only appears if D30=4	
D04	We define household members as people who sleep and eat in the same residence as you most of the time. How many people currently live in your household (include yourself and participant child)?			
D05	<u>EXCLUDING YOURSELF AND THE CHILD IN THE STUDY WITH YOU</u> , please tell me the first name of each of the people living in your household.	<i>List all names.</i>	Will be one variable household member (total is equal to D04 minus 2), excluding parent and child participant.	

D06	What is the relationship of [Name written on line #xxx] to the participant child?	20. Biological mother 21. Biological Father 22. Step-mother 23. Step-father 24. Adoptive mother 25. Adoptive father 26. Foster mother 27. Foster father 28. Grandmother 29. Grandfather 30. Biological sister 31. Biological brother 32. Step-sister 33. Step-brother 34. Foster sister 35. Foster brother 36. Adopted sister 37. Adopted brother 38. Other	Will appear for each person living in the household (D05) except for the parent/guardian and child participant.	
D07	Please specify their relationship to the child.		Only appears if D06 = 19. Other	
D08	What is your current marital status?	1. Single, never married 2. Living with partner, unmarried 3. Married 4. Separated/divorced 5. Widowed		
D09	Do you consider yourself Hispanic or Latino/a?	0. No 1. Yes		
D10	Which of the following best describes you? <i>Check <u>all</u> that apply.</i>	1. Mexican/Mexican American 2. Puerto Rican 3. Cuban/Cuban American 4. Dominican 5. Central/South American 6. Other Hispanic or Latino/a	Only appears if D09 = 1. Yes	
D11	Please specify:		Only appears if D10 = 6. Other	
D12	Which of the following best describes you? <i>Check <u>all</u> that apply.</i>	1. Black or African American 2. White 3. American Indian or Alaskan Native 4. Asian 5. Native Hawaiian or Other Pacific Islander	Only appears if D09 = 0. No	

		6. Other		
D13	Please specify:		Only appears if D12 = 6. Other	
Section Header: As a reminder, study staff will protect your personal information so no one will be able to connect your responses and any other information that identifies you.				
D14	Were you born in the United States?	0. No 1. Yes		
D15	What country were you born in?		Only appears if D14 = 0. No	
D16	Do you speak another language in addition to English at your home?	0. No, English only 1. Yes, Spanish (Español) 2. Yes, other		
D17	Specify other language:		Only appears if D16 = 2. Yes, other	
D18	Do you speak mostly [other language] or English with <u>YOUR WIFE, HUSBAND, OR PERSON THAT YOU LIVE WITH</u> or do you use both about the same?	1. Mostly [other language] 2. Both about the same 3. Mostly English	Only appears if: D08 = 2 or 3 <u>AND</u> D16 = 1 or 2	
D19	Do you speak mostly [other language] or English with <u>YOUR CHILD(REN)</u> or do you use both about the same?	1. Mostly [other language] 2. Both about the same 3. Mostly English	Only appears if: D16 = 1 or 2	
D20	Do you speak mostly [other language] or English with <u>YOUR BROTHER/SISTERS</u> or do you use both about the same?	0. Not applicable (do not have brothers or sisters) 1. Mostly [other language] 2. Both about the same 3. Mostly English	Only appears if: D16 = 1 or 2	
D21	Do you speak mostly [other language] or English with <u>YOUR PARENTS</u> or do you use both about the same?	1. Mostly [other language] 2. Both about the same 3. Mostly English	Only appears if: D16 = 1 or 2	
D22	How many years have you lived in the United States?	_____ years	Only appear of D15 = 0. No	
D23	What is your birthdate?	dd/mm/yy		

D24	What is the highest level of education you have completed? <i>Check <u>one</u> best answer.</i>	1. No high school degree 2. High school degree 3. GED 4. Some college 5. 2 year degree 6. 4 year degree 7. Master's level degree 8. Doctorate level degree		
D25	What is the highest level of education the other adult caretaker in your household has completed? <i>Check <u>one</u> best answer.</i>	0. There is only one adult caretaker in the household 1. No high school degree 2. High school degree 3. GED 4. Some college 5. 2 year degree 6. 4 year degree 7. Master's level degree 8. Doctorate level degree		
D26	Please answer based on a typical work week. I am:	1. Employed full-time (30 or more hours per week) 2. Employed part-time (Less than 30 hours per week) 3. Retired 4. Not employed for pay 5. A student		
D27	Please answer based on a typical work week. I work:	1. Days 2. Nights 3. Both	Only shown if D26 = 1 or 2	
D28	Please answer based on a typical work week. I work:	1. Weekdays 2. Weekends 3. Both	Only shown if D26 = 1 or 2	
D29	How much money does everyone in the household make combined? <i>Check <u>one</u> best answer.</i>	1. Less than \$5,000 2. \$5,000 to \$9,999 3. \$10,000 to \$14,999 4. \$15,000 to \$25,999 5. \$26,000 to \$49,999 6. \$50,000 to \$74,999 7. \$75,000 to \$99,999 8. \$100,000 to \$149,000 9. \$150,000 or more		

Appendix T. Parent SUPPER Survey

*** Only survey items that are related to this dissertation are listed and highlighted in yellow below. ***

For completeness, the section header for unrelated items is listed.

