CORRELATES, PREDICTORS, AND CONSEQUENCES OF FAMILY WEIGHT TALK AMONG SCHOOL-AGED CHILDREN

by

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ABSTRACT

CECILY BASQUIN GADAIRE. Correlates, Predictors, and Consequences of Family Weight Talk Among School-Aged Children (Under the direction of DR. LAURA MARIE ARMSTRONG)

Parents play a key role in the establishment of health habits among children, and as many as 60% of parents report talking regularly with their child about health and weight (Lydecker et al., 2018). This health and weight related discourse, known as family weight talk, impacts children's physical and social-emotional health, yet little research has explored the construct among families with school-aged children. The current study aims to (1) explore the nature of weight talk among families, (2) understand the correlates and consequences of various forms of family weight talk, and (3) examine the caregiving context (i.e., parenting practices and family wellbeing) as a potential moderator of the associations among parent experiences/beliefs, family weight talk, and child physical and social-emotional health.

The sample included 60 families with children ages 10- to 12, who separately responded to an online survey assessing family weight talk, parental experiences and beliefs, child health and well-being, parenting, and family functioning. Additionally, parents completed a daily questionnaire reporting on instances of family weight talk for five consecutive days.

Findings revealed that families regularly engaged in conversations about health and weight, and these conversations served a variety of functions (e.g., limit-setting, teaching opportunity, directive/command). Of note, 13.9% of these conversations were potentially stigmatizing towards the child. We found that weight talk varied significantly by several parent and child socio-demographic variables, including parent gender, parent and child BMI, race/ethnicity, and parental education level. Results also demonstrated that more negative weight-related experiences and beliefs (i.e., anti-fat attitudes, experiences of stigmatization,

weight bias internalization, and perception of child risk) among parents related to more conversations about the child's, the parent's, and others' weight.

Turning to child health outcomes, we found that health related conversations among families were most strongly related to greater child fruit/vegetable consumption, while weight-related conversations were associated with more snacking, worse quality of life, and worse social-emotional well-being among children. On the daily surveys, descriptions coded as having a negative valence were associated with less fruit/vegetable consumption, while conversations coded as potentially stigmatizing were associated with more snack consumption among children. Negatively valenced conversations, as well as the limit-setting, directive/command, and restriction functions were also associated with worse social-emotional well-being among children.

Results of mediation analyses suggest that family weight talk can help explain the effects of parent experiences/beliefs on child health outcomes. Specifically, more negative weight-related attitudes among parents and greater parent perception of child risk were related to more weight talk within the family, which in turn was related to more snack and fruit/vegetable consumption and worse health related quality of life among children. Finally, we found that the quality of the caregiving context moderated the effects of parent experiences/beliefs on child health habits via family weight talk. More specifically we found that parents' negative weight-related experiences/beliefs were associated with more fruit/vegetable and snack consumption and greater physical activity via conversations about weight, but only in families where parents reported a low-quality caregiving context (i.e., worse parent-child relationship and family functioning).

Importantly, the current study expands our conceptualization of the manner in which families talk about health and weight, suggests important parental attitudes and beliefs that shape this talk, and adds to our understanding of the impact of family weight talk on child health and well-being. While it will be important to replicate these findings in a larger, more diverse sample, this work may contribute meaningfully to continued investigation on how to best support families in developing health-related communication patterns that contribute to overall child well-being.

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LIST OF ABBREVIATIONS

COBWEBS	Cyclic Obesity Weight Based Stigma
BMI	Body Mass Index
HRQoL	Health Related Quality of Life
PANAS	Positive and Negative Affect Schedule
AFA	Antifat Attitudes Questionnaire
SSI-B	Brief Stigmatizing Situations Inventory
WBIS-M	Modified Weight Bias Internalization Scale
CWRQ	Child Weight Risk Questionnaire
APQ	Alabama Parenting Questionnaire
IPPA-R	Inventory of Peer and Parent Attachment Revised
FAD	Family Assessment Device
FFQ	Food Frequency Questionnaire
PEDALS	Physical activity, Exercise, Diet and Lifestyle Study
IPAQ-SF	International Physical Activity Questionnaire Short Form
PAQ-C	Physical Activity Questionnaire for Children
PEDSQL	Pediatric Quality of Life Inventory
SDQ	Strengths and Difficulties Questionnaire
CRISIS	COVID-19 Family Stress Screener
CHEAT	Child Eating Attitudes Questionnaire
BSFC-s	Burden Scale for Family Caregivers-Short Form
SWED	Stanford-Washington University Eating Disorder Screen
SPSS	Statistical Package for the Social Sciences

CHAPTER 1: INTRODUCTION

Child nutrition and activity habits have become a serious public health concern in the United States, with few youth meeting national recommendations for both diet and physical activity (Rideout, 2010; The Child & Adolescent Health Measurement Initiative (CAHMI), 2016; National Cancer Institute, 2019). In fact, youth between 8 and 18 years old spend an average of 7.5 hours per day in front of screens (Rideout et al., 2010), and in turn, most school-aged children (75%) do not get the recommended 60 minutes of physical activity per day (CAHMI, 2016; Troiano et al., 2008; U.S. Department of Health and Human Services, 2018). Furthermore, child diets are high in saturated fat and sugar and low in fruit/vegetable consumption, with approximately 40% of children meeting the dietary guidelines for fruit consumption and only 7% meeting the guidelines for vegetable consumption suggested by the U.S. Department of Agriculture (National Cancer Institute, 2019). Poor diet and activity habits contribute to wide-ranging negative health outcomes, including excess weight gain (Deshmukh-Taskar et al., 2006), high blood pressure (Levin, Morad, Grotto, Ravid, & Bar-Dayan, 2010), high cholesterol (Fortmeier-Saucier, Savrin, Heinzer, & Hudak, 2008), and diabetes (Levin et al., 2010). Research consistently underscores the role of the family context in shaping children's dietary and physical activity habits (Rhee et al., 2008; Ho et al., 2012); however, efforts to cultivate healthful behavior within the family can be emotionally-laden, potentially compromising the family's capacity to talk about weight and health in effective ways (Thomas et al., 2014). Therefore, *how* parents talk with their children about health-related issues may have profound and lasting implications for children's health and well-being, and yet little is known about the precise mechanisms by which parent-child conversations about weight influence children's physical and social-emotional health.

Guided by a bioecological perspective, the proposed study will investigate the nature and correlates of weight talk (i.e., all weight- and health-related communication) among families with a school-aged child. We chose to explore family weight talk in school-aged children as parents have substantial influence over children's diet and activity habits during this period of development, but children are beginning to assert increased levels of decision-making and autonomy over health behaviors. For school-aged children, factors within the immediate family are often most salient, as opposed to adolescence when peers and other outside influences become increasingly more important (Paxton et al., 2006). Additionally, limited research has examined weight talk in families with school-aged children, and we sought to address this gap in the literature.

Estimates suggest that regardless of child weight status, as many as 60% of parents have conversations with their child about weight or regularly make weight-related comments to their child (Berge et al., 2016; Lydecker et al., 2018); these conversations are more emotionally charged among children classified as overweight compared to youth classified as normal weight (Puhl & Himmelstein, 2018). However, research is scarce on (a) the intra- and inter-personal dynamics of this dialogue, (b) the salient child and parent factors that may shape the nature of the conversations, and (c) the role of the broader caregiving context as potentially exacerbating or buffering the effects of this discourse on child health. While research on fat talk and weight teasing among adolescent peers is expanding, far less is known about the nature of weight talk in families, and in particular, weight talk directed toward children who have not yet reached adolescence.

Importantly, investigation into the correlates of family weight talk is an important step in moving the field forward. Parent and child socio-demographic characteristics, as well as parents'

own constellation of weight-related experiences and beliefs (i.e., experiences of stigmatization, weight bias internalization, and anti-fat attitudes) may impact the nature of family weight talk. Additionally, parent perception of child risk for problems associated with excess weight may have important associations with family weight talk, as recognition of risks facing a child due to weight may heighten the salience of behavior change and increase the likelihood of health and weight-related conversations within the family. Importantly, weight- and health-related conversations between family members occur within the overall emotional climate of the family. Parenting practices and family wellbeing (i.e., the caregiving context) predict child behavior across domains, including weight-related behavior (Balantekin et al., 2020), and likely influence the meaning and interpretation of weight- and health-related discourse within the family system.

This study will employ a multi-method, multi-informant approach to (1) describe the nature of weight talk within the family and how characteristics of the parent and child may influence this talk, (2) better understand the effects of different forms of family weight talk on child health outcomes, (3) examine family weight talk as a potential mediator of the associations between parent experiences/beliefs and child health outcomes, and (4) investigate how the caregiving context (parenting practices and family wellbeing) may function as a moderator to impact the associations among parent beliefs, family weight talk, and child health outcomes. As the prevalence of sedentary behavior and diets that fail to meet national recommendations continue to rise among children, and particularly in the context of shifting availability of healthful behaviors amid the global health crisis resulting from SARS-CoV-2, a more comprehensive and nuanced understanding of how family conversations about weight and health contribute to the quality of child health habits could be a critical step toward greater health and well-being for children and families.

Theoretical Background

Two theories, the Bioecological model and the Cyclic Obesity Weight Based Stigma (COBWEBS) model, provide the theoretical grounding for the current study.

Bioecological Framework

The bioecological model (Bronfenbrenner, 1977; 2001) offers a useful framework for considering the intersecting and dynamic influences of individual, interpersonal, social, and ecological contexts across time and how they can impact family weight talk. The model also provides an approach for identifying factors within the ecosystem that can facilitate the establishment and maintenance of healthful habits among children and families. As shown in Figure 1, the individual is embedded within a set of concentric circles that illustrate the various systems at play. Importantly, these proximal processes (e.g., parent-child communication) are impacted by the characteristics of the individual, their larger environmental context, and the overarching cultural context and time in which development is taking place (Bronfenbrenner, 2001).

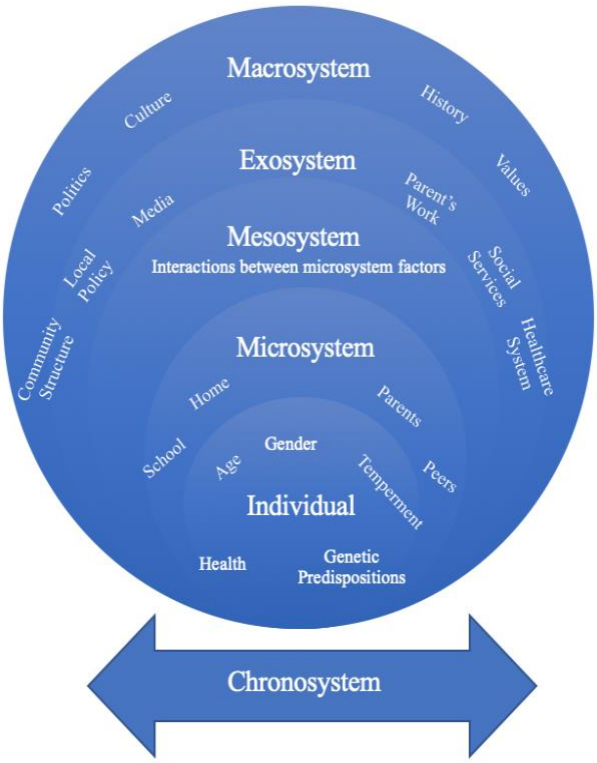

Figure 1. Bioecological Model

With respect to family weight talk, parent-child weight/health-related communication serves as a proximal process to influence the health habits of the child and is impacted by the

dynamic interactions among the various systems affecting a family. For example, parent-child communication is impacted by the individual socio-demographic characteristics of the child and parent, as well as the ecological and cultural (macrosystem-level) context that has engendered a specific set of beliefs surrounding health and weight for parents and children (e.g., thin-ideal for women). Importantly, this process is impacted by exosystem factors that impact access to healthful food, spaces that promote/inhibit physical activity, and appropriate healthcare, in turn influencing parent-child communication. In addition, parenting practices and family wellbeing are microsystem-level factors that provide the context in which health-related communication is interpreted by the child. Guided by a bioecological framework, the current study will clarify how selected factors at these multiple levels influence family weight talk.

Cyclic Obesity/Weight-Based Stigma Model

The second theoretical framework for the current study is the Cyclic Obesity/Weight-Based Stigma (COBWEBS) model (Tomiyama, 2014; see Figure 2), which can support our understanding of how family weight talk might be associated with poor health outcomes. The underlying assumption of the COBWEBS model is that weight stigma is a psychological stressor. In the context of this model, stress is defined as a negative emotional experience that brings about predictable changes to one's physiology, cognitions, and behaviors in an effort to change or

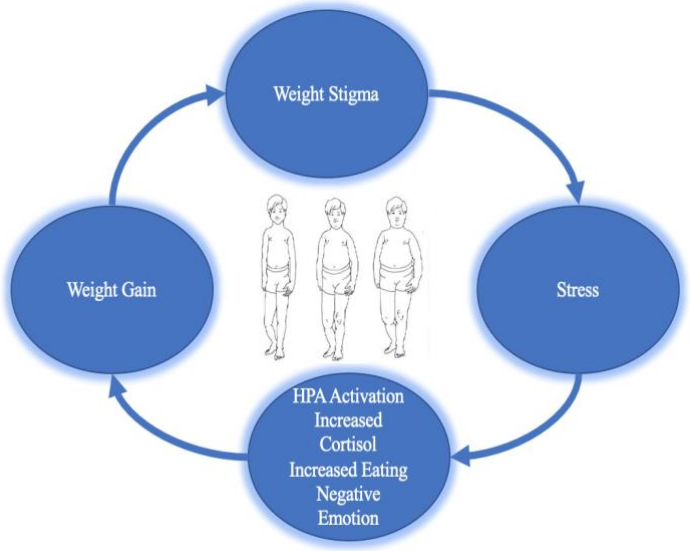

Figure 2. The Cyclic/Obesity Weight-Based Stigma (COBWEBS) Model

adapt to the stressful situation (Tomiyama, 2014). Feeling stigmatized due to one's weight is thought to be an inherently negative experience (Tomiyama, 2014), and social stigma more generally has been established as a stressor (Meyer, 2003).

The COBWEBS model suggests that stress as a result of weight stigma can contribute to weight gain (Tomiyama, 2014). The mechanisms underlying the connections between weight stigma and weight gain are manifold, ranging from stress-induced cortisol production to maladaptive coping strategies that rely on food/eating to generate pleasure (Tomiyama, 2014). For example, feelings of stigmatization due to weight can engage the HPA stress response, and while the stress response is adaptive in the face of immediate stressors/threats, chronic HPA activation in response to perceived social threats is associated with negative health outcomes, like hypertension, cardiovascular disease, and weight gain (Muennig, 2008). Additionally, it is common for individuals to increase their food intake, especially of "comfort foods" in response to stress (Tomiyama, 2014). Increased cortisol secretion sensitizes the food reward system, motivating individuals to consume more in order to modulate the impact of stressful experiences. The negative emotion that can be experienced due to weight stigma drives the COBWEBS model, as well. Current literature suggests that individuals engage in binge eating as a mechanism to temporarily reduce or escape negative emotions, in particular those related to self-evaluation, criticism from others, and interpersonal problems (Duarte & Pinot-Gouveia, 2016). Although many emotions may be elicited in the context of weight stigmatization, shame appears to be particularly salient because negative weight-related interpersonal interactions are strongly related to body-image shame, and shame also results in stress and HPA activation. The COBWEBS model is cyclical in nature, such that this increased weight gain due to the stress of

weight stigma results in exposure to additional weight stigma in the future, perpetuating the stigma-stress-weight gain cycle (Tomiyama, 2014).

Applying the COBWEBS model to family weight talk can provide a theoretical link between family weight talk and negative child health outcomes. Family weight talk raises the potential for weight-based stigmatization within the family. Experiences of weight-related criticism and judgement from parents can be particularly stressful for children and put in motion a cascade of biobehavioral responses that contribute to weight gain and poor health. In fact, several studies have demonstrated the association between parenting behaviors (e.g., restriction, pressure to eat) and health-minimizing behaviors in children of all ages (Lydecker et al., 2018; Pudney et al., 2019). For example, withholding junk food from children makes these foods seem more desirable and increases the likelihood that children will seek out these foods in the absence of hunger or the caregiver's presence (Birch et al., 2003). Additionally, pressuring children to eat certain foods can result in future avoidance of these foods and negative emotional associations with the foods (Galloway et al., 2006). Finally, parental pressure to lose weight can contribute to internalization of the thin-ideal in children and hypervigilance towards appearance (Presnell et al., 2004; Tylka & Hill, 2004). Taken together, there is a relation between parental communication of restriction and pressure and health-minimizing behavior among youth. Patterns of restriction and pressure within the family may contribute to decreased self-efficacy for weight- and health-related habits among children, as well as strained parent-child relationships. The intra- and inter-personal dynamics of these weight-related processes within the family may have a synergistic effect that undermines the child's ability to engage in healthy habits, and in turn may increase the likelihood of gaining weight and experiencing greater weight-based stigmatization in the future.