Section 0. PRACTICE PROBLEMS

Section 1: COMMUNICATION

- 1.1 Parent-Adolescent Communication Scale
- 1.2 Frequency of parent-child communication about substance use
- 1.3 Targeted Parent-Child Communication About Drugs
- 1.4 Parental Self-Efficacy for talking with child about substance use
- 1.5 Health/Weight-Related Conversations
- 1.6 Negative weight talk

Section 2: EATING, EXERCISE, & WEIGHT

- 2.1 Dietary Intake
- 2.2 Physical Activity Levels – Adult (IPAQ)
- 2.3 Parent Self-reported Weight and Height
- 2.4 Parent Own Weight Description
- 2.5 Weight Bias Internalization Scale – Modified
- 2.6 Weight stigma experience by peers
- 2.7 Weight stigma experience by family
- 2.8 Parent-reported Child Weight and Height
- 2.8 Parent Perceptions of the Child Experiencing Weight Teasing

Section 3: USING SUBSTANCES

- 3.1 Cigarette Definition
- 3.2 Cigarette Use
- 3.3 Other tobacco products use
- 3.4 E-Cigarette Definition
- 3.5 E-cigarette use
- 3.6 E-cigarette intentions
- 3.7 Alcohol Definition
- 3.8 Alcohol Use
- 3.9 Marijuana Definition
- 3.10 Marijuana Use
- 3.11 Other Drugs Definition
- 3.12 Other drug use
- 3.13 Parental Alcohol Use Disorders Identification Test (AUDIT)
- 3.14 Parental The Drug Abuse Screening Test (DAST)
- 3.15 Parental Problem with Substance Use
- 3.16 Attitude and Perception Survey on Youth Alcohol, Tobacco and Drug Use
- 3.17 Parental Report of (other) Child and Adult Substance Use

- 3.18 Affiliation with other drug using peers
- 3.19 Peer Norms about other drugs
- 3.20 Parental Attitudes Towards Use

Section 4: HOW YOU FEEL ABOUT YOURSELF

- 4.1 Self Esteem (Rosenburg Self-Esteem Scale)
- 4.2 Mental Health

Section 5: YOUR HOME & NEIGHBORHOOD

- 5.1 Household structure (follow up)
- 5.2 Lives with child 50% of the time
- 5.3 School enrollment
- 5.4 Family Meal Descriptive
- 5.5 Family Dinner Index
- 5.6 Parenting Styles and Dimensions Questionnaire (PSDQ)
- 5.7 Child's Adverse Experiences
- 5.8 Parental Report of Child Resiliency

Section 6: ABOUT YOU

- 6.1 Social Desirability Scale

Section 7. Contamination

[START OF PARENT SURVEY]

PID: _ _ _ _ _	Date:	School Code:	Initials of Data Collector:

pintro	Thank you for taking the time to complete this survey. Your responses are very important to us. Please read each question carefully before answering. Filling out this survey is your choice. You do not have to answer any questions unless you choose to. All the information you share with us will be kept private. It will not be seen by anyone, besides the people working on the study. The survey is expected to take about 1 hour to complete. Try to complete the entire survey in one sitting. If you need to stop and finish the survey at a later time, you can do so. If you have any questions about the survey, please contact our study team at (617) 636-3587 or e-mail us at thesupperproject@tufts.edu . Throughout the survey, when we say “child” we mean the child that is in the study with you. When taking this survey, you agree to: 1. Complete the survey yourself without assistance from anyone, except a study team member 2. <u>Not</u> share your responses with your child 3. <u>Not</u> watch or help your child complete their survey By clicking “continue” you agree to the above statements. Thank you for your help!		

Section 0. PRACTICE PROBLEMS

Var Name	Item	Response Options	Response
cpracintro01	We are going to walk you through a few practice questions to make sure you feel comfortable using the iPad. Throughout the survey, if you skip a question you will be asked whether you skipped the question on purpose or if it was a mistake. If it was a mistake, you will be able to answer the question. If you skipped the question because you did not want to answer it, you can leave it blank.		
cprac01	Which is your favorite season? If winter is your favorite season, you can choose the “Other” button and type your answer in the text box.	1. Spring 2. Summer 3. Fall 4. Other	
cprac01_spec	Please specify:		
cprac02	This is an example of a question where you can choose more than one answer. “Check all that apply” will tell you when you can select more than one answer. Which of the following are shapes? (Check all that apply)	1. Triangle 2. Dog 3. Circle 4. Square	
cpracintro03	The next question is a practice grid question. It is important that you make a choice for each row before clicking on the “next” button. How much do you agree with the following statements? (Select <u>one</u> answer for each line)		
cprac03	Winter is cold	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cprac04	Dancing is fun	1. Strongly disagree 2. Disagree 3. Somewhat disagree	

		4. Somewhat agree 5. Agree 6. Strongly agree	
cprac05	Pizza is delicious	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
cprac06_hours	In the last practice question, you need to type in the amount of time in the format below. About how much time does it take you to get to get to your child's school? Number of hours to get to your child's school:	<i>Write number of hours.</i>	
cprac06_min	Number of minutes to get to your child's school:	<i>Write number of minutes.</i>	
	The survey will now begin.		

Section 1: COMMUNICATION

1.5 Health/Weight-Related Conversations

Var Name	Item	Response Options	Response
phwrcintro01	The following set of questions are about conversations you have had with your child in the study about eating habits or physical activity. DO NOT include the audio-recorded conversation you had with your child using the Parent-Child Conversation Prompts for the SUPPER Project. How often in the past [time_point] have you...		
phwrc01	...had a conversation with your child about healthy eating habits?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
phwrc02	...had a conversation with your child about being physically active?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
phwrc03	...had a conversation with your child about their weight or size?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
phwrc04	...mentioned to your child that they weigh too much?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
phwrc05	...mentioned to your child that they should eat differently in order to lose weight or keep from gaining weight?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
phwrc06	...mentioned to your child that they should exercise in order to lose weight or to keep from gaining weight?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	

1.6 Negative weight talk

Var Name	Item	Response Options	Response
pnwtintro01	How often in the past [time_point] have you done or said the following to your child in the study:		
pnwt01	Said they were fat.	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
pnwt02	Teased or made fun of them about the size and shape of their body.	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
pnwt03	Said they should go on a diet.	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
pnwt04	Said that they eat food that will make them fat.	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
pnwt05	Said that they would look better if they were thinner.	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	
psnwt01	<u>Said about yourself</u> that you were fat or that you needed to go on a diet to lose weight?	0. Never 1. A few times in the past [time_point] 2. A few times a month 3. A few times a week 4. Almost every day	

2.3 Parent Self-reported weight

Var Name	Item	Response Options	Response
pwt01	About how much do <u>you</u> weigh without clothes or shoes?	_____ pounds	
pwt02ft	About how tall are <u>you</u> without shoes?	_____ feet	
pwt02in		_____ inches	

2.4 Parent own weight description

Var Name	Item	Response Options	Response
pwd01	How do <u>you</u> describe <u>your</u> weight?	1. Very underweight 2. Slightly underweight 3. About the right weight 4. Slightly overweight 5. Very overweight	
pwd02	Which of the following are you <u>trying to do</u> about <u>your</u> weight?	1. Lose weight 2. Gain weight 3. Stay the same weight 4. I am not trying to do anything about my weight	

2.5 Modified Weight Bias Internalization Scale

Var Name	Item	Response Options	Response
pwbismintro01	The following statements are about how you feel about your current weight. Read each statement below and answer with how much you agree or disagree with each statement.		
pwbism01	I am less attractive than most other people because of my weight.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
pwbism02	I feel anxious about my weight because of what people might think of me.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
pwbism03	I wish I could drastically change my weight.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
pwbism04	Whenever I think a lot about my weight, I feel depressed.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
pwbism05	I hate myself for my weight.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
pwbism06	My weight is a major way that I judge my value as a person.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
pwbism07	I don't feel that I deserve to have a really fulfilling social life because of my weight.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
pwbism08	I am OK being the weight that I am.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree	

		5. Agree 6. Strongly agree	
pwbism09	Because of my weight, I don't feel like my true self.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	
pwbism10	Because of my weight, I don't understand how anyone attractive would want to date me.	1. Strongly disagree 2. Disagree 3. Somewhat disagree 4. Somewhat agree 5. Agree 6. Strongly agree	

2.6 Weight stigma experience by peers

Var Name	Item	Response Options	Response
pwsp01	Have you ever been <u>teased or made fun of</u> by <u>peers</u> because of your weight?	0. No 1. Yes	
pwsp02	Have you ever been <u>treated unkindly</u> by <u>peers</u> because of your weight?	0. No 1. Yes	

2.7 Weight stigma experience by family members

Var Name	Item	Response Options	Response
pwsf01	Have you ever been <u>teased or made fun of</u> by <u>family members</u> because of your weight?	0. No 1. Yes	
pwsf02	Have you ever been <u>treated unkindly</u> by <u>family members</u> because of your weight?	0. No 1. Yes	

2.8 Parent-Reported Child Weight and Height

Var Name	Item	Response Options	Response
pprcw01	About how much does <u>your child in the study</u> weigh without clothes or shoes?	____ pounds	
pprcw02ft	About how tall is <u>your child in the study</u> without shoes?	____ feet	
pprcw02in		____ inches	

2.9 Parent Perception of Weight Teasing

Var Name	Item	Response Options	Response
ppwt01	Has your child in the study ever been teased, treated unfairly, or been discriminated against because of their weight?	0. No 1. Yes	
ppwt02	During the past [<u>time point</u>], has your child in the study been teased, treated unfairly, or been discriminated against because of their weight?	0. No 1. Yes	

Appendix U. SUPPER Adult Consent Form

The SUPPER Project: Adult Informed Consent Form – Parent
Version 7.0, 05 May 2020



TUFTS UNIVERSITY
Department of Public Health and Community Medicine

INFORMED CONSENT TO PARTICIPATE IN RESEARCH

Principal Investigator: Margie R. Skeer, ScD, MPH, MSW
Co-Investigators: Anthony Spirito, PhD; Misha Eliasziw, PhD
Study team telephone number: (617) 636-3587

INTRODUCTION

You are being invited to take part in a research study that is trying to understand how to help young people make choices that will support their well-being. Taking part in this research study is completely your choice. You can decide to stop at any time for any reason without any consequences.