Family Weight Talk

As highlighted by the bioecological model (Bronfenbrenner, 1977), the family is one of the most proximal influences on child development (Barbato et al., 2003) and plays a critical role in socializing children regarding matters of health and weight. Health-related socialization processes can take many forms, including parent modeling of dietary and activity habits, support for physical activity, availability of various foods in the home, contingent responding to children's health behaviors, and explicit communication of health-related messages (Anzman et al., 2010; Berge et al., 2013; Maitland et al., 2013; White, 2013; Daye et al., 2014; Hall et al., 2016). We focus on parent-child communication about weight and health, also known as family weight talk, because weight talk appears to be common in families (Berge et al., 2016; Lydecker et al., 2018), and how parents talk to children about weight can influence children's thoughts and feelings about their body, as well as their overall well-being (Pudney et al., 2019). Yet, little is known about how parent and child factors might shape family conversations about weight and health or how the larger caregiving context might confer a protective influence when considering the effects of family weight talk on child health outcomes (Hall et al., 2016).

Conceptualizing Family Weight Talk

Family weight talk has been assessed in multiple ways, with the various forms of weight talk having differential impacts on children's health habits, beliefs, and body image. Pudney and colleagues (2019) analyzed the content of family weight talk reported by parents, a majority of whom were White, with 2- to 17-year-old children of all weight statuses and found that it could be classified in four ways: (1) child-centered weight conversations, (2) child-centered health conversations, (3) parental weight comments, and (4) child-centered weight criticism. Child-centered weight conversations involve discussion of child weight maintenance or weight loss.

Evidence suggests that these conversations about weight can result in child engagement in eating habits, such as dieting (Berge et al., 2016) and binge eating (Lydecker et al., 2018). Consistent with the COBWEBS model, it may be that parent-child conversations that are narrowly focused on weight management are stigmatizing and intensify children's self-evaluative feelings (e.g., guilt, shame, embarrassment), which then disrupt children's awareness of internal hunger and satiety cues leading to diminished capacity to self-regulate their eating behavior. This process may also involve increased desire for high fat or high sugar foods as a means of deriving pleasure and coping with negative emotional states (Wagner et al., 2012; De Cock et al., 2016; Klatzkin et al., 2019). Additionally, family discussions about weight often reflect the belief that weight is a marker for health and an issue of personal responsibility that can be "solved" by an individual changing their behavior (Thomas et al., 2014). Child-centered weight conversations may be particularly detrimental for children's health and well-being when not paired with strategies for behavior change and an acknowledgement of the complex interactions between genetic and environmental forces that contribute to weight.

On the other hand, child-centered health conversations involve discussion about healthy diet and physical activity habits without referencing weight; this form of weight talk is not associated with health-minimizing behaviors or harmful outcomes (Berge et al., 2013; Gillison et al., 2016). Parents who discuss with their children the importance of eating well and engaging in physical activity for supporting a broad range of health-related outcomes may have more success in promoting children's healthful habits. Perhaps these conversations serve to set clear expectations for children regarding diet and physical activity, and when discussed in the context of warmth and support for health behaviors, facilitate children's development of health promoting habits. Unfortunately, little research has focused on health-related family

conversations that might be more positive in nature, thus our understanding of the links to child health outcomes is limited. Notably, parents indicate concern about how to promote health habits in their children without negatively impacting their body image (Thomas et al., 2014), highlighting the importance of further exploration of all forms of family weight talk.

The last two forms of weight talk identified by Pudney and colleagues (2019) include parent weight comments and child-centered weight criticism. Parental weight comments involve statements about parents' own or others' weight that do not pertain to the child directly. Statements like these are common, as 76% of parents of adolescents, a majority of whom were White, report that they sometimes or often comment on their own weight in front of their child (e.g., "When I'm with my child, I comment that my arms are too flabby"), and 51.5% of parents report saying at least one statement about people with obesity in front of their teen (Lydecker et al., 2018). A motivation for this form of family weight talk may be to teach children about the dangers of becoming overweight or to induce fear of becoming fat (Thomas et al., 2014); however, evidence suggests that parental weight comments about self and others are associated with eating habits, such as fasting and binge eating, and poor social-emotional health in high-school aged children (Neurmark-Sztainer et al., 2010; Bauer et al., 2013). Finally, explicit criticism or teasing of children about their weight is also common, and in fact, 60% of youth ages 13 to 18 seeking treatment for obesity report experiences of weight-based teasing from family members (Puhl & Himmelstein, 2018). Notably, some children report family members as the main source of teasing about weight (Balantekin et al., 2014; Neumark-Sztainer et al., 2010).

The categories of family weight talk identified by Pudney and colleagues (2019) are not mutually exclusive, as parents likely engage in multiple forms of weight talk in their communications with their children. These four forms of family weight talk may occur to

varying degrees within a general conversational style that parents use to talk with their children about health and weight. In fact, Hall and colleagues (2016) explored parent conversational styles by conducting focus groups to investigate the impact of recalled family weight talk (i.e., memorable messages) on adult women's health behaviors, in a sample of 77 adult women (28 of whom were classified as overweight). Memorable messages were operationalized as verbal messages about weight and health that parents convey to children that become internalized and are perceived by the individual as having a significant influence on their health attitudes, behaviors, and beliefs over time. Guided by Baumrind's (1966) classic work on parenting styles, Hall and colleagues identified three conversational styles that reflect how parents talk about weight with their children – the parental critic, the parental protector, and the parental professor. Parental critics, most closely resembling an authoritarian parenting style, place pressure on children to maintain an ideal body size and appearance, with weight talk centered on exercise, calories, weight gain, and physical characteristics (e.g., "are you really going to eat that?"). Parental critics warn children about the moral dangers of obesity but do not offer appropriate support for health behaviors. The parental protector, on the other hand, delivers messages of self-love and "beauty at any size" (e.g., "you're beautiful just the way you are"). This conversational style is most aligned with the indulgent or permissive parenting style identified by Baumrind (1966), in that parents may not exert appropriate levels of control over children's behaviors or set clear expectations about diet and activity. Most participants with protecting parents recalled their parent struggling with issues of diet and exercise and reported that this style facilitated poor habits in them, as well. Finally, the parental professor focuses on messages of health by teaching children about diet and exercise; this style is reminiscent of an authoritative parenting style (Baumrind, 1966) but was the least common style recalled by participants (Hall et al., 2016).

Although the Hall et al. (2016) study did not explore the correlates and outcomes of parent conversational styles of family weight talk, it does illustrate how parents may have an overarching style of health-related communication, with lasting impacts on beliefs about health and weight. One advantage to conceptualizing family weight talk in this way is a focus on general patterns of communication, rather than specific comments. It may be that these overarching conversational styles have a greater impact on child health behaviors and beliefs, than do individual comments or conversations examined in isolation. Additionally, identifying typologies of parent health-related communication may be useful in designing targeted intervention and prevention efforts that promote family health and well-being (Hall et al., 2016). Exploring the outcomes that are associated with these various conversational styles may lead to important revelations regarding how parental discourse can facilitate or undermine health behavior. On the other hand, assuming that the overarching conversational style of parents is the major conversational influence on child health habits and beliefs may underestimate the salience of negative comments made within a communication climate that is for the most part positive.

Family weight talk has also been conceptualized using a dimensional approach, as Dailey and colleagues (2014) examined the extent to which mother-adolescent discussions about weight and health were characterized by challenge and acceptance. Challenge assesses the degree to which discussions about weight management encourage healthy behavior (e.g., pushing conversation partner to make healthy choices or exercise alongside them), whereas acceptance focuses on the level of positive regard, warmth, and attentiveness in the discussions (Dailey et al., 2014). In this study, 214 predominately White, mother-teen dyads of varying weight status, at least one of which desired to change their weight-related behaviors, responded to a questionnaire about health communication (Dailey et al., 2014). For both mothers and their teenage child,

conversations characterized by greater challenge and acceptance were positively associated with parent and adolescent reports of the effectiveness of and satisfaction with family weight-related conversations (Dailey et al., 2014). However, these effects were moderated by sensitivity to weight management (i.e., discomfort with and avoidance of weight management issues) and health motivation (i.e., motives for managing weight, engaging in exercise, eating healthy). Specifically, teens who were less sensitive to weight management reported greater effectiveness of mothers' challenging communication, but for those with low health motivation, communication rated as more challenging was associated with worse diet. It may be that challenging messages about health are perceived as critical to those who are sensitive to weight management issues or are not already motivated to change their health behaviors. With regard to acceptance within health discussions, for teens endorsing higher health motivation, their diet was better in the context of acceptance from their mother; however, for teens low in health motivation, acceptance was not associated with a healthful diet. Taken together, this study reveals the potential complexity of the relations between parent-child health communication and child outcomes, and the importance of considering how parent-child communication is jointly shaped by individual factors and the larger context within which the discourse is embedded.

A more circumscribed type of weight talk that has received considerable attention in the literature is 'fat talk' (i.e., disparaging comments about weight, eating, and exercise habits, fear of overweight, appearance and behavior comparison, discussion of strategies to change appearance; Berge et al., 2016; Lydecker et al., 2018). Fat talk is akin to child-centered weight criticism (Pudney et al., 2019) and the parental critic (Hall et al., 2016); however, a key distinction is that fat talk is defined by *mutual* disclosure and validation of weight-related concerns (Chow & Tan, 2018). Although fat talk is typically examined within peer contexts,

available evidence suggests it may be common within the family system, as well (Arroyo & Anderson, 2016; Webb et al., 2018; Rogers et al., 2019). In fact, fat talk within the family is associated with a host of negative outcomes among college students including, peer fat talk (Arroyo & Anderson, 2016; MacDonald et al., 2015, Rogers et al., 2017), bulimic tendencies (Arroyo & Anderson, 2016), less mindful eating, lower body satisfaction, less appreciation of the body's functionality (Webb et al., 2018), body shame, social physique anxiety, restrained eating, and higher BMI (MacDonald et al., 2015). Notably, perceived fat talk of mothers explained more variance in college women's current fat talk than did the perceived fat talk of peers (Rogers et al., 2017). Taken together, research suggests that fat talk does occur within the family system and that the presence of and engagement in this type of weight talk can contribute to patterns of health-related discourse among children, as well as a host of negative consequences for children.

Although family weight talk is an emerging area of study, converging evidence suggests that parent-child communication about weight and health can take many forms and have meaningful effects on child health outcomes. Most research in this area relies on parent-reported weight talk or young adult-reported weight talk about the distant past, which can be subject to biases and distortions in recall. To advance our understanding of family weight talk, it will be critical to utilize methodologies that maximize ecological validity and capture weight talk with greater temporal proximity to when it actually occurs. In addition, studies examining predictors of family weight talk are rare. Therefore, greater attention is needed regarding the intrapersonal, relational, and contextual factors that may shape the nature and effects of family weight talk. These efforts can inform our understanding of family weight talk, broadly, as well as support interventions aimed at educating parents about effective ways of communicating with their children about health and weight.

Predictors of Family Weight Talk

Understanding the factors that contribute to variability in weight talk across families is an important step in furthering our understanding of this discourse. While limited, the available evidence suggests that parent and child characteristics, parental weight-related experiences and beliefs, and parent perception of child risk due to excess weight may play an important role in how families talk about weight and health.

Parent Socio-Demographic Characteristics. Bioecological theory highlights the transactional nature of parent-child interactions, and therefore, it is vital to consider the impact that both parent and child characteristics may have on how families talk about weight and health. Parent characteristics, including gender, BMI, education, income, and race, as well as child characteristics, such as weight status, age, and gender may be important to consider when it comes to family weight talk. Mixed findings have emerged from investigations exploring links between parent gender and family weight talk. Berge and colleagues (2016) found that mothers of 9- to 12-year-old children made twice as many negative weight talk comments as fathers. In another study, college women recalled more critical comments and encouragement of weight control from their mother than their father (Kluck, 2010). On the other hand, Pudney and colleagues (2019) found that fathers had more weight conversations with children (ages 9 to 15) and made more comments about others' weight than did mothers; however, mothers and fathers were equally likely to make comments about their own weight in front of their child. Taken together, it appears that both mothers and fathers engage in family weight talk; however, there may be differences in the frequency and type of weight talk depending on parent gender. More generally, research suggests that weight is a more salient issue for women than for men, with women more often dieting, feeling overweight, and expressing body dissatisfaction (Tiggerman

& Rothblum, 1988; Hall et al., 2016), which may contribute to mothers' increased engagement in family weight talk.

In addition to gender, parent weight status may also play a role in parent engagement in family weight talk. Despite limited empirical work in this area, one investigation found no significant association between parent BMI and family weight talk (Pudney et al., 2019). However, this deserves further investigation, as higher BMI may confer greater risk of negative weight-related experiences (i.e., stigmatization) and internalized weight bias, influencing how parents talk with their children about health and weight. As such, it may be that weight-related experiences and beliefs are more proximal and robust predictors of family weight talk than BMI.

Although there is a lack of research on other parental characteristics in relation to family weight talk, findings from studies on child weight more broadly suggest additional socio-demographic factors, including parent education, income, and race/ethnicity that should be considered. As one example, parents with higher educational attainment are better able to appreciate the health risks that can be associated with children's excess weight (Jain et al., 2001), and they are more likely to have children who consume more fruits and vegetables (Vereecken et al., 2004). Education level may be important because it leads to an understanding of the role of healthy food and physical activity in promoting well-being and the impact of the home environment in the development of health habits among children. Higher educational attainment may increase the likelihood of health-focused conversations within the family and verbal support for child engagement in healthful behaviors. Along with education, parent income may serve as a proxy for the family's resources, such that higher income affords greater access to nutrient-dense food, spaces that promote physical activity, and opportunities for bolstering health. The availability of resources to support health habits may inspire parent-child conversations about

engaging in these behaviors.

Racial and ethnic factors may also impact family weight and health conversations. Black and Hispanic parents are more likely than White parents to consider heavier body types desirable (Bennett & Wolin, 2006), and ethnic background influences beliefs about child overweight (Jain et al., 2001). It may be that family weight talk is less prevalent or perhaps, less judgmental in families from cultural backgrounds that place less importance on thinness. Additionally, traditional gender roles held by some cultures may limit the emphasis and availability of physical activity for female children (Trigwell et al., 2014). Notably, racial inequities can also limit access to and availability of nutrient-dense foods and safe spaces for physical activity for marginalized groups (Larson et al., 2009; Jennings & Gaither, 2015). These environmental barriers that make health behavior difficult for some families may also shape the nature of health-related communication between parent and child. Overall, there have been few studies on the associations between socio-demographic factors and family weight talk; however, past work suggests that parent gender, BMI, education, income, and race/ethnicity influence parents' beliefs about health and weight, and therefore, these characteristics will be examined in the current study.

Child Socio-Demographic Characteristics. The reciprocal nature of parent-child interaction, as illustrated by the bioecological framework, suggests that child factors (e.g., weight status, age, and gender) are also likely to play a role in family weight talk. Weight talk is experienced by children of all weight statuses. However, family weight talk increases as child BMI increases (Pudney et al., 2019), and children who have overweight or obesity are more likely to experience weight talk from family members (Hayden-Wade et al., 2005; O'Brien et al., 2016). In addition, children experience greater amounts of weight talk from parents as they age

(Pudney et al., 2019). It may be that the consequences of food/activity habits become more apparent to parents as their children age (Rhee et al., 2005) and weight talk becomes a mechanism through which parents attempt to cultivate health-promoting habits in their children. Moreover, children may make more comments about their own weight and health as they age, sparking weight-related conversations within families (Pudney et al., 2019). Although research examining the relations between child gender and family weight talk is rare, research on fat talk among adults (Guertin et al., 2017) suggests that weight talk may be more common between parents and their female children. As one example, MacDonald and colleagues (2015) found that college-aged women were more likely to engage in fat talk with family members than were college-aged men. Additionally, qualitative interviews conducted by Thomas and colleagues (2014) revealed that parents felt they had to walk a 'tightrope' when discussing weight with their daughters, but did not feel this way in discussing weight with their sons. Therefore, emerging evidence suggests that parent and child characteristics may impact engagement in family weight talk, and further investigation of the unique and joint contributions of these factors can lead to a better understanding of parent-child health-related communication.

Parent Experiences and Beliefs. Along with socio-demographic factors, parents' experiences and beliefs surrounding their own and their child's weight can impact engagement in family weight talk.

Experiences of Weight-Stigmatization. For parents who struggle with their own body image, negative weight-related experiences (i.e., stigmatization) may be particularly salient, contributing to certain patterns of discourse. Experiences of weight-based stigmatization are common and often involve peers/friends, parents, spouses, and health care professionals (Puhl et al., 2008). Some parents who have experienced weight-based stigmatization may be critical of

their child's weight, hoping that this will motivate health-promoting behavior and protect their child from similar experiences of weight-based teasing or stigmatization from others. In contrast, other parents who have experienced weight-stigma may avoid conversations about child weight and health altogether or focus on loving one's body at any shape/size to minimize the possibility of conveying a critical message. Understanding the relations between parental experiences of weight stigma and the manner in which they communicate with their children about health and weight may be important for promoting effective health related communication among families.

Internalized Weight Bias. When parents' negative weight-related experiences are internalized, they report greater weight bias internalization (or applying negative weight-based stereotypes to oneself). Internalized weight bias among parents is associated with more child-centered weight conversations and more frequent comments about their own and others' weight (Pudney et al., 2019). Guided by the COBWEBS model, parent weight talk might also be viewed as a mechanism of regulating parents' own negative emotions that arise from this internalized bias (Tomiyama, 2014; Engeln & Salk, 2016). Perhaps parents engage in family weight talk as a way to feel relief from personal experiences of body dissatisfaction, shame, or guilt. In fact, prior work on peer communication suggests that engaging in fat talk is associated with a temporary cathartic effect and short-term increases in body satisfaction (Engeln & Salk, 2016), as well as relief from guilt and shame associated with overeating, eating junk foods, and failing to achieve the thin ideal (Shannon & Mills, 2015). Taken together, family weight talk may serve to regulate parents' negative emotions that arise from personal beliefs about health and weight, and possibly decrease guilt related to their child's weight status and health behaviors.

Intergenerational Transmission of Weight Stigma and Bias. At a macrolevel, cultural standards regarding health and weight can inform our understanding of parent engagement in

family weight talk. Within Western culture, thinness is highly valued, and weight is considered the main determinant of health, with excess weight often viewed as an issue of personal responsibility. This weight-normative approach to health can have a harmful influence on one's health beliefs and behaviors (Tylka et al., 2014; Guertin et al., 2017) and can result in weight bias and stigma toward those who are overweight. Weight stigma, or the societal devaluation of individuals based on excess weight, often involves stereotypes related to laziness, lack of motivation, and lack of willpower (Pont et al., 2017) and can emerge towards children as young as 3 years old (Andreyeva et al., 2008). The pervasiveness of these standards in Western culture may mean that parents and children hold negative attitudes towards those affected by overweight, resulting in health-related conversations that are perceived as stigmatizing by children. For example, parents who have internalized the thin-ideal may convey messages of pressure to achieve this ideal to their children. They may be more likely to emphasize the weight-control benefits of healthy eating and exercise rather than the general health benefits of these activities. As another example, some parents may ascribe to the belief that individuals affected by overweight lack self-control and willpower, and in turn, send messages to their child that weight gain is unacceptable and shameful. These stigmatizing messages are common among families (Puhl & Brownell, 2006; Puhl et al., 2013) and are often intergenerationally transmitted, resulting in dysfunctional eating habits and poor body image over many generations. In fact, Rogers and colleagues (2019) found that anti-fat attitudes among college women provided a link between recalled restrictive/critical caregiver eating messages and current involvement in family fat talk, providing evidence that family weight talk can reinforce cultural standards and ideals related to weight. Children who have experienced parental weight stigma continue to report emotional consequences from this weight-based stigma into adulthood (Pont et al., 2017). On the

other hand, parents who believe that diet and physical activity are important because they contribute to health and wellbeing (and act in accordance with these values) may be more likely to educate children about health, encouraging healthy habits and promoting overall wellness (Guertin et al., 2017). The examination of parental beliefs about weight, and the cultural standards that contribute to these beliefs, is important to more fully understand individual differences in family weight talk and address stigmatizing weight-related experiences within the family.

***Perception of Child Risk for Health Problems*.** Prior work has demonstrated that parent beliefs about child risk for health problems due to weight is associated with mixed outcomes. For example, parents who believe that their child is at elevated risk for physical and social-emotional problems due to excess weight report greater readiness to make health behavior changes within the family (Basquin, 2019; Rhee et al., 2005), engage in greater treatment seeking behavior (Lampard et al., 2008), and are more likely to enroll in health interventions (Hansen et al., 2014). Yet, parent perception that their child has overweight or is at risk for becoming overweight is associated with greater weight gain among youth (Almond et al., 2016; Robinson & Sutin, 2014), elevated biomarkers for stress and adiposity (i.e., C-reactive protein; CRP) (Sutin et al., 2018), and restrictive parenting practices, such as promoting dieting and skipping meals (Moore et al., 2012; Peyer et al., 2015). In fact, qualitative work has revealed that although parents report being open to receiving information about their child's risk for obesity, they also express concern that this could lead to negative consequences, such as restrictive feeding and shame (Bentley et al., 2017). It may be that parents who recognize overweight or a risk for overweight in their child have conversations aimed at mitigating the associated health problems. However, these conversations may be interpreted as stigmatizing to a child, eliciting stress and negative emotions

as well as biobehavioral dysregulation that contribute to further weight gain. Given that perception of child risk is an internal process, it is likely that there are other key mechanisms that are more accessible to the child, such as family weight talk, that explain the associations between parent risk perception and child outcomes.

Parents may engage in various forms of weight talk when they perceive risks facing their child due to weight. In fact, a qualitative study of family weight talk found that 63% of mothers reported engaging in weight-based talk with their child because of a concern about their child's health (Berge et al., 2016). Given the role of risk perception in health behavior change, child obesity prevention and intervention efforts are increasingly incorporating components aimed at increasing parental concern about their child's weight. For example, weight monitoring programs are frequently used to report a child's weight to parents, with the goal of engaging them in preventative or reparative health strategies (Gillison et al., 2016). Unfortunately, there is a potential for these programs, and other child weight interventions, to increase negative family weight talk (Gillison et al., 2016). Therefore, this study will be a first step in clarifying the relations among parent perception of child risk, family weight talk, and child health outcomes, with potentially important implications for refining prevention and intervention efforts.

Consequences of Family Weight Talk

Parent-child communication about weight and health impacts children's physical and social-emotional well-being. However, little is known about potential benefits of parent-child communication about weight and health because most studies focus on the deleterious effects of negative family weight talk (e.g., weight teasing, negative comments about appearance, critical comments about body shape or size, conversations about dieting, and fat talk) on youth physical health outcomes (Kluck, 2010; Neumark-Sztainer et al., 2010; Duarte & Pinto-Gouveia, 2016;

Lydecker et al., 2018). Converging evidence demonstrates that negative family weight talk is associated with poor eating habits and unhealthy weight-control efforts. As one example, Lydecker and colleagues (2018) found that parents who reported making negative comments about their child's weight (e.g., 'when I notice that my child has gained weight, I comment that his/her arms are too flabby') also reported that their 9- to 11-year-old children were three times more likely to overeat, four times more likely to eat in secret, and three-and-a-half times more likely to have a BMI in the overweight/obese range than children of parents who refrain from making negative comments about their child's weight (Lydecker et al., 2018).

Consistent with the work by Lydecker and colleagues (2018), another study found that adolescents who reported that their mothers talked about their own weight and encouraged dieting engaged in more restrictive (e.g., fasting, going on a diet) and extreme weight-related behaviors (i.e., binge eating, vomiting or use of diet pills, laxatives, or diuretics) (Neumark-Sztainer et al., 2010). Adolescents who reported that their father talked about his own weight engaged in more extreme weight behaviors, and adolescents who reported that their father encouraged them to diet engaged in more restrictive behaviors. Additionally, weight teasing from any family member was associated with greater body dissatisfaction, restrictive and extreme weight behaviors, and binge eating among daughters (Neumark-Sztainer et al., 2010).

Further evidence of the negative effects of family weight talk on weight control and eating behaviors comes from a study by Kluck (2010) who found that recalled parental criticism of weight, teasing about weight, and encouragement to lose weight were associated with bulimic symptoms among a sample of predominately White, college women. Finally, Duarte and Pinto-Gouveia (2016) found a direct link between recalled weight-related victimization from peers and parents during childhood and women's binge eating symptoms, with body image shame

mediating the association between experiences of victimization and binge eating symptoms. Taken together, these findings underscore that negative family weight talk is associated with harmful physical health outcomes, including restrictive weight control behaviors, binge eating, and bulimic symptomology.

In addition to physical health consequences, negative family weight talk can have a detrimental impact on a child's social-emotional health. Children who are teased or bullied about their weight are more likely to experience depression, use substances, have low self-esteem, and have poor body image (Eisenberg et al., 2006; Bucchianeri et al., 2014). Negative weight talk from parents may be particularly detrimental for children's social-emotional health as children need and expect love, support, and acceptance from family members. While the research within the family context is limited, prior work has demonstrated that maternal comments about weight (mothers' own weight, the child's weight, or someone else's weight) are associated with greater endorsement of depressive symptoms among adolescents (Bauer et al., 2013). Furthermore, maternal statements about her own weight are associated with lower self-worth among adolescents. Other studies have shown that recalled restrictive/critical messages from caregivers (i.e., explicit criticism related to food consumption and weight status) are associated with greater body surveillance and body shame among college-age women (Daye et al., 2014), as well as lower perceived familial body acceptance, worse body appreciation, and less intuitive eating (i.e., eating in response to physiological hunger and attending to satiety cues) (Kroon Van Diest & Tylka, 2010). Similarly, restrictive/critical caregiver eating messages recalled by college-aged women are related to greater engagement in family fat talk, anti-fat attitudes, external body image shame, and lower perceptions of body acceptance by others (Rogers et al., 2019).

In one of the first investigations of weight bias internalization in youth, Puhl and Himmelstein (2018) found that weight talk from mothers was associated with greater weight-bias internalization among adolescents within a weight-loss program. In the adult literature, weight-bias internalization is associated with depression, anxiety, poor body image, worse health related quality of life, and disordered eating among adults (see Pearl & Puhl, 2018 for a review). Taken together, evidence suggests that negative family weight talk is associated with poor social-emotional outcomes among children.

Limitations of Prior Work

While clear patterns are emerging to demonstrate the relations between weight-focused and stigmatizing forms of family weight talk and child physical and social-emotional health outcomes, there are limitations to this work and additional research is needed to clarify the effects of family weight talk on child health outcomes. Importantly, the research on family weight talk is largely cross-sectional and provides a single snapshot of weight talk at one moment in time. The current study will address this limitation by investigating family weight talk over the course of a week through the use of daily diaries. In addition, much of the research on family weight talk has focused on adolescents or the recalled experiences of adult-women, leaving a considerable gap in our knowledge regarding the processes that may be salient for school-age children - a time when parents have substantial influence over children's diet and activity habits but children are exerting increasing levels of decision-making and autonomy. To fill this gap, with the appreciation that health habits and communication evolve within the family over time, the current study will examine the implications of family weight talk for school-aged children.

Another significant limitation of prior work is the reliance on survey formats with a single-informant (often a parent) from the family. Data such as this is limited by the individual's recall, social desirability, and perceptions. In order to develop a deeper understanding of family weight talk and the associated correlates and consequences, methodologies that come closer to capturing real-time family weight talk are necessary. The current study will employ a methodology that allows for a more detailed and descriptive picture of family weight talk to emerge, furthering our understanding of the construct. Additionally, given that family weight talk is an interpersonal process, having information from at least one parent and child involved in the communication may lead to a more nuanced understanding of parent-child communication about weight and health. The use of multi-informant data collection will be a considerable advancement for the literature on family weight talk.

Furthermore, the research on family weight talk focuses primarily on eating related outcomes, such as dieting and disordered eating behaviors, at the expense of other important child weight-related outcomes, such as physical activity and food intake. The current study will explore how family weight talk impacts the foods that children are eating and the physical activity they are engaged in. A final and crucial point is that although the consequences associated with negative family weight talk are vital to addressing potential negative impacts, focusing solely on negative weight talk limits our ability to inspire health-promoting weight talk within families, and across community and clinical settings. Further investigation of both positive and negative weight-related experiences among families is needed if we hope to advance the field (Hall et al., 2016) and promote family health and well-being.

The Role of the Caregiving Context

Although not often examined in the context of child weight, evidence on parenting and family functioning, more broadly, suggests that parenting practices and family wellbeing (i.e., the caregiving context) may influence how children perceive and interpret family weight talk.

Parenting Practices

Parenting is associated with children's functioning across a range of developmental domains (academic, behavioral, social-emotional, health) and contributes to the overall emotional climate of the family. Parents who are warm and supportive use praise, positive affect, and developmentally appropriate guidance to cultivate strong and secure relationships with their children, allowing for the emergence of skillful self-regulation and other developmental competencies (e.g., Mokrova et al., 2012). In contrast, harsh, overcontrolling, or critical parenting is often associated with difficulties in behavior, self-control, and relationship functioning, which can lead to internalizing and externalizing problems. Importantly, prior work has demonstrated that positive parenting can protect children from the negative effects of specific parenting behaviors (e.g., physical discipline, controlling feeding practices). With respect to family weight talk, it may be that conversations and comments about weight may not be associated with harmful child outcomes in the context of parenting that is generally warm and supportive. Emerging research exploring the associations between parenting style and child overweight more broadly, may offer clues regarding applications to family weight talk.

Research has consistently shown that parenting behaviors aimed at weight control (e.g., modeling, monitoring, controlling access to certain foods) delivered within the context of an authoritative parenting style (warm parenting with appropriate control) are associated with better child health outcomes and lower risk for obesity than the same weight control behaviors delivered in the context of over-controlling, permissive, or uninvolved parenting (Rhee et al.,

2006; Stang & Loth, 2011). In addition, parental warmth and behavioral control are associated with greater consumption of fruits (Kremers et al., 2003) and vegetables (Pearson et al., 2009), as well as less dieting (Rhee et al., 2015), less snacking (Pearson et al., 2009), and lower consumption of sugar-sweetened beverages (Rodenburg et al., 2014) among children. On the other hand, parents who provide little support and affection, low behavioral control, and high psychological control tend to have children who engage in greater amounts of emotional eating (Snoek et al., 2007; Topham et al., 2011). Additionally, high psychological control (i.e., manipulation, invalidation, and control of children's thoughts, emotions, and internal experiences) is associated with greater snack consumption among children (Barber, 1996; Sleddens, et al., 2011). Therefore, general parenting practices may provide the environmental and emotional context in which children interpret parents' weight-related behaviors and communication.

Although an untested assumption, it may be that negative weight talk (i.e., child-centered weight talk, comments about parents' own and others' weight) does not contribute to poor health outcomes when it comes from parents who are generally warm and sensitive. If weight-related messages are consistent, rational, and delivered from a place of caring and support, they may not be interpreted by children as critical or stigmatizing, but rather contribute to healthful behavior. On the other hand, the potentially harmful effects of negative weight talk may be exacerbated when delivered by parents who are typically harsh and over-controlling. In this environment, children may feel ashamed and rely on unhealthy means of coping (e.g., eating as a way to derive pleasure). Consistent with the idea of parenting as a protective or exacerbating influence, Van der Horst and colleagues (2011) found that parental food restriction was associated with less consumption of sugar sweetened beverages among children, in the context of parenting that was

firm but highly involved. However, food restriction was associated with greater caloric intake, in the context of parenting that was firm but lacked involvement (Musher-Eizenman & Holub, 2006). Therefore, parenting may be a salient aspect of the caregiving context that shapes the way children interpret the health- and weight-related messages conveyed by parents that in turn, impacts the effects of family weight talk on child health habits and well-being.

Family Well-being

Family well-being (also referred to as family functioning) encompasses the organizational aspects and interpersonal interactions of a family that shapes how they manage routines, communicate, and connect emotionally with one another (Berge et al., 2013). Family functioning is associated with physical health (Balistreri & Alvira-Hammond, 2016), mental wellness (Kim, Viner-Brown, & Garcia, 2007), and academic outcomes (Annuziata, Hogue, Faw, & Liddle, 2006) among children. Well-functioning families have defined roles, clear and open communication, and well-regulated affect, encouraging growth and well-being among family members, as well as the ability to solve problems and accomplish family tasks (Halliday et al., 2014). In contrast, poorly functioning families exhibit disorganization, poor communication, and poorly defined or overly rigid roles (Halliday et al., 2014). Family well-being is impacted by the beliefs, behaviors, and interactions among all family members, and each member is shaped by and shaping other family members (Berge et al., 2013).

Families can also be conceptualized as a resource that can be drawn upon in times of stress and hardship. In well-functioning families, individual family members are more likely to approach challenges (e.g., the establishment and maintenance of health behaviors) as a unit and to see them as opportunities for growth. When all members of a family are actively involved in addressing family challenges, it reduces the burden on each individual family member. Family

functioning factors such as cohesion, sense of belonging, boundaries, problem solving, and flexibility have been linked to the effective navigation of family challenges and family resilience (Masten, 2018). A history of successfully facing challenges as a family fosters resilience, optimism, and efficacy in their ability to face future challenges (Masten, 2018).

It may be that well-functioning families are better able to navigate challenges associated with child weight and health. Instead of seeing child health as the responsibility of the child, parents in well-functioning families may recognize their role in health promotion, engage their child in conversation regarding health-promoting behaviors, and partake in healthy eating and physical activity habits alongside their child. Well-functioning families may provide a family environment where issues that arise regarding child body image and health can be navigated sensitively and supportively as a family unit, possibly reducing the likelihood that children will interpret health- and weight-related communication as stigmatizing. The specific relations between family functioning and family weight talk are unclear but greater attention to this area may inform efforts to promote child health and well-being.

Prior work suggests that family functioning impacts how families manage their children's health and behaviors (Wen et al., 2011). For example, well-functioning families who are able to deal with intense emotions, communicate effectively, and negotiate roles and responsibilities regarding a child's treatment are more successful in adjusting to children's health problems (Van Schoors et al., 2017). Of particular relevance for the current study, family functioning is implicated in the management of childhood obesity (Golley et al., 2007; Nowicka et al., 2007), and family functioning influences how parent feeding practices are experienced and interpreted by the child (Walton et al., 2019). Poor communication, greater family conflict, less family cohesion, and strict hierarchy values are related to increased risk of overweight among youth

(Chen & Kennedy, 2004; Zeller et al., 2008; Halliday et al., 2014). Additionally, greater family well-being is associated with healthful behaviors like frequent family meals, regular breakfast consumption, and less sedentary behavior in children (Berge et al., 2013). Notably, interventions aimed at jointly managing obesity and improving family functioning have been successful in reducing child BMI (Nowicka et al., 2007) and waist circumference (Golley et al., 2007). It appears that a well-functioning family environment can create an atmosphere that allows for greater child acceptance of parenting practices regarding greater engagement in health behavior (Rhee, 2008).