Please read all of the following information carefully. Ask the research assistant to explain any words, terms, or sections that are unclear to you. Ask any questions that you have about this research study. Do not sign this consent form unless you understand the information in it and have had your questions answered.

If you decide to take part in this research study, you will be asked to sign this form. You will be given a copy of the signed form. You should keep your copy for your records. It has information, including important names and telephone numbers that you may want to look at in the future.

If you are able to participate and agree to be in the study, the Principal Investigator (the person who is in charge of the research study) may still choose to have you not be involved at some point during the study if she thinks it is best.

If you have any questions about your rights as a research study participant, call the Tufts Social-Behavioral-Educational Research IRB (Tufts SBER IRB): (617) 627-8804, sber@tufts.edu. The Institutional Review Board is a group of doctors, nurses, and non-medical people who review research studies for safety and protection of people who take part in studies. Federal law requires the Institutional Review Board to review and approve any research study involving humans. This must be done before the study can begin. The study is also reviewed on a regular basis while it is in progress.

This research study has been reviewed and approved by the Tufts SBER IRB.

PURPOSE OF STUDY

The purpose of this study is to find out what parents like you can do to help children make choices that will support their well-being during their teenage years.

The National Institutes of Health is sponsoring this study. There are 500 parents/ children who attend public schools in the Greater Boston Area taking part in this study.



PROCEDURES TO BE FOLLOWED

If you take part in this study, it will last approximately 18 months, you will be chosen to be in one of two groups: Group A or Group B. Study participants will be chosen for Group A and Group B at random. Each group will be asked to complete a set of tasks, which are listed below.

1. Read a short book (called a handbook). After you finish reading this book, you will be asked to practice the skills you read about in the handbook.
2. Meet with an interventionist to go over what you read and complete an action plan. This meeting will give you a chance to ask any questions you have about what you read. It will most likely last about an hour. Within 2 weeks of this meeting, will also receive a brief follow-up phone call about what you discussed in the first meeting. Both sessions will be audio recorded.
3. Complete 5 surveys – one at the beginning of the study, another 3, 6, 12, and 18 months after the study starts. Your child will also be asked to complete similar surveys at the same time.
4. Video record four family meals at the beginning of the study and at 6- and 12-months.
5. Audio record one conversation you have about your child's well-being, as it pertains to this study, at baseline and at 3, 6, 12, and 18 months. The study will provide you with an iPad to do the recordings, which will be yours to keep if you complete all recorded sessions over the entire study period. Your child will be recorded as part of the family meals and conversations.
6. Receive and read text messages that the research team will send to your cell phone or to a cell phone given to you for study purposes. The messages will be sent two times each week for 13 weeks. These text messages will have information from the handbook. You may also receive text messages to remind you about upcoming meetings or study tasks to complete. Your child will not get these text messages or any text messages from the research team.
7. At the start of the study, your child's height and weight will be taken.

Your child will only be asked to complete the surveys at the start of the study and at 3-, 6-, 12- and 18-months after the study starts and have their height and weight taken at the start of the study. He or she will not meet with the interventionist, will not be asked to read the handbook, and will not receive text messages as part of the study. Your child will be recorded as part of the family meals video recordings and the parent-child conversations.

Both you and your child have to agree to take part in this study. If one of you does not want to take part in the study then neither of you can be in the study. All of the meetings (surveys and meeting with the expert) will take place at your child's school, at your home, or at Tufts University School of Medicine located at 136 Harrison Ave, Boston MA (close to Chinatown in downtown Boston). However, if you are not able to meet at any of these places, the research assistant will work with you to find another place to meet that will be easy for you to get to. We may ask you to complete some surveys without meeting with a member of the study team. In this case, you will be contacted via phone, text message or email with instructions on how to complete the survey online.

RISKS

One potential risk of being in this study is that you may feel uncomfortable talking to the researcher about what you do with your child as a family. There is also a small chance that the



information you give us is given to someone else by accident. But we will do everything we can to make sure that this does not happen.

BENEFITS

This study will give you information that may help make your family a little stronger. It will also give you some things that you can do to help your child stay safe and healthy. Along with these individual benefits, the information you give us will also help others in society, particularly parents like you. This is because the information you provide the research team will allow us to create a larger program that works to help not only families living in the Greater Boston area, but families living in the United States.

ALTERNATIVES

The alternative is to not participate in the research study.

WHOM TO CONTACT

If you have any questions about this research study, you can call the Research Study Team (Tufts University) at (617) 636-3587; Dr. Margie R. Skeer, Principal Investigator (Tufts University): (617) 636-2441; or Dr. Anthony Spirito (Brown University): (401) 444-1929.

COSTS

You will have to get to and from the sessions and surveys that take place at your child's school, at Tufts University School of Medicine, or at the other location of your choosing. However, if you cannot get to an appointment, we can try to find a different place to meet.

PAYMENT

Your family will be paid \$60 in Amazon e-gift cards for completing each of the first, second, and third surveys, and \$80 in Amazon e-gift cards for completing each of the fourth and fifth surveys. Your family will be given payment after you both complete the survey.

PRIVACY AND CONFIDENTIALITY

If you agree to take part in this research study, your personal information will not be given to anyone unless you tell us in writing that it is okay. The research team is made up of individuals from Tufts University and Brown University, which means your information will be shared among members of the research team at both schools when necessary. We will not share the information you give us with your child, and we will not share the information that your child gives us with you. We will try very hard to keep your information private. The National Institutes of Health, the Tufts SBIR IRB, and the Grant Administration Office may check records that say who you are. This might include your research records and this informed consent form that you sign. The records of this study might also be looked at to make sure all rules and guidelines were followed. We, along with the Grant Administration Office that is in charge of study finances, will keep a copy of your signed payment acknowledgement form for our records.

In order to protect your privacy, all of your and your child's documents will be stored in locked cabinets. Documents for the study will have an ID number instead of your name and a document with your name and study ID number will be kept separately in a locked file. Any of your personal information, as well as this informed consent form, will be stored separately from your answers to questions that you write down on paper. Anything that we put on the computer will be stored and protected with a password and encrypted. Recordings will be reviewed by a study team member to make sure that nothing can identify you in the recordings. Once we have



written down the recordings they will be destroyed. Only the research team members will have access to the information in the recordings.

A description of this study will be posted on a public website, <http://ClinicalTrials.gov> as required by our funding from the National Institutes of Health. This website will not include information that can identify you. At most, the website will include a summary of the results. You can search this website at any time.

Your data could be used for future research studies or shared with another investigator for future research purposes without additional informed consent from you or your legally authorized representative. In this event, all identifiers (any personal information identifying you) would be removed from the data set.

To help us protect your privacy, we have obtained a Certificate of Confidentiality from the United States Department of Health and Human Services (DHHS). With this Certificate, we cannot be forced (for example by court order or subpoena) to give information that may identify participants in any federal, state, local, civil, criminal, legislative, administrative, or other proceedings. Our research team will use the Certificate to resist any demands for information that would identify participants, except to prevent serious harm to participants or others.

However, if we learn about abuse of a child or elderly person, or that you intend to harm yourself or someone else, we will tell the proper authorities.

If your insurance company or job learns about your being in this study, and gets your permission to receive research information from us, then we may not use the Certificate of Confidentiality to hold back this information.

PARTICIPANT'S STATEMENT

I have read this consent form and have discussed the procedures described above with a member of the research team. I have been given the chance to ask questions, which have been answered as well as I want them to be. I understand that any questions that I might have will be answered through talking or, if I want, in writing.

I understand that I will be told about any new findings developed during the course of this research study that may change whether I want to stay in this research study.

I understand that I am in this study because I want to be. I understand that I may choose to stop being in this study. I also understand that if, for any reason, I want to stop being in this study at any time, I can, and this will not change how I can get services or care at any participating research site.

I understand that if I get sick or hurt from being in this research study, medical care will be given to me. However, this medical care will not be free, even if the sickness or injury is a direct result of this research study. I understand that no money is provided to pay for care if I get sick or hurt as part of this study.

If I have any questions concerning my rights as a research participant in this study, I may contact the Institutional Review Board at (617) 627-8804.

The SUPPER Project: Adult Informed Consent Form – Parent
Version 7.0, 05 May 2020



I have been fully told about the study with its risks and benefits, and I am willing to take part in the procedures for this study, as it talks about in this form.

I understand that as a participant in this study my personal information and data relating to this research study will be kept private, except as required by law, and except for inspections by the U.S. Food and Drug Administration, which regulates investigational drug/device studies, the study sponsor.

By clicking "I agree to be part of the SUPPER Project Study" you agree to the following:

- I consent to participate in the study.
- I also provide consent for my child to participate in this study, as it talks about in this form.
- I will complete the survey myself without assistance from anyone except a research team member,
- I will not share my responses with my child; and
- I will not watch or help my child complete their survey.

I agree to be part of the SUPPER Project Study

Appendix V. SUPPER Child Assent Form

The SUPPER Project: Informed Assent Form – Child
Version 7.0, 05 May 2020



TUFTS UNIVERSITY Department of Public Health and Community Medicine

AGREEMENT TO PARTICIPATE IN RESEARCH

Principal Investigator: Margie R. Skeer, ScD, MPH, MSW
Co-Investigators: Anthony Spirito, PhD; Misha Eliasziw, PhD

We are asking you to take part in a research study we are doing. A research study is a way to learn about something in medicine and/or health. For this study, we would like to find out more about what family practices make pre-teens and teenagers more or less likely to do things that keep them safe and healthy.