Importantly, family functioning shapes daily aspects of family life, notably, communication. In fact, poor family communication is associated with higher child BMI (Chen & Kennedy, 2004). Family functioning is likely to play a role in family weight talk, although these relations have not been explored. Perhaps a well-functioning family provides an ample environment for parents and children to communicate openly about diet, physical activity, and health. Parents may be able to successfully create structure surrounding diet and physical activity, and children may be more willing to accept parental rules and regulations, while feeling comfortable and supported in asking questions related to health and engaging in health behaviors. It may be that child-centered weight talk and comments about parents' own and others' weight conveyed within this type of family environment is not perceived as stigmatizing by children and does not contribute to adverse health outcomes. On the other hand, worse functioning families may create an atmosphere where health and weight are discussed amidst a background of general stress and conflict. Children may not feel supported in their health behavior, parents may be more likely to convey messages of criticism and restriction related to food and weight, and parental messages may be more often perceived as stigmatizing by

children. It may also be that having a child who is considered overweight contributes to impairments in family functioning. Parents may recognize the risks to their child due to excess weight and respond with additional maladaptive family interactions, such as negative family weight talk and ineffective management of weight-related behaviors (i.e., restriction). Given the importance of family functioning to child health, it is vital that the impact of family functioning on family weight talk is explored in more detail.

Current Study

Given the importance of the development of health behaviors and positive health attitudes in children, the goal of this study was to develop a deeper understanding of parent child communication about health and weight in ways that might inform intervention efforts. Specifically, this study examined the nature of weight talk within families of school-aged children, as well as the correlates and consequences of varied forms of family weight talk. In addition, the caregiving context (i.e., parenting practices and family well-being) was explored as a potential moderator of the associations among parent experiences and beliefs, family weight talk, and child physical and social-emotional health. Study aims were fourfold:

Aim 1: Describe the nature of weight talk in families with school-aged children, using a multi-method, multi-informant approach.

- Aim 1a: Determine if parent engagement in family weight talk varies as a function of parent and child socio-demographic factors including parent gender, BMI, education, income, and race/ethnicity, and child BMI, age, and gender.
    - *Hypotheses: Mothers and parents with higher BMI will engage in more weight-focused talk than fathers and those with lower BMI. Parents of older*

children, female children, and children with higher BMIs will engage in more weight-focused talk.

- *No specific hypotheses will be made regarding race/ethnicity, education, and income, or health-related talk (i.e., no explicit reference to weight) given limited research in these areas.*

- Aim 1b: Determine if parent engagement in family weight talk varies as a function of parent experiences and beliefs.
  - *Hypothesis: Parent experiences of weight stigmatization, weight bias internalization, anti-fat attitudes, and perception of child weight-related risk will be associated with greater parental engagement in weight-focused talk.*

Aim 2: Examine the associations between family weight talk and child health outcomes including child diet and physical activity habits, child health related quality of life, and child social-emotional health.

- *Hypothesis 1: Weight-focused talk will be associated with worse child diet and physical activity habits, poor child health related quality of life, and worse social-emotional health.*
- *Hypothesis 2: Health-focused talk will be associated with better child diet and physical activity habits, better health related quality of life, and greater social-emotional health.*

Aim 3: Test a series of mediation models to determine whether the effects of parent experiences and beliefs (i.e., experiences of stigmatization, weight bias internalization, anti-fat attitudes, and perception of child weight related risk) on child health outcomes are explained by family weight talk.

- *Hypothesis: Parent experiences and beliefs will be related to child physical and social-emotional health outcomes through engagement in family weight talk. Specifically, more negative experiences and beliefs among parents will be associated with more weight-focused talk, which in turn will predict worse physical and social-emotional health outcomes for children.*

Aim 4: Test a series of moderated mediation models to determine whether the indirect effect of parent experiences and beliefs on child health outcomes through family weight talk is moderated by the caregiving context.

- *Hypothesis: The mediating effect of engagement in family weight talk on the relation between parent experiences and beliefs and child health outcomes will be moderated by the caregiving context, such that higher levels of positive parenting and greater family well-being will reduce the association between engagement in weight-focused talk and poor child health outcomes.*

CHAPTER 2: METHOD

Participants

A sample of parents and their 10 to 12-year-old children were recruited through social media, email, community settings frequented by children and families, the University's SONA system, and snowball methods. The sample included a total of 60 families who completed the entire study (i.e., parent baseline survey, child survey, and at least 3 of 5 daily parent surveys). As shown in Table 1, on average, parent participants were 41.34 years old (*SD* = 6.00) and 84% were mothers. Children were on average 10.76 years old (SD = .75) and 48.3% identified as male, 45% identified as female, and 5% indicated their gender was 'not listed'. A majority of parents (74.7%) identified as White, 10.7% identified as Black/African American, 6.7% identified as Asian/Asian American, 5.3% identified as Bi-Racial/Multi-Racial, and 1.3% identified as Middle Eastern or Arab American. Similarly, most children (65%) identified as White, 10% identified as Black/African American, 6.7% identified as Asian/Asian American, 5% identified as Bi-Racial/Multi-Racial, 1.7% identified as Middle Eastern or Arab American, 1.7% identified as Native Hawaiian or Other Pacific Islander, and 8.3% indicated Other, don't know, or prefer not to answer. With respect to income, 2.7% of parents reported an annual household income less than $10,000, 1.3% reported an income of $10,000-24,999, 17.3% reported an income of $25,000-49,999, 14.7% reported an income of $50,000-74,999, 16% reported an income between $75,000-99,999, 37.3% reported an income greater than $100,000, and 10.7% indicated that they preferred not to answer. A majority of parent participants (81.4%) had a college degree or higher.

Procedure

After obtaining IRB approval, participants were recruited through social media, email, community settings frequented by children and families, the University's SONA system, and snowball methods. Before beginning the survey, participants read and electronically accepted the informed consent. Then, participants completed an online questionnaire, with parent and child completing separate questionnaires. The questionnaires were compiled using the Qualtrics software. Parents were asked if they have a child between the ages of 10 and 12 years old, and only those participants who met this eligibility criteria were given access to the full survey. Additionally, parents were asked a series of questions about their child's reading level, academic performance, and ability to complete the questionnaires without assistance. Only one parent's responses indicated the need for assistance, and this child was helped by a research team member in completing the study over the phone.

Of the parent participants who completed the survey in one day, the baseline questionnaire took them an average of 77.38 (SD = 67.02) minutes to complete. There were eight participants who completed the baseline questionnaire over multiple days. The child questionnaires took an average of 47.63 (SD = 67.39) minutes to complete. One child participant completed the survey over multiple days. Parents' baseline questionnaires assessed demographic information, family weight talk, parental experiences and beliefs, child health outcomes, parenting and family functioning, caregiver burden, eating disorder history, and the impact of COVID-19 on the family. Child questionnaires assessed perceptions of family weight talk, diet, physical activity, health related quality of life, social-emotional functioning, family functioning, and parenting. Additionally, children were asked if they were having difficulty reading and understanding the questionnaire every few pages. Very few children indicated difficulty with the questionnaire and no data was removed based on these responses.

After completing the baseline survey, parents were asked to complete five daily diaries to assess family weight talk. Parents provided their email and received daily diary alerts each evening. After exclusion of eleven outliers (>60 minutes), the Daily Diary questionnaire took participants an average of 5.13 minutes (SD = 6.87) to complete each evening.

Families earned up to $30 in Amazon gift cards for participation. Parents earned a $5 Amazon gift card or 1 unit of research credit (SONA participants) for completion of the parent questionnaire, and a $10 Amazon gift card for completion of 3/5 Daily Diaries or a $15 Amazon gift card for completion of 5/5 Daily Diaries. Children earned a $10 Amazon gift card for completion of the child questionnaire.

Data Quality

Three attention check questions were embedded within the parent baseline questionnaire and two attention check questions were embedded within the child questionnaire. Analysis of participant responses to questions did not exclude any participants, as no participant failed multiple attention checks. All parents passed the first and third attention check questions, while 14 parents failed the second attention check ("Mark strongly agree to this item"). All children passed the second attention check question, while one child failed the first attention check ("I drink 50 glasses of milk everyday"). Participant responses to open ended questions embedded throughout the survey were also reviewed for illogical or nonsensical responses. Parent participants indicated reasonable avenues of hearing about the study, and all but one parent (who did not respond to the question) provided a realistic list of activities their child enjoys. Finally, parent participants were asked to indicate a few things that they were asked about on the questionnaire at the end of the survey. All but six participants (who did not respond to the question) provided reasonable responses about survey content. Child participants were asked to

share a few things they enjoy doing with their family, and most children provided a logical response to this open-ended question (except one participant wrote their email and one participant did not respond).

Missing Data

Missing data analyses were performed on items in each scale on the parent and child baseline surveys. A majority of participants had complete data (90%). One parent participant was missing an item on the CWRQ, one parent participant was missing an item on the parenting questionnaire, and one parent participant was missing an item on the SDQ. Nine participants were missing an item on the child diet questionnaire, and seven parent participants were missing an item on the physical activity questionnaire. Finally, five parent participants were missing an item on the Caregiver Burden scale. Turning to the child survey, one participant had a missing item on the child diet questionnaire, one participant had a missing item on the CHEAT, and one participant did not respond to the first validity check question. Additionally, one child participant did not complete the CHEAT.

Measures

Family Weight Talk

Family Weight Talk Questionnaire. Parents and children completed a modified version of the Family Weight Talk Scale (Berge et al., 2015; Pudney et al., 2019), which is an 8-item questionnaire assessing the frequency of different forms of weight talk. The questionnaire was modified to ask parents and children about weight talk over the past week as opposed to over the past year. Additionally, the scale was designed for use with parents and was adapted for use with school-age children, as well. There are three subscales: health conversations, weight conversations, and weight comments about oneself/others. Sample items for the health

conversations subscale include: “How often in the past week have you had conversations with your child about healthy eating habits?” and “How often in the past week have you had conversations with your child about being physically active?” Sample items for the weight conversations subscale include: “How often in the past week have you had conversations with your child about his/her weight or size?” and “How often in the past week have you told your child he/she weighs too much?”. Sample items for the weight comments about oneself/others subscale include: “How often do you talk about your own weight/shape/size with your child?” and “How often do you make comments about other people’s weight/shape/size with your child?” Responses were provided on a 5-point Likert scale, anchored from 1 = *never or rarely* to 5 = *almost every day* for the health conversations and weight conversations subscales, and responses were anchored from 1 = *never* to 5 = *very often* for the weight comments about oneself/others subscale. Responses to each subscale were averaged and used in analyses, with higher scores indicating greater frequency of each type of conversation. Among parents, the health conversations subscale had an internal consistency of .63, the weight conversations subscales had an internal consistency of .81, and the weight comments about oneself/others subscale had an internal consistency of .60 in our sample. Among children, the health conversations subscale had an internal consistency of .50, the weight conversations subscales had an internal consistency of .85, and the weight comments about oneself/others subscale had an internal consistency of .75 in our sample.

Daily Survey Participants completed a daily questionnaire assessing instances of family weight talk each day for five consecutive days. See Appendix A for a full version of the questionnaire. The questionnaire included the eight items from the Family Weight Talk scale (Berge et al., 2015; Pudney et al., 2019), and the items were modified to ask parents to recall

whether there were any family weight comments or conversations over the past day. Parents who responded 'yes' to any question on the Family Weight Talk scale were asked to describe the comment or conversation in more detail. If the parent reported more than one instance of family weight talk during the day, they were asked to describe the most salient instance of family weight talk in as much detail as possible, including what happened before the interaction, how the child reacted, what happened after the interaction, and what the parent was thinking and feeling during the interaction.

Parents also reported their positive and negative affect during the interaction using the Positive and Negative Affect Schedule (PANAS) (Watson et al., 1988). The PANAS is a 20-item self-report measure, assessing the extent to which one has felt a list of positive (e.g., interested, excited) and negative (e.g., guilty, nervous) emotions. Respondents rated each emotion on a 5-point scale from *very slightly or not at all* to *extremely.* A Positive Affect score and a Negative Affect score were created by separately summing participant's responses to the positive emotion items and negative emotion items, with higher scores indicating greater positive affect and negative affect, respectively. Additionally, a Total Positive Affect and Total Negative Affect mean score were created by averaging the Positive Affect and Negative Affect scores across the daily diaries for each participant. The Total Positive Affect and Total Negative Affect mean scores were used in analysis. The PANAS had good internal consistency (Positive Affect α = .91 and Negative Affect α = .84) in our sample and is widely used in parenting-related daily diary studies (Da Estrela & Gouin, 2017; Pruitt et al., 2016).

Parents also reported the outcome of the comment/conversation and rated the positivity and negativity of the outcome. Finally, parents rated the healthfulness of their child's diet and the

amount of physical activity their child engaged in that day on a 5-point Likert scale from *not at all* to *extremely*.

Coding of Daily Survey. A percentage score was calculated for each question on the family weight talk scale across the daily surveys. First, 'yes' responses to each question across the diaries were summed (range: 0 to 5). Next, each question sum was divided by the number of daily diaries completed by each parent (range: 1 to 5). Scores reflect the percentage of days that parents reported engaging in the type of conversation queried on each item of the family weight talk scale. A total of eight percentages were calculated for each parent (i.e., percent of conversations about: diet, physical activity, child weight/size, child weighing too much, exercising to lose weight, eating differently to lose weight, parent's weight, others' weight).

Parent daily descriptions of family weight talk were coded in a number of different descriptive categories. Generation of codes was an iterative process with the use of deductive codes based on theory and previous research, as well as inductive codes that emerged from the data. Codes were modified, added, or deleted based on inspection of participant responses and until saturation was reached (Urquhart, 2013). Categories based on theory and previous research included (a) valence of the interaction (b) function of the interaction, and (c) likelihood of stigmatization. Categories that were added based on review of the descriptions were (a) topic and (b) focus. Additionally, after inspection of the descriptions, several 'function' descriptors were added, as well as 'mixed' and 'neutral' valence descriptors. See Appendix B (coding manual) for detailed information about categories and descriptors, and examples of each.

The topic of each description was determined, including food focused (i.e., "We had pork and asparagus for dinner"), physical activity focused (i.e., "It made me happy he saw the walk as a good opportunity on his own"), or weight focused (i.e., "She said today and in the past that she

thinks she weighs too much, thinks her belly sticks out, and is embarrassed by the number on the scale"). Additionally, each description was coded as either positive (i.e., "I was proud that she thinks a lot about what she eats and that will work well for her through life"), negative (i.e., "My son argued at the ice cream shop because I only got him a kid size. I was frustrated because I felt he should be happy with what he got"), mixed (i.e., "[Child] *was excited* to go on the walk because he enjoys talking/spending time together on the walks. And he generally likes walking as exercise. *He was not so enthusiastic* about doing some light weights afterwards but agreed to do so"), or neutral (i.e., "My child made his taco from the ingredients I provided but it only included meat and cheese. I said please add some vegetables to your taco. He added some salad."). There were seven possible descriptors within the function category: limit-setting, teaching opportunity, protection/acceptance, challenge, directive or command, restriction, and overly focused on health. For the focus category, descriptions were coded as having a general focus (i.e., "General statements about the need to be active"), a self focus (i.e., "I talked to my daughter about my own size"), a child focus (i.e., "My son was not very physically active today. I just reminded him that a healthy mind needs physical exercise."), an other focus (i.e., "We discussed a family friend's daughter who is probably 9 years old…"), or a family focus (i.e., "Talked about different activities to do together while camping…"). Finally, for the likelihood of stigmatization category, descriptions were coded in two categories - stigmatizing towards the child (i.e., "We talked about my child's weight and how he could exercise so as not to be overweight") or stigmatizing more broadly (i.e., "He did bring up how fat his new teachers' assistant is"). Due to the low frequency of conversations coded as potentially stigmatizing, the stigmatization towards the child and the general stigmatization descriptors were combined to create one stigmatization variable after coding was complete.

Each descriptor was coded as either ‘1’ for present or ‘0’ for absent for each daily description of family weight talk. For example, each parental description received a code of ‘1’ or ‘0’ for positivity. A description could only have a ‘1’ for a single descriptor (i.e., positive, negative, mixed, or neutral) in the valence category. Similarly, for the potentially stigmatizing category each description could either have a ‘1’ for potential stigmatization or a ‘0’ for no evidence of stigmatization. However, a description could demonstrate multiple functions, topics, and focuses, thus a ‘1’ could be present for multiple descriptors within the function category, topic category, and focus category for the same daily description. The first author coded all daily descriptions of family weight talk. After training an undergraduate research assistant in the coding scheme, reliability was calculated for 24% of the descriptions of family weight talk (i.e., 37 descriptions). Raters achieved acceptable inter-rater reliability (range: 81 to 97% agreement) for all codes.

As with the daily Family Weight Talk Scale responses, a percentage score was calculated for each descriptor code used to categorize the daily descriptions. First, ‘1’ codes for each descriptor across the diary descriptions were summed (range: 0 to 5). For example, all ‘1’ codes for positive valence were summed across a single parent’s daily diary descriptions. Next, each descriptor sum was divided by the number of daily diaries with a description completed by that parent (range: 1 to 5). Scores reflect the percentage of daily diary descriptions that were categorized as reflecting each descriptor code. A total of 18 percentage scores were calculated for each parent.