We are asking you to be in the study because we think you will give us really important information about why children do things that support their overall well-being.

If you agree to take part this study, we will ask you to complete 5 surveys that will each last about an hour - one at the beginning of the study, another 3, 6, 12, and 18 months after the program starts. You will complete these surveys on a computer or tablet. You can complete these surveys at your school, at Tufts University in Boston, at your home, or at another place that your parent or guardian chooses. You will meet with a research team member to show you how to complete the surveys online by yourself, after that you may be asked to complete them while meeting with a study team member, or online. The questions on the survey will ask you about your family practices and what you do at home, as well as your thoughts and how often you take part in different behaviors that can help you stay safe and healthy. The survey will take place without your parent or guardian there. Your parent or guardian will also complete a survey about your family practices, but we will not share with your parent or guardian what you write on your survey. We will also not share your parent or guardian's survey answers with you.

At the beginning of the study, we will also take your height and weight measurements. Your measurements will be kept private and will only be used for study purposes.

We will also ask that your parent/guardian video record four family meals at the beginning of the study and at 6- and 12-months. We will also ask that your parent/guardian video or audio record one conversation you have about behaviors that support your well-being at each study visit at the beginning of the study and at 3, 6, 12 and 18 months. Recordings will be done using a tablet that will be provided to your family by the study, which will be your family's to keep if all recordings over the entire study period are completed. You and your parent/guardian will both be included in all the recordings.

We hope that by taking part in this study, you will help us learn some things that could help us figure out how to help teenagers make choices that will keep them safe and healthy.

You may feel uncomfortable talking about yourself or your family. If you do at any time, you can stop answering the questions. You do not have to be part of this study. It is up to you. You can say yes now and change your mind later. All you have to do is tell us that you want to stop. We will not be mad at you if you do not want to be in the study. We will not be mad if you join the study now and change your mind later.

The SUPPER Project: Informed Assent Form – Child
Version 7.0, 05 May 2020



If you have any questions about this research study, you can call the Research Study Team (Tufts University) at (617) 636-3587; Dr. Margie R. Skeer, Principal Investigator (Tufts University): (617) 636-2441; or Dr. Anthony Spirito (Brown University): (401) 444-1929.

A description of this study will be posted on a public website, <http://ClinicalTrials.gov> as required by our funding from the government. This website will not include information that can identify you. At most, the website will include a summary of the results. You can search this website at any time.

Your data could be used for future research studies or shared with another researcher for future research purposes without additional assent from you or additional consent from your parent or legally authorized representative. In this event, any personal information identifying you would be removed from the data set.

To help us protect you, we have a certificate from the government, called a Certificate of Confidentiality. With this certificate, we cannot be forced to give your information to anyone. But, if at any time you tell someone on the research team that you are being hurt or abused by someone, we will tell the proper authorities, meaning the police or other officials.

Before you say yes or no to being in this study, you can ask us any questions. You can ask questions about the study at any time. Just tell me or anyone else on the research staff that you have a question.

Your family will get \$60 for each of the first three surveys completed and \$80 for each of the last two surveys completed.

By clicking "I agree to be part of the SUPPER Project Study" you agree to participate in the SUPPER Project.

I agree to be part of the SUPPER Project Study

Appendix W. SUPPER Family Assessment Task Prompts

Parent-Child Conversation Prompts



SUPPER Project: Parent-Child Conversation Recording Prompts Version 2.0; 17 April 2019

Instructions

1. GETTING STARTED

Please read the "Parent-Child Conversations Audio Recording Instructions" handout each time before starting these recordings for the SUPPER Project.

1. These prompts will help guide your conversation. Please *follow the flash cards in order* and do not skip ahead.
2. There are two sections in these instructions, complete both sections.
3. You will need a method for tracking time for this activity. The recommended time for each section is a guide; it does not need to be exact. The minimum required time for each section will be stated on the flash card.
4. Read each flash card to yourself and then talk with each other about the topic written on the flash card.
 - *Parent*: Talk about the topics on the *blue* flash cards.
 - *Teen*: Talk about the topics on the *green* flash cards.
 - Instructions you should both read to yourselves are in *italics*.
5. Do not interrupt each other when talking.

Remember these recordings are different from the Family Meals Recordings. The same recording cannot be used for both this activity and the Family Meals Video Recordings.

Instructions

2. START RECORDING NOW

Introductions

3. PARENT:

"This is the Parent-Child Conversation Recording"

*Please say your **first name only**.*

"My name is _____."

Example: "My name is Elizabeth"

"Today is _____."

Example: "Today is Friday, February 21" 2019"



Continue
Give cards to teen

Introductions

4. TEEN:

Please say your **first name only**.

"My name is _____."

Example: "My name is Charlie"



Substance Use

5. SUBSTANCE USE

For the first topic we would like you to discuss substance use.

Families have different beliefs and practices about using tobacco, alcohol, marijuana and other drugs. Sometimes teens agree with their parents and sometimes they don't. It is okay if you both have different views.



For this section, please talk for at least 10 minutes.