Predictors of Family Weight Talk

Parent Weight Bias. Weight bias among parents was assessed using the 13-item Anti-Fat Attitudes Questionnaire (AFA; Crandall, 1994), a self-report measure of negative attitudes

towards and beliefs about individuals who are overweight. Responses were provided on a 10-point Likert scale, anchored from 0 = *very strongly disagree* to 9 = *very strongly agree*. The AFA has three subscales: Dislike (sample item: "I really don't like fat people"), Fear of Fat (sample item: "I feel disgusted with myself when I gain weight"), and Willpower (sample item: "Some people are fat because they have no willpower"). Responses were averaged to create each subscale score, with higher scores indicating stronger anti-fat attitudes. A total score was created by averaging the subscale scores, with higher scores indicating greater parental weight bias, and was used in analyses. The total score had an internal consistency of .87 in our sample.

Parent Experiences of Weight Stigma. The Brief Stigmatizing Situations Inventory (SSI-B; Vartanian, 2015) was used to assess parent experiences of weight stigma. The SSI-B is a 10-item measure of the frequency of weight based stigmatizing experiences. Sample situations include: "being glared at or harassed by bus passengers for taking up "too much" room," "being stared at in public," and "having people assume that you overeat or binge-eat because you are overweight". Participants rated whether, and how often, each of the situations happens to them on a scale from 0 = *never* to 9 = *daily*. Responses were averaged to create a total score, with higher scores reflecting a greater frequency of weight-stigmatizing experiences. The total scale score was used in analyses. The SSI-B had an internal consistency of .71 in our sample.

Parent Weight Bias Internalization. Parent weight bias internalization was assessed using the 10-item Modified Weight Bias Internalization Scale (WBIS-M; Pearl & Puhl, 2014). This self-report measure assesses the extent to which individuals apply weight-based stereotypes to themselves and base their self-evaluations on weight. Sample items include: "I don't feel that I deserve to have a really fulfilling social life because of my weight" and "Whenever I think a lot about my weight, I feel depressed." Responses were provided on a 7-point Likert scale, anchored

from 1 = *strongly agree* to 7 = *strongly disagree*. Responses were reverse coded and averaged, with higher scores representing greater weight bias internalization. The total scale score was used in analyses. The WBIS-M demonstrated good internal consistency (α = .80) in our sample.

Parent Perception of Child Risk for Future Problems. The Child Weight Risk Questionnaire (CWRQ; Gadaire et al., 2022) was used to assess parent perceptions of their child's susceptibility to 27 future problems due to child weight across three time periods: "a year from now" (8 risks), "as a teenager" (9 risks), and "as an adult" (10 risks). For each time period, parents were asked to indicate whether or not they have thought about each risk before (Risk) and the likelihood of the risk occurring (Likelihood), how concerned they are about each risk (Concern), and how much control they have over whether or not each risk will occur (Control). Responses were provided on a *yes* or *no* scale for Risk and a 5-point Likert scale for the Likelihood (0 - *will not happen* to 4 - *will happen*), Concern (0 - *not at all* to 4 - *extremely*), and Control (0 - *none* to 4 - *a lot*) questions. The Total Risks score were used in analyses, which consisted of the sum of the number of risks parents had thought about for their child. Higher scores indicated that parents had thought about more risks facing their child due to excess weight. The internal consistency for the Total Risk score was excellent in our sample (Total Risks: α = .95).

Parenting (parent report). The Involvement subscale (10 items) and the Positive Parenting (6 items) subscale of the Alabama Parenting Questionnaire (APQ; Frick, 1991) were used to assess parenting. Sample items include "you have a friendly talk with your child" and "you let your child know when he/she is doing a good job with something". Responses were provided on a 5-point scale from *never* to *always*. Responses were summed for each subscale, with higher scores indicating more involvement and positive parenting. A composite score was

created by summing the total scores for the two subscales and was used in analyses. Internal consistency of the scales was good in our sample (Involvement α = .84, Positive Parenting α = .88, Composite α = .89).

Parenting (child report). The Parent Dimension of the Inventory of Peer and Parent Attachment Revised (IPPA-R; Gullone & Robinson, 2005) was used to assess children's report of the positive and negative affective and cognitive dimensions of their relationship with the study parent. The IPPA-R can be used with children as young as 9-years-old. The Parent Dimension of the IPPA-R consists of 25-items rated on a three-point scale with options *never true*, *sometimes true*, and *always true*. There are three subscales, Trust (sample item: "I trust my parent"), Communication (sample item: "My parent can tell when I'm upset about something"), and Alienation (sample item: "I can't depend on my parent to help me solve a problem"). A Total Parent Dimension score was created by reverse scoring the negatively worded items, and averaging responses across the subscales, such that higher scores reflected a more positive parent-child relationship. Internal consistency for each subscale of the Parent Dimension was acceptable (Trust α =.62; Communication α = .77; Alienation α = .78) in our sample. The IPPA-R has strong convergent validity as demonstrated by correlations in the expected direction with the Parent Bonding Instrument and the Coopersmith Self-Esteem Scale (Gullone & Robinson, 2005).

Family Functioning. The General Functioning Scale of the McMaster Family Assessment Device (FAD; Epstein et al., 1983) was used to assess family functioning among parents and children. The General Functioning Scale can be used with children as young as 9 years old (McDermott et al., 2002). The General Functioning Scale contains 12-items that assess the overall health of a family (sample item: "We can express feelings to each other"). Responses

were provided on a four-point scale with anchors *strongly agree* to *strongly disagree*. Responses to the six positively worded items were reverse scored and responses were averaged to create a total score, which was used in analyses. Higher scores indicated better family functioning. Internal consistency for the General Functioning scale was .87 among parents in our sample and .80 among children in our sample.

Child Health Outcomes

Child Dietary Habits. Child dietary habits were measured through parent and child-report using a non-quantitative food frequency questionnaire (FFQ) drawn from the Physical activity, Exercise, Diet, and Lifestyle Study (PEDALS) (Davison et al., 2017). Participants indicated how often, from *never* to *every day, more than once*, they, or their child, eats a series of food items. Per Davison and colleagues (2017), a Snack composite score and a Fruit/Vegetable composite score was created by averaging responses to food items that fall into each category, with higher scores indicating more frequent self-reported or parent reported consumption of snacks and fruit/vegetables, respectively, among children. Among parents, reliability of the Snacks score was .81 and reliability of the Fruit/Vegetable score was .61 in our sample. Among children, reliability of the Snacks score was .69 and reliability of the Fruit/Vegetable score was .53 in our sample. Additionally, participants responded to a single item (i.e., "How often do you and your family usually have meals together?") assessing frequency of family meals (Inchley et al., 2018). Participants responded on a five-point scale with anchors *never* and *every day*.

Child Physical Activity Habits. Parent report of child physical activity habits was assessed using the International Physical Activity Questionnaire Short Form (IPAQ-SF; Craig et al., 2003). The IPAQ-SF is a measure of the type and intensity of physical activity and sedentary behavior over a seven-day period. Parents reported the number of days per week and

hours/minutes per day that their child participates in vigorous and moderate physical activity, walking, and sitting. Definitions of each activity type were provided on the questionnaire. A composite physical activity score was created by multiplying the hours per day spent engaged in vigorous and moderate physical activity, and walking, by the number of days per week engaged in each type of activity, then summing these three scores. This composite variable (i.e., hours of physical activity per week by the child) was used in analyses. One outlier data point (72 hours above next highest sum) was removed from the dataset.

Child report of their own physical activity habits was assessed using the Physical Activity Questionnaire for Children (PAQ-C; Kowalski et al., 2004). The PAQ-C is a 10-item self-report measure of a child's engagement in various activities over the past week and is designed for children ages 8 to 14-years-old. Children were asked to indicate the number of times in the past week they engaged in a range of activities (i.e., tag, basketball, walking for exercise) and about their physical activity during specific times of the day, which was adapted given the atypical nature of the school day due to the COVID-19 pandemic. Responses to items 1 through 9 were averaged, with higher scores indicating greater engagement in physical activity. The total score was used in analyses. The PAQ-C had good internal consistency (α = .90) in our sample.

Health Related Quality of Life. The Pediatric Quality of Life Inventory Version 4.0 (PedsQL; Varni, 1998) is a 23-item measure that assesses child health related quality of life. Both parent and child completed the appropriate version of the measure. The child-report version of the PedsQL is designed for children between the ages of 10 and 12-years-old. This measure captures a child's Physical Functioning (8 items; sample questions include: "Walking more than one block" and "Lifting something heavy"), Emotional Functioning (5 items; sample items include: "Feeling sad or blue" and "Feeling angry"), Social Functioning (5 items; sample items

include: “Getting along with other children” and “Getting teased by other children”), and School Functioning (5 items; “Paying attention in class” and “Forgetting things”). Items were rated from 0 = *never a problem* to 4 = *almost always a problem*. Items were reverse scored, linearly transformed to a 100-point scale, and summed, with higher scores reflecting a better quality of life. The Total Scale Score was used in analyses. The parent version had an internal consistency of .92 and the child version has an internal consistency of .86 in our sample.

Child Social-Emotional Health. Child social-emotional health was assessed using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The SDQ is a 25-item measure of children’s functioning in five areas (i.e., emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behavior). The parent-report and child-report versions of the SDQ were used in this study. The SDQ can be used with children as young as 7 years old (Mellor, 2004). Sample items include, “considerate of other people’s feelings,” “many worries or often seems worried,” and “generally liked by other youth.” Responses were provided on a 3-point scale, with anchors *not true*, *somewhat true*, and *certainly true*. Items within each subscale were summed to create five subscale scores, with higher subscale scores reflecting a greater number of emotional symptoms, conduct problems, hyperactivity/inattention symptoms, peer relationship problems, and prosocial behavior. The emotional symptoms, conduct problems, hyperactivity/inattention, and peer relationship problems subscales were added together to create a Total Difficulties score, with higher scores reflecting poorer social-emotional functioning. The Total Difficulties scores and the prosocial behaviors subscale were used in analyses. Among parents in our sample, the Total Difficulties score had an internal consistency of .86 and the prosocial behaviors subscale had an internal consistency of .71. Among children in our sample, the Total Difficulties score had an internal

consistency of .87 and the prosocial behaviors subscale had an internal consistency of .77.

Demographic & Control Variables

Impact of COVID-19 on Family. The COVID-19 Family Stress Screener (CRISIS; Huth-Bocks, 2020) was used to assess the impact of COVID-19 on families involved in this study. The COVID-19 Family Stress Screener is a newly developed 10-item parent report measure assessing the stress experienced by a family due to the pandemic. Sample questions include, "Because of COVID-19 related events and changes, I have felt stressed about loss of or limited childcare" and "Because of COVID-19 related events and changes, I have felt stressed about physical health concerns for me or a family member." Responses were provided on a 5-point Likert scale with anchors *strongly disagree* to *strongly agree* and were averaged to create a total scale score. The internal consistency of the COVID-19 Family Stress Screener was .83 in our sample.

Child Eating Attitudes. Child eating attitudes were assessed using the Child Eating Attitudes Questionnaire (CHEAT; Maloney et al., 1989). The CHEAT is a 26-item measure assessing dieting behavior, preoccupation with food, bulimia, and concerns about weight. Sample items include, "I am scared about being overweight" and "I think about food a lot of the time". Responses were provided on a 6-point Likert scale anchored from *always* to *never*. The CHEAT also includes 17 demographic and dieting items that assess children's beliefs about their own and close others dieting patterns. Responses were transformed such that responses of 'always' receive a '3', responses of 'very often' receive a '2', responses of 'often' receive a '1', and responses of 'sometimes', 'rarely', or 'never' receive a '0'. Responses were then summed to create a total score. Among our sample, the CHEAT had an internal consistency of .68.

Caregiver Burden. The Burden Scale for Family Caregivers-Short Form (BSFC-s; Pendergrass et al., 2018) was used to assess caregiver burden. The BSFC-s is a 10-item parent-report measure assessing the impact of caregiving on the participant. Sample items include, "My life satisfaction has suffered because of the care" and "My health is affected by the care situation". Responses were provided on a 4-point scale, where 3 = *strongly agree*, 2 = *agree*, 1= *disagree*, and 0 = *strongly disagree*. Responses were summed to create a total scale score, which was used in analyses. The BSFC-s had an internal consistency of .92 in our sample.

Eating Disorder History. The Stanford-Washington University Eating Disorder Screen (SWED; Graham et al., 2019) was used to assess parent's eating disorder history. The 11-item measure assesses a range of eating disorder behaviors and concerns about weight and shape. Participants responded *yes* or *no* to items assessing specific eating disorder behaviors (sample item: "In the past four weeks, have you had any times of eating in which you have had a sense of having lost control?'), and those participants who indicated engaging in the behavior were then asked to indicate the frequency with which they engage in that behavior. Participants also responded to other questions (sample item: "Compared to others in your life, how important is your weight to you?") on scales with various response options (see Appendix A).

Food Insecurity. The 9-item Household Food Insecurity Access Scale was used to assess family food insecurity (Coates et al., 2007). Parents were asked to indicate by responding *yes* or *no* whether their family has experienced each event in the past four weeks (occurrence questions). For each item they responded *yes* to, parents were asked to indicate how often their family has experienced the event in the past four weeks on a 3-point scale with anchors *rarely*, *sometimes*, or *often* (frequency questions). Sample items include, "Did you worry that your household would not have enough food?" and "Did you or any household member have to eat a

limited variety of foods due to lack of resources?". A total score was created by summing the *yes* responses to the occurrence questions. Higher scores indicated greater food insecurity. Due to low reports of food insecurity in the sample, the frequency questions were not used in analyses.

Demographics. Parents and children provided demographic details, including age, gender, location, height, weight, race/ethnicity, marital status, religion, education level, household income, occupational status, and selective social status, at the end of the questionnaire.

CHAPTER 3: RESULTS

Preliminary Analyses

Descriptive statistics for study variables are reported in Tables 2a-2c. All means were within a reasonable range and standard deviations indicated that the sample exhibited acceptable variability in responses for each variable. Correlations between parent and child variables measuring the same constructs were explored and are displayed in Table 3. Parent and child reports were significantly and positively correlated for family weight talk, family functioning, child diet and physical activity, health related quality of life, and social-emotional health. Of note, parent and child report of parenting were not significantly related, perhaps because parenting was measured differently for each member of the dyad.

Descriptive Statistics for Parents' Daily Surveys

More than half of parent participants (59.2%) responded to all five daily surveys. Parent participants responded to an average of 4.25 (*SD* = 1.22) daily surveys and described an instance of family weight talk on an average of 2.20 (*SD* = 1.50) daily surveys. Across all participants, there were a total of 302 daily surveys completed. Of these, 156 daily survey responses included a description of family weight talk that occurred that day. On average, parents reported conversations about diet on 38% of the days and conversations about physical activity on 35% of the days, on the Family Weight Talk Scale within the daily survey. Additionally, on average, parents reported conversations indicating a child should eat differently on 21% of the days, conversations about child weight or size on 6% of the days, conversations related to exercising to lose weight on 6% of the days, and conversations about the child weighing too much on 3% of the days, on the daily Family Weight Talk Scale. Finally, on average, parents reported

conversations about one's own weight on 9% of the days and conversations about others' weight on 6% of the days, on the daily Family Weight Talk Scale.

Turning to the coding of the descriptions of family weight talk within the daily survey, we examined the percentage of descriptions that were classified as each code. Of all descriptions across time and participants, 61% were about food, 43% were about physical activity, and 15.2% were about weight. The majority (63.9%) of the descriptions had a neutral valence, while 15.2% had a positive valence, 11.4% had a negative valence, and 7.6% had a mixed valence. 'Teaching opportunity' was the most common function present in the descriptions, with 49.4% of the descriptions demonstrating a teaching opportunity. The second most common function present in the descriptions was 'directive or command', with 25.9% of the descriptions demonstrating this function. 'Limit-setting' was present in 16.5% of the descriptions and 'challenge' was present in 13.9%. 'Restriction', 'protection', and 'overly focused on health' were less common and present in 5.1%, 3.8%, and 3.2% of the descriptions, respectively. Most descriptions (68.4%) were focused on the child, while 13.9% were focused on the family, 12.7% were general in focus, 5.7% were focused on the self (i.e., the parent), and 5.7% were focused on others. Finally, 13.9% of the descriptions were potentially stigmatizing towards the child and 9.5% of the descriptions were generally stigmatizing.

Aim 1: Describe the nature of weight talk in families with school-aged children, using a multi-method, multi-informant approach

To better understand the nature of weight talk in families with school-aged children, we first explored associations between family weight talk across measures and respondents. As shown in Tables 4a-8, a majority of family weight talk variables were significantly and positively correlated across measures and respondents. Next, we explored how family weight

talk on the daily surveys was associated with parental affective experience. Additionally, we examined the associations between family weight talk and parent and child socio-demographic factors, as well as the relations between family weight talk and parent experiences and beliefs.

To examine the associations between conversations about family weight and parental emotional states, we ran correlations between family weight talk variables and the PANAS Total Positive Affect and Total Negative Affect mean scores on the daily survey. As shown in Table 9, parents who endorsed greater positive affect also reported a higher percentage of conversations about their child's physical activity (r = .28, p<.05) and about their child weighing too much (r = .27, p<.05). In addition, parents who reported greater positive affect also had a higher percentage of conversations that were coded as having a positive valence (r = .25, p<.05), having a mixed valence (r = .25, p<.05), and displaying the challenge function (r = .26, p<.05), and fewer daily diary descriptions that had a negative valence (r = -.27, p<.05). With respect to negative affect, parents who endorsed more negative affect on the PANAS reported a higher percentage of conversations about healthy diet (r = .42, p<.01), physical activity (r = .38, p<.01), different aspects of the child's weight (rs = .50 to .67, p<.01), the parent's weight (r = .35, p<.01), and others' weight (r = .58, p<.01), as well as more descriptions that were potentially stigmatizing (r = .31, p<.05). Finally, the association between parent-reported negative affect and descriptions coded as having a negative valence approached significance (r = .22, p = .09). Altogether, parent reported positive and negative affect were related to our categorization of the valence of the daily diary descriptions in expected ways, and parent report of negative affect was associated with a greater variety of conversations reported on the daily surveys than was parent report of positive affect.

Relations Between FWT and Demographics

We continued to explore the nature of family weight talk among families with school-aged children by examining how parent engagement in family weight talk varied as a function of parent and child socio-demographic factors. A series of t-tests were run to determine if engagement in family weight talk varied by parent gender, and a series of one-way ANOVAs were run to determine if engagement in family weight talk varied by parent reported race/ethnicity. Correlational analyses were used to explore the associations between family weight talk and parent and child BMI, parent education, household income, and child age.

Parent and Child Gender. As shown in Table 10, fathers reported significantly more conversations about the child's weight on the baseline ($t = 2.11$, $p<.05$) and daily survey than did mothers, and children reported more weight-related conversations from fathers than mothers ($t = 2.38$, $p<.05$). Mothers had more conversations categorized as focused on physical activity ($t = -2.49$, $p<.01$), about the self ($t = -2.34$, $p<.05$), and demonstrating the limit-setting ($t = -2.59$, $p<.01$) and overly focused on health ($t = -2.00$, $p<.05$) functions. Mothers also had more conversations coded as having a mixed ($t = -2.77$, $p<.01$) and positive valence ($t = -4.07$, $p<.01$), while fathers had more conversations categorized as having a neutral valence ($t = 3.49$, $p<.01$). Family weight talk on the baseline surveys and daily diary did not vary by child gender (see Table 9).

Parent and Child BMI. Parents with higher BMIs reported fewer Health Conversations within the family on the baseline questionnaire ($r = -.26$, $p<.05$). As shown in Table 11, parent BMI was negatively associated with most of the percentage scores for the daily Family Weight Talk questions, such that parents with higher BMIs reported less engagement in family weight talk. Notably, parent BMI was not significantly related to any of the description codes.

As anticipated, as child BMI increased, families reported a higher percentage of conversations about child diet, child weight, and others' weight on the baseline surveys and the daily Family Weight Talk scale (see Table 11). Turning to the descriptions, children with a higher BMI had parents who described more conversations that we coded as weight-related (r = .28, p<.05) and fewer conversations coded as food-related (r = -.28, p<.05). In addition, when children had a higher BMI, parents reported fewer conversations coded as child-focused (r = -.31, p<.05) and more conversations coded as general (i.e., not focused on the child or a family member) (r = .44, p< 01).

Child Age. Child age was not significantly associated with parent or child reported family weight talk variables.

Race/Ethnicity. A significant difference was found in parent reported Health Conversations on the baseline survey, such that parents who identified as White (M = 3.22) and those who identified as Asian/Asian American (M = 4.30) reported significantly more Health Conversations within their family than did parents who identified as Black/African American (M = 1.94) (F = 6.69, p<.01).

Education Level and Income. Parents with lower educational attainment reported more frequent weight-related conversations on the baseline survey (r = -.31, p<.01), a higher percentage of conversations about child weight/size and about the child weighing too much on the daily Family Weight Talk scale (Weight/Size: r = -.27, p<.05; Weighing Too Much: r = -.25, p<.05), and more descriptions coded as potentially stigmatizing (r = -.28, p<.05). Family income was not significantly associated with any of the family weight talk variables.

Relations Between FWT and Parent Experiences/Beliefs

To explore how parent experiences and beliefs relate to family weight talk, we ran a series of correlational analyses. Parent experiences and beliefs variables included anti-fat attitudes, weight bias internalization, experiences of stigmatization, and perception of child risk for future problems due to excess weight. Correlations between family weight talk and parent experiences/beliefs are shown in Table 12.

First, we explored the relations between parent experiences/beliefs and health-related conversations reported by families. Parents who perceived their child to be at greater risk for problems associated with excess weight also reported more Health Conversations within the family on the baseline survey (r = .25, p<.05). Additionally, parents who held stronger anti-fat attitudes reported a higher percentage of conversations about child diet and physical activity on the daily Family Weight Talk Scale (diet: r = .34, p<.01; physical activity: r = .40, p<.05).

Turning to weight-related conversations, as expected, parents who held more negative weight-related attitudes (i.e., greater anti-fat attitudes, more experiences of stigmatization, greater internalized weight bias) and perceived greater risk facing their child also reported more conversations about the child's weight, one's own weight, and the weight of others across surveys, and had children who reported more of these types of conversations within the family. Turning to the daily diary narratives, we found that as expected, parents who reported more anti-fat attitudes had a higher percentage of conversations coded as potentially stigmatizing (r = .28, p<.05). Additionally, parents who reported more negative weight-related attitudes and greater perception of child risk also had more descriptions that were coded as not focused on a specific person (rs .25 to .39, p<.05).

Aim 2: Examine the associations between family weight talk and child health outcomes including child diet and physical activity habits, child health related quality of life, and child social-emotional health.

A series of correlations were run to explore the associations between parent and child reported family weight talk and parent and child reports of each health outcome (i.e., diet, physical activity, HRQoL, and social-emotional health). Correlations are displayed in Tables 13-15 and patterns are discussed below.

As shown in Table 13, Health Conversations on the parent baseline survey were positively related to child reported fruit/vegetable consumption (r = .26, p<.05). Analysis of the daily survey shown in Table 14 revealed that the percentage of conversations about healthy diet and the percentage of conversations about physical activity were significantly and positively related to several child diet variables, particularly fruit and vegetable consumption. Unexpectedly, percentage of conversations about healthy diet and percentage of conversations about physical activity on the daily survey were negatively related to parent report of child HRQoL, such that parents who reported a greater frequency of conversations about diet and physical activity with their child also reported that their child had a worse quality of life (diet: r = -.31, p<.01 r = -.24, p<.05). Taken together, it appears that health-related conversations within the family are associated with better dietary habits but worse HRQoL among children.

Turning to weight conversations, as hypothesized, most measures of conversations about the child's weight, the parent's weight, and the weight of others demonstrated positive relations with child snack consumption as rated by parents and children (see Tables 13 and 14). Additionally, conversations about the child's weight across surveys were positively associated with parent report of child fruit and vegetable consumption. As expected, families who reported

more conversations about the child's, the parent's, and others' weight, also reported worse HRQoL for their child. Furthermore, conversations about the child's weight on the baseline surveys were negatively associated with prosocial behavior, such that more frequent weight conversations were associated with parent report of less prosocial behavior in children. Finally, conversations about the child's weight, the parent's weight, and others' weight on the baseline surveys were associated with more social-emotional difficulties as reported by parents. In sum, weight-related conversations within families were associated with more snacking, worse parent reported HRQoL, and worse social-emotional well-being among children.

Lastly, correlations between the daily family weight talk descriptions and child health outcomes were explored, and are displayed in Table 15. Parents who had a higher percentage of descriptions coded as focused on food also rated their children as having better HRQoL (r = .38, p<.01). Parents describing more frequent negatively valenced conversations had children who ate fewer fruits and vegetables (r = -.34, p<.01), had worse HRQoL (r = -.33, p<.01), and had greater social-emotional difficulties (r = .42 and .34, respectively for parent and child report, p<.01). Turning to the function codes, parents describing more limit-setting had children who reported more social-emotional difficulties (r = .28, p<.05), and parents who described more directives/commands had children who reported worse HRQoL (r = -.30, p<.01). Those parents describing more frequent restriction also reported less prosocial behavior among their children (r = -.25, p<.01), and parents with a higher percentage of conversations that were overly focused on health had children who reported less snack consumption (r = -.30, p<.01). Finally, more frequent conversations that were potentially stigmatizing were associated with both parent (r = .28, p<.01) and child report (r = .34, p<.01) of greater snack consumption among children. Taken

together, it appears that topic, valence, function, and potential for stigmatization of family weight talk conversations are associated with child health habits and well-being.

Aim 3: Test a series of mediation models to determine whether the effects of parent experiences and beliefs (i.e., experiences of stigmatization, weight bias internalization, anti-fat attitudes, and perception of child weight related risk) on child health outcomes are explained by family weight talk.

To streamline the number of variables used in the analyses, I employed a number of analytical strategies. First, I examined the bivariate associations between parent and child report on the same measure (of the same construct). If the association was greater than .50, indicating at least a medium effect, then I created a composite score that reflected both parent and child report of the given construct (i.e., Weight Conversations, Self/Other Conversations, Snack Consumption, Fruit/Vegetable Consumption, Prosocial Behaviors, and Total Difficulties). Second, I examined the bivariate associations among the variables that comprised parent weight-related experiences and beliefs. Based on the correlation coefficients (all above .45) and conceptual overlap, a *Parent Weight-related Attitudes* composite was created, which consisted of the following measures: Anti-Fat Attitudes, Stigmatizing Situations Inventory, and Weight Bias Internalization. The *Parent Weight-related Attitudes* composite was created by standardizing each measure into a Z score and then averaging the standardized variables. Third, I examined the bivariate associations between each predictor variable and each mediator variable (*a* path), as well as between each mediator variable and each outcome variable (*b* path). Mediation models were only run with those variables that demonstrated significant correlation coefficients for both the *a* and *b* paths. Process v4 was used to run two sets of mediation models examining the indirect effect of: (1) parent weight-related attitudes on child health outcomes through family

weight talk, and (2) parent perception of child risk on child health outcomes through family weight talk. I ran distinct models with snack consumption, fruit/vegetable consumption, social-emotional health, and HRQoL as the outcome variables. I used bootstrap resampling in Process, which estimated the magnitude and significance of all indirect effects. I used 5,000 bootstrapped samples to examine the 95% confidence interval for indirect effects. Confidence intervals not including zero indicated a statistically significant indirect effect. All variables were standardized prior to analysis. Significant indirect effects are reported below.

Covariates

Significant models were adjusted for COVID-related stress and caregiver burden as these variables were significantly associated with family weight talk and some child health outcomes. More specifically, COVID-related stress was negatively related to HRQoL (r = -.58, p<.01) and Prosocial Behaviors (r = -.44, p<.01), and positively associated with Total Difficulties (r = .49, p<.01), Weight Talk Composite (r = .39, p<.01), Self/Other Composite (r = .34, p<.01), and Snack Consumption (r = .24, p<.01). Similarly, Caregiver Burden was negatively associated with HRQoL (r = -.56, p<.01) and Prosocial Behaviors (r = -.47, p<.01), and positively associated with Total Difficulties (r = .52, p<.01), Weight Talk Composite (r = .32, p<.01), and Self/Other Composite (r = .28, p<.05). Furthermore, sociodemographic variables – parent age, parent and child BMI, and parent education level – were added as covariates to significant models, as well, given their significant associations with child health outcomes. Finally, significant models were adjusted for the other parent experiences/beliefs variable (i.e., parent weight-related attitudes or parent risk perception).

Focal Variables

Snack Consumption. Of the mediation models examining the indirect effect of parent perception of child risk on child snack consumption through family weight talk (7 models run) and the indirect effect of parent weight-related attitudes on child snack consumption through family weight talk (8 models run), there were eight significant models. As expected, parent risk perception was associated with more family reported weight-related conversations about the child (i.e., Weight Talk Composite), and in turn family report of greater snack consumption among children (direct effect B = .01, p>.05, 95% CI: -.23 to .26; indirect effect B = .31, 95% CI: .05 to .26; total effect B = .32; see Figure 3). These effects held, even when the model was adjusted for covariates (i.e., parent age, parent BMI, child BMI percentile, education level, caregiver burden, COVID stress). When parent weight-related attitudes was added as a covariate, the indirect effect was no longer significant. Additionally, parent risk perception was associated with more family reported conversations about the parent's own and others' weight (i.e., Self/Other Composite), and in turn greater family reported snack consumption among children (direct effect B = .23, p=.05, 95% CI: .00 to .46; indirect effect B = .10, 95% CI: .01 to .21; total effect B = .33; see Figure 4). These effects held when the model was adjusted for parent age, parent BMI, and education level. When additional covariates were added to the model, the indirect effect was no longer significant.

Next, we found that parent risk perception was associated with a higher percentage of conversations with the child about his/her weight, and in turn families reported greater child snack consumption (direct effect B = .10, p>.05, 95% CI: -.13 to .33; indirect effect B = .14, 95% CI: .001 to .30; total effect B = .24; see Figure 5). These effects held when the model was adjusted for parent age and BMI. When additional covariates were added to the model, the indirect effect was no longer significant. As predicted, parent risk perception was also associated

with a higher percentage of conversations with the child about him/her weighing too much, and in turn families reported greater child snack consumption (direct effect *B* = .15, *p*>.05, 95% CI: -.08 to .37; indirect effect *B* = .09, 95% CI: .002 to .19; total effect *B* = .24; see Figure 6). These effects held when the model was adjusted for parent BMI. When additional covariates were added to the model, the indirect effect was no longer significant.

Furthermore, indirect effects of parent weight-related attitudes and parent risk perception on child snack consumption via percentage of conversations about exercising for weight loss emerged, such that parents who reported more negative weight-related attitudes and greater risk perception also reported a higher percentage of conversations about exercising for weight loss with their child, which in turn was associated with greater child snack consumption (weight-related attitudes: direct effect *B* = .27, *p*<.05, 95% CI: .04 to .50; indirect effect *B* = .15, 95% CI: .03 to .30; total effect *B* = .43; see Figure 7; risk perception: direct effect *B* = .08, *p*>.05, 95% CI: -.14 to .31; indirect effect *B* = .18, 95% CI: .03 to .34; total effect *B* = .26; see Figure 8). For the model with weight-related attitudes as the predictor, these effects held, even when the model was adjusted for covariates. For the model with risk perception as the predictor, when COVID stress and parent weight-related attitudes were added to the model, the indirect effect was no longer significant. Finally, results demonstrated that parents who reported more negative weight-related attitudes and greater risk perception also reported a higher percentage of conversations about others' weight with their child, and in turn families reported greater child snack consumption (weight-related attitudes: direct effect *B* = .32, *p*<.05, 95% CI: .08 to .55; indirect effect *B* = .09, 95% CI: .001 to .20; total effect *B* = .41; see Figure 9; risk perception: direct effect *B* = .12, *p*>.05, 95% CI: -.10 to .35; indirect effect *B* = .11, 95% CI: .001 to .22; total effect *B* = .23; see Figure 10). These effects held when the weight-related attitudes model was adjusted for

education level and child BMI percentile and when the risk perception model was adjusted for parent age, BMI, and education level. When additional covariates were added to the models, the indirect effects were no longer significant.

Fruit/Vegetable Consumption. Of the mediation models examining the indirect effect of parent weight-related attitudes on child fruit/vegetable consumption through family weight talk (4 models run) and the indirect effect of parent risk perception on child fruit/vegetable consumption through family weight talk (4 models run), there were five significant models. We found that more negative parental weight-related attitudes and greater risk perception were associated with more family reported weight-related conversations, and in turn more family reported child fruit and vegetable consumption (weight-related attitudes: direct effect B = -.27, p>.05, 95% CI: -.54 to .01; indirect effect B = .34, 95% CI: .04 to .69; total effect B = .07; see Figure 11; risk perception: direct effect B = -.43, p<.01, 95% CI: -.68 to -.18; indirect effect B = .36, 95% CI: .07 to .68; total effect B = -.06; see Figure 12). These effects held, even when the models were adjusted for covariates. Similarly, parents who reported more negative weight-related attitudes and greater risk perception also reported a higher percentage of conversations with their child about exercising to lose weight, and in turn families reported more frequent child fruit and vegetable consumption (weight-related attitudes: direct effect B = -.21, p>.05, 95% CI: -.47 to .04; indirect effect B = .18, 95% CI: .01 to .44; total effect B = -.03; see Figure 13; parent risk perception: direct effect B = -.31, p<.01, 95% CI: -.55 to -.08; indirect effect B = .18, 95% CI: .004 to .45; total effect B = -.13; see Figure 14). These effects held for the model with weight-related attitudes as the predictor, even after adjusting for covariates. However, for the model with risk perception as the predictor, the indirect effect was no longer significant when parent weight-related attitudes and COVID stress were added to the model.

Finally, we found that parents who reported more negative weight-related attitudes also reported more frequent conversations with their child about the weight of others, and in turn families reported more frequent child fruit and vegetable consumption (direct effect *B* = -.18, *p*>.05, 95% CI: -.43 to .07; indirect effect *B* = .15, 95% CI: .01 to .33; total effect *B* = -.03; see Figure 15). These effects held, even when the model was adjusted for covariates.