Set your timer for 10 minutes.



Substance Use

6. TEEN

Please talk about what you think about people your age using substances such as:

- Alcohol,
- Cigarettes,
- E-cigarettes/vaping,
- Marijuana, and
- Other drugs



Continue
Give cards to parent

Substance Use

7. PARENT

Think about the expectations you have for your teen about using substances such as:

- Alcohol,
- Cigarettes,
- E-cigarettes/vaping,
- Marijuana, and
- Other drugs.

Talk with your teen about what your expectations are and why you have them.



Continue

Substance Use

8. PARENT AND TEEN

Please discuss together the possible risks of using substances such as:

- Alcohol
- Cigarettes,
- E-cigarettes/vaping
- Marijuana, and/or
- Other drugs.



Eating, Exercise, & Weight

9. EATING HABITS, EXERCISE, & WEIGHT

For the next topic, we would like you to discuss eating habits, exercise, and weight.

Families have different beliefs and practices about eating, exercise, and weight. Sometimes teens agree with their parents and sometimes they don't. It is okay if you both have different views.



For this section, please talk for at least 10 minutes.

Set your timer for 10 minutes.



Give cards to parent

Eating, Exercise, & Weight

10. PARENT

Introduce the next section by saying:

“This is the Eating Habits, Exercise, and Weight Section”



Continue
Give cards to teen

Eating, Exercise, & Weight

11. TEEN

Please talk about why you eat the foods you eat and why you have the exercise habits you do.



Continue
Give cards to parent

Eating, Exercise, & Weight

12. PARENT

Think about the expectations you have for your teen about the foods they eat and their exercise habits.

Talk with your teen about what your expectations are and why you have them.



Eating, Exercise, & Weight

13. PARENT AND TEEN

Please discuss together the possible benefits of having healthy eating habits and being physically active.



Eating, Exercise, & Weight

14. PARENT

Think about the times you have mentioned or spoken to your teen about their weight or body shape.

Talk with your teen about why you think it is important to talk about or not talk about weight or body shape.



Continue
Give cards to parent

Eating, Exercise, & Weight

15. TEEN

Talk about how you feel when your parent talks to you about your weight or body shape.



Continue

Eating, Exercise, & Weight

16. PARENT AND TEEN

Please discuss together the possible benefits or risks of talking about weight or body shape, including:

- Comments about your own weight or body shape
- Comments about other people's weight or body shape



17. STOP RECORDING NOW

Remember to check that your recording uploaded to your SUPPER Folder in Box.

If not, please see instructions for how to change the location of your recording to the appropriate folder in the "Parent-Child Conversations Recording Instructions" document.

Thank you!



Appendix X. SUPPER Recording & iPad Instructions



Conversation Recording Instructions

The purpose of this activity is to capture a real conversation between you and your teen using the prompts provided. Only the parent/guardian and teen participating in the SUPPER project can do this activity.

Use the iPad to record the parent-child conversation.

Record **one conversation recording** at each assessment timepoint. We will notify you when a new recording is due.

Each conversation recording will have two sections. **Both sections must be completed** for this activity.

- Substance Use Section
- Eating, Exercise, and Weight Section

Throughout this activity, when instructions refer to "parent" and "teen" we mean the parent/guardian and preteen/teen participating in the SUPPER Project.

Each conversation recording will take approximately 20 minutes. Plan accordingly so that you have enough time to complete the recording in one sitting.

The same recording cannot be used for both the Conversation and the Family Meal Recordings.

Instructions

1. **Check iPad Storage.** 
2. **Setup iPad** – Place iPad on a flat surface with the screen facing up. The screen should appear black (recording the flat surface).
 - The camera cannot be in "selfie" mode.
 - You do not need to appear on camera for this activity.
 - Only the content of the conversation will be used.
3. **Start recording** when prompted using the **Camera app** in the "video" setting. 
4. **Follow each conversation prompt** as instructed.
 - Please do not interrupt each other.
 - Complete all 17 prompts in order.
5. **Stop recording** when prompted.
 - If you need to pause the recording before you are done, you may. When you restart, begin with the last card that you used. Introduce yourselves again and state the number of the card you are starting with.
6. **Upload video** file to your SUPPER Project Uploads Folder in **Box**. 
7. **Check** that video was successfully uploaded to Box.

If you have any questions about these procedures or any other study-related activity please contact our SUPPER team at (617) 636 – 3587 or email TheSUPPERproject@tufts.edu.