Health Related Quality of Life. Of the mediation models examining the indirect effect of parent weight-related attitudes on child HRQoL through family weight talk (8 models run) and the indirect effect of parent risk perception on child HRQoL through family weight talk (7 models run), there were five significant models. As predicted, more negative parental weight-related attitudes and greater parent risk perception were associated with more family reported weight-related conversations about the child, and in turn parent report of worse HRQoL for their child (weight-related attitudes: direct effect *B* = -.35, *p*<.01, 95% CI: -.58 to -.12; indirect effect *B* = -.23, 95% CI: -.41 to -.06; total effect *B* = -.58; see Figure 16; risk perception: direct effect *B* = -42, *p*<.01, 95% CI: -.63 to -.20; indirect effect *B* = -.20, 95% CI: -.37 to -.05; total effect *B* = -.62; see Figure 17). These effects held, even when the models were adjusted for covariates. Additionally, parents who reported more negative weight-related attitudes and greater risk perception also reported a higher percentage of conversations about exercising to lose weight with their child, and in turn reported worse HRQoL for their child (weight-related attitudes: direct effect *B* = .41, *p*<.01, CI: -.64 to -.18; indirect effect *B* = -.14, CI: -.26 to -.02; total effect *B* = -.55; see Figure 18; risk perception: direct effect *B* = -.44, p<.01, 95% CI: -.65 to -.23; indirect effect *B* = -.12, 95% CI: -.24 to -.01; total effect *B* = -.56; see Figure 19). The indirect effects were no longer significant when covariates were added to the models.

Finally, as hypothesized, parents who reported more negative weight-related attitudes also reported a higher percentage of conversations about their child weighing too much, and in turn reported worse HRQoL for their child (direct effect B = -.48, p<.01, CI: -.71 to -.26; indirect effect B = -.09, CI: -.23 to -.01; total effect B = -.57; see Figure 20). These effects held when the model was adjusted for parent age, education level, caregiver burden, and COVID stress. When additional covariates were added to the model, the indirect effect was no longer significant.

Taken together, results suggest that family weight talk can help explain the effects of parent experiences/beliefs (i.e., weight-related attitudes and perception of child risk for problems due to excess weight) on child health outcomes. We found that more negative weight-related attitudes and greater perception of child risk among parents is related to more weight-related conversations within the family, which in turn is related to greater snack and fruit/vegetable consumption and worse HRQoL among children. Of note, several of the indirect effects that emerged in models with risk perception as the predictor were no longer significant when parent weight related attitudes was added as a covariate. Contrary to expectations, parent experiences/beliefs did not exert a significant indirect effect on children's social-emotional health or physical activity habits through family weight talk.

Aim 4: Test a series of moderated mediation models to determine whether the indirect effect of parent experiences and beliefs on child health outcomes through family weight talk is moderated by the caregiving context.

To streamline the number of variables and given the conceptual overlap, I made the decision to create a parent-reported and a child-reported *caregiving context composite* score. The caregiving context composite scores were created by standardizing each respondent's report on the family functioning and parenting measures into a Z score and then averaging the standardized

variables. Process v4 for SPSS was used to explore whether the indirect effect of parent experiences and beliefs on child health outcomes via family weight talk is moderated by the caregiving context. A series of models was run examining the possible moderation effect of the caregiving context on: (1) the indirect effect of parent weight-related attitudes on child health outcomes through family weight talk, and (2) the indirect effect of parent perception of child risk on child health outcomes through family weight talk. Models were run separately for all child health outcomes (i.e., snack consumption, fruit/vegetable consumption, physical activity, HRQoL, prosocial behavior, and total difficulties), with most family weight talk variables as mediators. Family weight talk variables that were not significantly related to the predictor variables (*a path*) were excluded. I used bootstrap resampling in Process, which estimated the magnitude and significance of all indirect effects. I used 5,000 bootstrapped samples to examine the 95% confidence interval for indirect effects. Confidence intervals not including zero indicated a statistically significant indirect effect. All variables were standardized prior to analysis.

Of the 30 models examining the effect of the caregiving context on the indirect effect of parent experiences and beliefs on child fruit/vegetable consumption via family weight talk, two were significant. The indirect effect of parent weight-related attitudes on child fruit/vegetable consumption via Self/Other Composite and that of parent risk perception on child fruit/vegetable consumption via Self/Other Composite was moderated by parent report of the quality of the caregiving context (weight-related attitudes: interaction B = -.40, $p<.01$, index of moderated mediation -.26, 95% CI: -.46 to -.01; see Figure 21; risk perception: interaction B = -.40, $p<.01$, index of moderated mediation -.15, 95% CI: -.32 to -.001; see Figure 22). Specifically, more negative weight-related attitudes and greater risk perception among parents were associated with

more parent-focused and other-focused weight talk reported by families, which in turn was related to more child fruit and vegetable consumption, but only in families where parents reported a low-quality caregiving context.

Of the 30 models examining the possible moderating effect of the caregiving context on the associations among parent experiences and beliefs, family weight talk, and child reported physical activity, one was significant. Unexpectedly, in families where parents reported a worse caregiving context, more negative weight-related attitudes were related to more conversations about the parent's and others' weight, which were related to more physical activity reported by children. On the other hand, in families where parents reported a positive caregiving context, more negative weight-related attitudes were related to more conversations about the parent's and others' weight, which were related to less physical activity reported by children (interaction $B = -.34$, $p<.05$, index of moderated mediation -.20, 95% CI: -.46 to -.001; see Figure 23). While the index of moderated mediation was significant, the effects at various levels of the moderator did not reach traditional levels of significance.

Several additional models demonstrated significant moderation effects on the relation between the mediator variable and outcome variable (*b path*), but not on the indirect effect as a whole. In other words, the index of moderated mediation was not significant in these models. According to Hayes (2015), "establishing that a component of an indirect effect is moderated does not necessarily establish that the indirect effect is" (p. 3). Despite this, the presence of moderation of one path in the model is still conceptually interesting and partially supports our hypotheses, thus will be reported below.

We found three significant models demonstrating that the relation between family weight talk and child fruit/vegetable consumption was moderated by the quality of the caregiving

context. Similar to the moderated mediation effects described above, the relations between Weight Talk Composite and fruit/vegetable consumption (interaction B = -.31, p<.01; $R^2\Delta$ = .11, p<.01), between conversations about child weight/size and fruit/vegetable consumption (interaction B = -.31, p<.05; $R^2\Delta$ = .06, p<.05), and between conversations about the child eating differently and fruit/vegetable consumption (interaction B = -.30, p<.05; $R^2\Delta$ = .08, p<.05) were moderated by parent report of the quality of the caregiving context. Among families where parents reported a low-quality caregiving context, more conversations about the child's weight/size and eating habits within the family were associated with greater fruit/vegetable consumption among children. This relation did not persist when the quality of the caregiving context was moderate or high (see Figures 24-26).

Next, results demonstrated that child report of the quality of the caregiving context moderated the relation between percentage of conversations about the parent's weight and child snack consumption (interaction B = .42, p<.05; $R^2\Delta$ = .11, p<.05). More specifically, when the quality of the caregiving context was low or moderate, more conversations about the parent's weight was associated with more snack consumption among children (low B = .72, p<.01, moderate B = .29, p<.5). Within high quality caregiving contexts, the relation between percentage of conversations about the parent's weight and child snack consumption was not significantly different from zero (see Figure 27).

Finally, we found that parent reported quality of the caregiving context moderated the relation between percentage of conversations about exercising to lose weight and parent reports of child physical activity level (interaction B = .39, p<.05; $R^2\Delta$ = .06, p<.05). Across all levels of caregiving quality, a higher percentage of conversations about exercising to lose weight was associated with more engagement in physical activity among children, but this relation was

strongest among families where parents reported a more positive caregiving context (see figure 28).

CHAPTER 4: DISCUSSION

The family context is vital in shaping the dietary and physical activity habits of children (Rhee et al., 2008; Ho et al., 2012), and how parents talk with their children about health and weight is a key aspect of the family context. Given the continued rise in sedentary behavior and eating habits that do not meet USDA standards among children, understanding the implications of family health communication on children's health and well-being is an important avenue of investigation. The current study explored the nature of family weight talk (defined for this study as all communication about weight and health within the family), among families with a 10-to-12-year-old child using a multi-informant approach, with the goal of developing a more detailed understanding of family weight talk and its relations with child health outcomes.

Consistent with past research (Berge et al., 2016; Pudney et al., 2019), we found that families engaged in various forms of family weight talk over the study period and that this talk served a variety of functions. Engagement in health and weight-related discourse varied by several parent and child socio-demographic factors, including parent gender, parent and child BMI, race/ethnicity, and parental educational attainment. As expected, more negative weight-related experiences and greater perception of child risk among parents were associated with more conversations about the child's, the parent's, and others' weight. Additionally, health-related conversations among families were most strongly related to greater child fruit/vegetable consumption, while weight-related conversations were associated with more snacking, worse quality of life, and worse social-emotional well-being among children. Finally, we found that weight talk can help explain the associations between parent experiences/beliefs and child health outcomes, and that the caregiving context matters for some of these relations.

Conceptualization of Family Weight Talk

Through the use of daily surveys where parents provided a brief description of their family's health- and weight-related communication each day, our study provided important information contributing to the conceptualization of family weight talk. Importantly, our findings from the daily survey were consistent with previous conceptualizations of the construct in many ways. We found that families engaged in conversations about their child's weight and health habits, as well as conversations about the parent's own and others' weight. Consistent with Pudney and colleagues (2019), conversations with a focus on child health (i.e., diet or physical activity, without explicit reference to weight) were more common than conversations about child, parent, or others' weight in our sample.

Additionally, 'teaching opportunity' was the most common function emerging in the daily survey descriptions. This function is consistent with the 'parental professor' approach to family health communication put forth by Hall and colleagues (2016), in which health- and weight-related communication within a family serves the purpose of educating children and shaping dietary and physical activity habits. However, Hall and colleagues (2016) reported that this was the least common of the three themes (i.e., professor, critic, protector) that emerged from their focus groups with women (ages 20-57) on memorable parental messages related to health and weight. Negative comments and feedback are often more salient to individuals, processed more thoroughly, and remembered in greater detail (Baumeister et al., 2001), thus may have been reported more frequently by participants in the Hall et al. (2016) study when asked about memorable messages. Additionally, our study's methodology and the open-ended nature of the daily survey that allowed parents to choose the type of conversation to report on may have biased our results towards more positive or health-focused conversations rather than weight-focused talk. Future research should continue exploring family communication about health and

weight in its various forms and consider methodologies that may reduce this social desirability bias.

Furthermore, the challenge function conceptualized by Dailey and colleagues (2014) in their study of weight-talk between parent-child dyads was also present in the daily diaries. We found several examples of families encouraging each other or teaming up to engage in health behaviors as a unit. According to Dailey and colleagues (2014), this function was associated with perceived productivity of health-related family conversations and more exercise among those teens who were sensitive to discussions about weight issues. Although we did not find significant relations between the challenge function and child health outcomes, this may be because our sample had a low frequency of conversations in which family members challenged each other to engage in health-related behavior. While less common in our sample, we also identified descriptions that displayed protection/acceptance consistent with several studies that have conceptualized family weight talk as serving the purpose of conveying acceptance of a child or protecting a child from weight-based negativity (Dailey et al., 2014; Hall et al., 2016). Again, we did not find significant relations between this function and child health outcomes, which is likely due to the low frequency of this function arising in our relatively small sample of descriptions.

Taken together, three important functions of family weight talk identified by past researchers - teaching opportunity, challenge, and protection/acceptance - also arose in our study. Our study replicates previous work on family weight talk, while extending our conceptualization of health-related communication within families through the use of a daily diary method that allowed us to gather detailed descriptions of these functions of family weight talk in close proximity to their occurrence. Given the emphasis on potentially harmful or stigmatizing forms of family weight talk in the literature, it is important to continue developing our understanding of

how families are communicating about health and the implications for parenting behaviors and child health outcomes. Within a larger sample, it is likely that additional function categories could be identified and frequency of use within our existing categories would increase, leading to a more nuanced understanding of this discourse. As one example, a wide variety of conversations (e.g., involving children in food preparation, discussion of internal hunger cues) were coded as demonstrating a 'teaching opportunity' in our study, and it is likely that this category could be broken down further in a larger sample. A parental responsiveness category could be used that incorporates conversations demonstrating awareness of hunger cues (i.e., discussion of quitting when full; not pressuring children to eat) and support of children's autonomy (i.e., child participation in meal planning, praise for trying new foods). Future research should consider building upon our coding scheme to strengthen the conceptualization of family weight talk.

While not explicitly conceptualized in the family weight talk literature prior to our study, we identified several additional functions based on our data and supported by research on parenting behaviors in the context of child weight. Specifically, we found that, through family weight talk, parents set limits on their child's diet and sedentary behaviors and provided diet or physical activity-related directives and commands. We also identified parent use of family weight talk to restrict child access to food or activities. A unique finding of the current study is the association between these functions and worse social-emotional well-being and quality of life among children. The association between limit-setting and social-emotional difficulties was surprising as limit-setting and structure have consistently been described as parenting practices that support children's healthy eating, and emerging thought suggests that these practices, especially in the context of an overall authoritative parenting style, predict positive outcomes for school-aged children (Balantekin et al., 2020). However, limit-setting is only one way that

parents provide structure for children's eating and physical activity habits (Balantekin et al., 2020), and it may be that limit-setting in the absence of other parenting behaviors that provide structure (i.e., routine, provision of healthy food) or limit-setting paired with restrictive parenting practices can create problems for children. On the other hand, previous work has established that restriction and pressure to eat often have a negative impact on child eating behaviors and undermine children's ability to self-regulate hunger (Faith et al., 2012; Lydecker et al., 2018, Pudney et al., 2019; Balantekin et al., 2020). Our results take this a step further, suggesting that these parenting practices may also have a negative impact on child well-being more broadly. While these parenting behaviors may be unavoidable in families, judicious use of these strategies by parents should be considered given the potential adverse consequences for child health, and future research is necessary to elucidate the impact of these practices on children.

Consistent with past literature, we identified instances of possible weight-stigmatization in the descriptions of family weight talk provided by parents. Interestingly, the conversations categorized as potentially stigmatizing in our study were more subtle than those described in the literature previously. In fact, we did not find instances of explicit criticism or teasing of the child's weight, use of scare tactics, or a negative focus on specific body parts (MacDonald et al., 2015; Hall et al., 2016; O'Brien et al., 2016). We did identify the use of comparison (Lydecker et al., 2018), the moralization of weight and lifestyle choices (Hall et al., 2016), and drawing attention to physical fitness, or lack thereof (Jensen et al., 2019), as ways that stigmatization was displayed in our sample. This may be due to our study design and sample characteristics. Our parent self-report methodology allowed parents to select what they shared on each daily survey and may have been influenced by social desirability. Additionally, we had a highly-educated sample which may have influenced the conversations occurring within the family. Despite this,

potentially stigmatizing conversations were present in our sample and were associated with increased child snack consumption.

To further develop our conceptualization of family weight talk, we explored the relations between different types of weight- and health-related communication measured in our study. As expected, we found that different types of family weight talk were related, with weight conversations and self/other conversations being more highly associated than either were to health conversations. Consistent with Hall and colleagues (2016), it may be that parents have a default style of health-related communication within their family, with conversations about the child's, their own, and others' weight being closely linked, while a focus on health conversations reflecting a distinct style. As Hall and colleagues (2016) found that these communication styles were predictably associated with health behaviors and attitudes in adult children, and our results demonstrate links between various forms of health- and weight-related talk and child health outcomes. It will be important to further develop our understanding of parental communication style as it relates to child health. Perhaps future research and intervention could use profile analysis to identify parent's health-related communication style and provide targeted feedback to those families where communication styles suggest risk for negative impacts on children's health and well-being, with the ultimate goal of helping parents to shift their style.

Family Weight Talk and Parent Reported Affect

While the content of weight- and health-related communication within the family is a vital area of exploration, parent emotional experience surrounding this discourse likely has important implications for promoting effective communication in families and well-being for children, as well, given the importance of emotion in regulating parenting behavior (Dix, 1991). Our study makes an initial contribution to the literature in this area by considering parent affect

in the context of the daily survey. Interestingly, parent endorsement of greater negative affect on the daily survey was associated with a higher percentage of each type of family weight talk reported on the daily survey, and more potentially stigmatizing conversations. This confirms past research demonstrating that health and weight related discussions within families are emotionally laden and thus, may be difficult to bring up and discuss (Thomas et al., 2014). Parents may struggle in knowing what to say and how to say it, leading to experiences of negative affect. Emotions reflect one's appraisal of a situation (Dix, 1991), and it may be that parents' perceptions of the benefits or consequences of weight related conversations and their role as a parent in having these conversations within the family influence these appraisals and the emotions that spark conversation or result from it. It could also be that parental negative affect occurs in response to unfavorable reactions from children during weight- and health-related conversations. Parents may benefit from education on effective ways to communicate about health and weight within their family, as well as types of language that have the potential to be perceived as stigmatizing by children.

On the other hand, parent endorsement of greater positive affect was related to more conversations about physical activity, child weight, and encouraging family health behavior (i.e., the challenge function). It may be that discussions about engaging in health behaviors or activities together as a family evoke positive emotions in parents given the positive implications for family health. Positive emotions broaden individuals "thought-action repertoire" and allow for the accumulation of personal resources (Fredrickson, 2001, p. 221). It may be that positive emotions in parents such as interest, for example, lead to exploration, openness, and togetherness (Fredrickson, 2001), increasing quality time spent with the child in health-related activities. It was surprising that parent reported positive affect and conversations about the child weighing too

much were related; however, previous research has shown that conversations about weight among families are often driven by good intentions, like concern about a child's health and a desire to help the child engage in health promoting behaviors (Neumark-Sztainer, 2009). Given this potential motivator of weight-focused conversations, it may be that parents feel a sense of hopefulness about behavior changes after talking with their child. Positive affect is thought to provoke approach behavior or continued action (Fredrickson, 2001), thus positive affect experienced by parents in the context of family health related communication may influence future weight talk.