Thank you!



iPad Instructions

How to Check the Storage on an iPad

1. Go to "Settings." Click this icon: 
2. Click on "**General**."
3. Click "**iPad Storage**" and check how much storage is left.
 1. The iPad displays how much storage you have used. So, if you have used 5.4 GB of



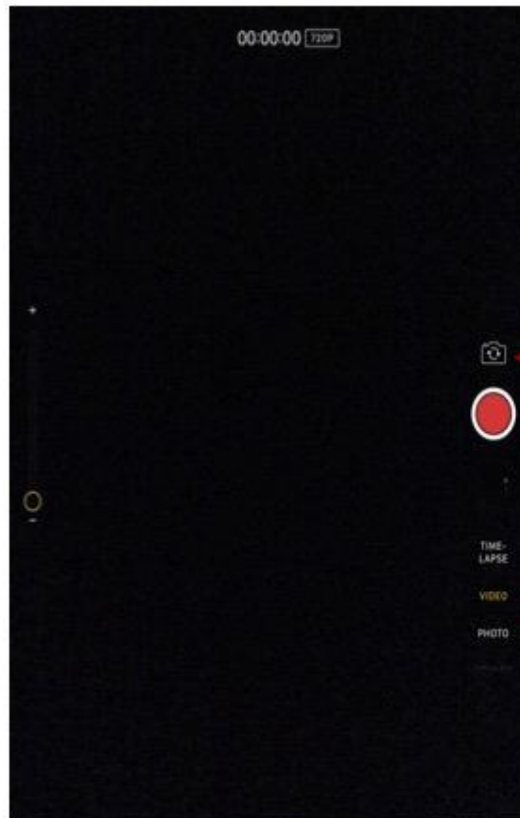
4. If you do not have at least 2 GB of storage left, try the following steps:
 - Delete photos and videos you no longer need
 - Delete applications that you no longer use
5. If you think your videos will be longer than 25 minutes, use the guidelines below to estimate how much storage you will need:
 - 1 hour video recording = 2 GB storage
 - 1 hour 30 minutes video recording = 3 GB storage
 - 2 hour video recording = 4 GB storage

Note: No video recording for the SUPPER Project should exceed 2 hours.
6. **Remember** you will be recording 4 videos for family meals, so storage should be multiplied by 4.
 - For example, if family meals are usually 25 minutes you will need 1 GB for each family meal video recording. A total of 4 GB of storage would be required to record all 4 videos.



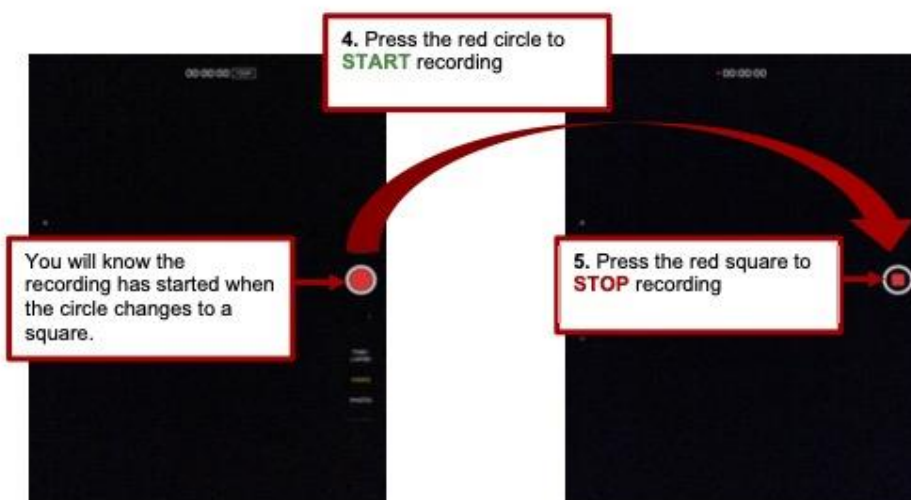
How to Record a Video on an iPad

1. Open the "Camera" application. Click this icon: 
2. Make camera "front-facing" or in "selfie" mode.
3. Check that the Camera is in the "Video" setting
4. Press the red circle to begin the video recording.
5. Press the red square to stop the video recording.



2. Click this button to switch the camera from "rear-facing" to "front-facing". You will know it is front facing when you see yourself on the screen when the iPad is facing you.

3. Drag the options towards the bottom of the screen to change setting to "Video".



How to View and Check Recorded Videos on an iPad

1. Open the "Photos" application. Click this icon: 
2. Click on the video you recorded. The most recent video should be the first one to appear once you open the "Photos" application.
3. Press the play button to watch the first few seconds of your recording to make sure it is the right video and properly playing.

How to Upload Videos to Box

1. Open the "Box" application. Click on this icon: 
2. For this study, you do not need to "Enable Notifications." Click "**Skip this for now**" if prompted.
3. Select your SUPPER Project folder under "All Files."



4. To upload your video click the **+** at the top right of the screen and select **"Choose from Library."**



5. The iPad may prompt you with "Box' Would Like to Access Your Photos." Click **OK**.
6. Click **"Videos"** and select the video you recorded. A small blue check mark will appear when you have selected the video.
7. Click **"Upload"** on the bottom right of the screen. At the top of the screen a message indicating the number of files being uploaded ("Uploading 1 File...") will appear with a blue progress bar as the file uploads.
8. Wait for the file to completely upload. A brief message reading "Work Completed!" will appear when the video uploads. Long videos might take a few minutes.
9. To check if you have successfully uploaded your video return to the "All Files" page, select your SUPPER folder. If you have successfully uploaded your video, it will appear here. If there was an error or the video is still being uploaded, the folder will not contain the video you recorded.