Given the role of emotion in organizing and guiding parent behavior (Dix, 1991), continuing to explore parents' emotional experiences surrounding weight- and health-related conversations is an important area of research. Our study is limited in that we do not know whether parent emotion sparked the conversations parents described or if the conversation described contributed to the emotional experience reported by parents. Emotions that occur on the front end of family discussions may guide how parents approach a conversation in important ways, while emotions occurring as a response to weight- and health-related conversations within the family may shape future appraisals of similar situations and parents' overall communication style. This is difficult to disentangle, and it is likely that the nature of this relation is bi-directional. Future research may be able to further develop our understanding of these relations by measuring parental affect at multiple points or asking parents directly about when the emotion was experienced and their perception of what the emotion was linked to. Another important consideration is the distinction between emotions typically considered negative. Our study combined this group of emotions together, while future research could break apart different aspects of negative affect to explore their unique associations with various forms of family

weight talk. As negative emotions activate behavior and communication in diverse ways (Dix, 1991), it may be that certain emotions such as annoyance or disgust are more highly associated with stigmatizing talk, while emotions like concern and guilt, for example, are more strongly associated with talk that reflects protection or acceptance.

Family Weight Talk and Socio-Demographic Factors

An important aim of the current study was to explore how parent and child socio-demographic factors relate to family weight talk. Among our sample, we found that family weight talk varied by parent, but not child, gender. Specifically, we found that fathers reported more weight conversations with their child on the baseline and daily surveys than did mothers. Similarly, Pudney et al. (2019), found that fathers of 9- to 15-year-olds made more comments about their child's weight in front of their children than did mothers. Additionally, findings have demonstrated that fathers' weight talk is more often focused on specific child body parts, whereas mothers' weight talk tended to be focused on food (Berge et al., 2016). Consistent with past research demonstrating that mothers make more comments about their own weight than do fathers (Berge et al., 2016, Taylor et al., 2006), we found that mothers' conversations were more self-focused compared to fathers. Interestingly, mothers' conversations were more positive or mixed in valence, whereas fathers' conversations tended to be more neutral compared to mothers. This pattern is supported by research on parental emotion communication more broadly, that suggests mothers incorporate emotion more explicitly into their conversations with their children than do fathers (Aznar & Tenebaum, 2015).

We found that parents with higher BMIs reported fewer health-focused conversations within their family on the baseline survey and less family weight talk across the daily surveys. It may be that parents with higher BMIs recognize the challenge of health behavior and the

potential for weight-related shame due to their own experiences with weight and health, thus leading to less engagement in weight- and health-related conversations within the family. Additionally, and consistent with past literature (Pudney et al., 2019; O'Brien et al., 2016; Hayden-Wade et al., 2005), higher child BMI was associated with greater reported conversations about child, parent, and others' weight. As child BMI increases, weight talk may become a mechanism through which parents attempt to cultivate health behavior change in their children. While not examined in the current study, it may be that family weight talk evokes negative emotions and stress among children, especially those with higher BMIs, leading to biobehavioral responses that contribute to further weight gain and perpetuate this pattern (Tomiyama, 2014).

Results from our study also demonstrated that higher educational attainment among parents was associated with fewer weight-related and potentially stigmatizing conversations. Unexpectedly, family income did not play a role in family health- and weight-related conversations in our study. Education level could be more meaningful because it may lead to an understanding of the potential negative consequences of weight-related shame and an intentional effort to avoid conversations that could be perceived as shaming or stigmatizing to a child. It may also be that parents with a higher education level have more resources to support children's health behavior (i.e., access to healthy foods and safe outdoor spaces, time to engage in physical activity as a family) and utilize these resources to promote health habits within the family rather than engaging in potentially stigmatizing or weight-based conversations.

It is important to consider the limitations of these findings given the low variability in family income and parent education level among the current sample. Our sample was highly educated and over half of the sample reported a household income above $75,000. It is possible that our results may have looked different given a more diverse sample in these domains as

education and family income have consistently been shown to play an important role in beliefs about weight, and childhood obesity disproportionately impacts children from households classified as low income (Rogers et al., 2015). As one example, research has shown that parents who face socioeconomic disadvantage are less likely to recognize overweight in their children, and they are less likely to believe that they should influence their child's health habits (Hansen et al., 2014), likely decreasing the extent to which they engage in weight and health-related talk with their children. Additionally, neighborhood and community factors play a substantial role in child obesity among children raised in the context of socioeconomic disadvantage. Jackson and colleagues (2009) compared children from a high-income community with those from a low-income community and found that those children living in the lower-income community engaged in less physical activity, ate less nutrient dense food, consumed more fried food and sugary drinks, and spent more time in front of screens than those children living in the higher-income community. Health habits are influenced by access to and availability of resources in one's community, and these community level factors are likely to shape family weight-related discourse, as well.

In regard to race/ethnicity, we found that White and Asian/Asian American families reported significantly more health conversations within the family than did Black/African American parents. This may be due in part to racial inequities that limit access to and availability of nutrient-dense foods and safe physical spaces for marginalized groups (Larson et al., 2009; Peña et al., 2012; Jennings & Gaither, 2015). Research shows that racial/ethnic minority populations often live in neighborhoods that are "less conducive to reaching and maintaining a healthy weight" (Peña et al., 2012, p. 24). Neighborhood factors impacting health include safety, food marketing, limits to transportation, access to recreation facilities, and limited social capital

and support. Minority populations face more barriers to engaging in health behavior (Peña et al., 2012), and therefore may be less likely to talk about health habits within the family. Our work underscores the importance of macro-level factors in family health communication and the importance of intervention and change at this environmental level, in addition to individual and community-based intervention.

Additionally, there are cultural differences, such as the value placed on various health habits and ideal body image, that may be contributing to the patterns found in our data. Evidence suggests that Black parents are more likely than White parents to consider heavier body types desirable (Bennett & Wolin, 2006), that Black girls and women are generally more satisfied with their bodies than are White girls and women, and that there is more acceptance of larger body sizes in Black communities (Capodilupo & Kim, 2014; Burke et al., 2021). Additionally, definitions of health often vary based on ethnic background. For example, thinness is seen as a reflection of poor health or malnutrition among some Black parents, and weight is often viewed as the result of genetics among Black and Latinx parents, with little that can be done to impact excess weight (Peña et al., 2012). These cultural differences in perspectives on body size and health may also impact the nature of health and weight related conversations within the family. Research should continue to explore avenues of best supporting families from all backgrounds in communicating effectively about health and weight and future research should make a concentrated effort to engage families from diverse backgrounds in this work.

Taken together, our findings demonstrate that parent, child, and family characteristics impact the nature of health and weight related communication within families and make a valuable contribution to the literature as this is a largely unexplored area of investigation. These

findings may inform education, prevention, and intervention efforts aimed at supporting families to communicate effectively about health.

Associations among Parent Experiences/Beliefs, Family Weight Talk, and Child Health Outcomes

As hypothesized, parents who endorsed more weight-based stigma, internalized weight bias, and anti-fat attitudes also reported engaging in more conversations about their child's weight, their own weight, and the weight of others, across measures and respondents. This is consistent with work by Pudney and colleagues (2019) that found internalized weight bias among parents to be associated with more child-centered weight conversations and more conversations about the weight of oneself and others. Additionally, we found that parents who perceived greater child risk for problems due to excess weight engaged in more child and self/other weight conversations across measures and respondents, as well as more health focused conversations. While parent perception of child risk as measured by the current study has not been explored in the context of family weight talk previously, our findings are consistent with those showing that parents who perceive their child as having excess weight had more conversations about weight and dieting with their child than did those parents who perceived their child as 'about the right weight' (Winkler et al., 2018).

It may be that negative weight related experiences and beliefs lead parents to engage in greater amounts of weight talk as a means of regulating their own negative emotions associated with these experiences (Tomiyama, 2014; Engeln & Salk, 2016). For example, parents with higher internalized weight bias may express this bias through negatively-valenced conversations about their own weight within the family. Similarly, parents who hold stronger anti-fat attitudes may judge the weight of others or hyper-focus on the weight of their child, impacting family

communication patterns. When it comes to risk perception, parents who perceive greater risk due to excess weight facing their child may engage in more weight talk in hopes of preventing children from experiencing the risks that they are concerned about by motivating them to make changes. Past research supports this claim as evidence suggests parents often engage in weight talk due to worry about their child's health (Berge et al., 2016).

An important goal of the current study was to explore how family health- and weight-related communication is associated with child habits and social-emotional well-being. Notably, health related conversations among families were related to greater amounts of fruit/vegetable consumption among children. This is an important contribution of the current study as little is known about the influence of conversations about child diet and physical activity within the family on child health habits. It may be that these types of conversations help children establish healthful behavior, such as greater fruit and vegetable intake, through a variety of mechanisms. For example, language and conversation allows for the explicit teaching of ideas and values (Duff, 2010), and it may be that within families where health conversations are common, children are more aware of the importance of fruit/vegetable consumption and their dietary choices. Additionally, health conversations may help create an organizing framework for children regarding the links between behavior and health, reinforcing the personal relevance of fruit/vegetable consumption. It may also be that families and households that have a high availability of and access to fruits and vegetables within the home are more likely to have conversations focused on health promoting habits.

In addition to conversations with a focus on diet and physical activity, weight-related conversations were also related to child diet in important ways. Among our sample, conversations about the child's weight, parent's own weight or the weight of others, and

conversations likely to be stigmatizing were associated with greater snack consumption among children. As suggested by the COBWEBS model, it may be that these weight-focused and stigmatizing conversations within a family evoke negative emotions among children and greater consumption of 'comfort foods' as a means of regulating these negative feelings (Tomiyama, 2014). Interestingly, we found that families who reported more conversations about child weight also reported more fruit/vegetable consumption among children. Altogether, it may be that conversations about child weight contribute to increased consumption across food groups. These findings align with previous work that suggests comments about a child's weight are associated with habits like overeating and eating in secret (Lydecker et al., 2018), as well as research that has shown parental comments about their own weight to be associated with worse eating habits in children (Neurmark-Sztainer et al., 2010; Bauer et al., 2013).

Our mediation and moderation analyses shed further light on the relations described above. We found that conversations about weight within the family mediated the relation between parent experiences and beliefs and child food consumption (snacks and fruits/vegetables). It appears that parents who hold more negative weight-related attitudes and perceive greater weight-related risk facing their child engage in more weight talk, which in turn, leads to consumption of more snacks and fruits/vegetables among children. It may be that parents with more negative weight-related attitudes are engaging in weight-talk and parenting behaviors that demonstrate pressure to eat and restriction, which have been found to undermine children's self-regulation of hunger cues (Faith et al., 2012; Lydecker et al., 2018, Pudney et al., 2019; Balantekin et al., 2020). This pattern of results makes a strong contribution to the literature in providing initial evidence connecting parent weight-related experiences and beliefs to child dietary patterns through family weight talk. Longitudinal work is needed to clarify the direction

of effects and to explore family weight talk as a potential explanatory mechanism of the associations between parent beliefs and practices in the context of weight and health.

Findings also suggest that the caregiving context plays a role in the impact of weight talk on child health habits. In terms of child snack consumption, we found that conversations about the weight of others were related to more child snack consumption in families where parents reported a low-quality caregiving context, while weight talk did not increase child snack consumption among children embedded in a high-quality caregiving context, with these children consuming fewer snacks even when parents engaged in talk about the weight of others. This finding supports our hypothesis that family weight talk delivered within the context of a warm and supportive caregiving context may not relate to child health consequences in the way that this same weight talk delivered within a low-quality caregiving context influences child health.

Despite past work that suggests parenting efforts aimed at weight control delivered within a positive caregiving context may be associated with better child health outcomes (Balantekin et al., 2020), we found the strongest indirect effect of parent experiences/beliefs on child fruit and vegetable consumption and physical activity among parents who reported a low-quality caregiving context. It was surprising that in families reporting a low-quality caregiving context, conversations about parents' own weight and the weight of others were positively related to child physical activity and fruit/vegetable consumption, while in families reporting a high-quality caregiving context, this relation did not exist. It may be that parents reporting a low-quality caregiving context are also using strict and controlling parenting behaviors that create pressure for children to consume fruits/vegetables and engage in physical activity, while restricting access to other food groups and sedentary activities. Parents reporting a high-quality caregiving context may be more flexible in their parenting approach, leading to balance in children's diet and

activity level. Alternatively, it may be that the negative impacts of parent weight-related beliefs and family weight talk on child habits take time to develop in children. In fact, past work focused on weight-related parenting behaviors and adolescent weight status has suggested that the effects of parenting may not always be immediate and may emerge more strongly during periods of transition and increased child autonomy (Fuemmeler et al., 2012; Balantekin et al., 2020). Much previous research has been retrospective or focused on adolescents with overweight. In our sample of school-age children of various weight statuses, these patterns may be less pronounced or need more time to emerge. Longitudinal work in this area is an important avenue of future exploration to better understand the nature of these effects.

The role of the caregiving context on the relation between family weight talk and child physical activity was complex. In addition to the moderated mediation effects described above, we found that conversations about exercising to lose weight within the family were related to more child physical activity in all families, but this relation was strongest among families reporting a high-quality caregiving context. It appears that the topic of weight-related conversation matters in the relations between family weight talk and child health outcomes. It may be that conversations directly tied to exercise are linked to actual behavior for many families, but that a warm and supportive caregiving context bolsters this by creating an environment when children are motivated to engage in physical activity and successful in enacting this behavior.

In addition to child diet and physical activity, we found that parent experiences/beliefs and family weight talk should be considered in relation to child social-emotional health, as well. Among our sample, those parents who held more negative weight-related attitudes and perceived greater risk facing their child engaged in more conversations about weight with their child,

which was associated with worse health-related quality of life (HRQoL) among children. This is consistent with past work demonstrating negative impacts on children's well-being after experiences of weight-stigma and shaming from parents (Eisenberg et al., 2006; Neurmark-Sztainer et al., 2010; Bauer et al., 2013; Bucchianer et al., 2014; Pont et al., 2017). Our findings make an important contribution to this growing body of literature as child HRQoL has not been explored in relation to family weight talk to our knowledge.

It should be noted that parent weight-related attitudes emerged as a more robust predictor of family weight talk and child health outcomes than parent perception of child risk for problems related to excess weight. It could be that anti-fat attitudes, weight-bias internalization, and experiences of stigmatization are more long-standing and deeply ingrained into parents' belief system, allowing them to have a stronger impact on health-related communication and weight-related parenting practices. On the other hand, parent risk perception may be a more transient belief as it is dependent on the current functioning and well-being of the child.

Strengths, Limitations, and Future Directions

The current study had a number of strengths. Importantly, we used a daily diary methodology to gather information about family weight talk, allowing us to further the conceptualization of health and weight related communication among families. Notably, we measured family weight talk in multiple ways, using a validated measure, as well as an innovative coding scheme that drew from previous literature, while also allowing for the emergence of new ideas based on the data. In addition, we were able to gather information from both parent and child about the current communication patterns in their family, whereas much past research has relied on a single reporter or on reports of the distant past. Importantly, we obtained participants from the community through email list-servs, flyers, and snowball methods,

preventing issues with online bots and poor data quality. Finally, our study makes an important contribution to the literature by exploring family weight talk in relation to constructs that have not previously been considered in this context, such as HRQoL, parent perception of child risk, the parent-child relationship, and family functioning. Taken together, our study is an important step in moving the field forward in our understanding of family health-related communication.

Despite these strengths, our study had a number of limitations that should be considered. Most notably, our sample had limited socio-demographic diversity, with most participants being White, having attained a high level of education, and from socioeconomically advantaged backgrounds This limits the generalizability of our findings and highlights the need to interpret the findings with caution. This is particularly relevant in consideration of the daily diary coding scheme, as these codes were generated from the perspectives of a fairly homogenous and socioeconomically advantaged sample. Access to and availability of health resources and supports create and maintain barriers to health for families (Rogers et al., 2015), and cultural backgrounds influence beliefs about weight, body image, and health (Peña et al., 2012; Capodilupo & Kim, 2014). Given that children from marginalized backgrounds are disproportionately affected by childhood obesity and that disparities exist across most known risk factors for child obesity (Peña et al., 2012), it stands to reason that there may be meaningful differences in how families from marginalized backgrounds talk about health and weight that we may have been able to capture if we had a more diverse sample. As one example, research has shown that food-related parenting behaviors among Latinx parents may be driven more by a desire to please children than by the perceived healthfulness of foods (Peña et al, 2012). Many of our daily diary responses were focused on the nutritional components of the foods that children and families were eating, which may be a bias of our White, highly educated sample.

Additionally, cultural differences in ideal body image may have appeared in the daily diary narratives of a more diverse sample and may have influenced parents' responses on the Family Weight Talk questionnaires. Black girls and women often experience a conflict between cultural ideals of beauty conveyed by their community and White beauty standards conveyed by society (Capodilupo & Kim, 2014), and may discuss this conflict within the family. Furthermore, research demonstrates that Black individuals view curvier bodies as more desirable than thinness, and that those from minority background and/or low socioeconomic statuses less commonly perceive children who meet traditional criteria for overweight/obesity (i.e., BMI > 85th percentile) as having health problems (Peña et al., 2012; Rogers et al., 2015; Burke et al., 2021). Additionally, differences in media representation have been shown to play a role in body image among women, with media a significantly weaker predictor of thin-ideal internalization among Black women when compared to White women (Burke et al., 2021). As a final example, families rearing children in the context of socioeconomic disadvantage face substantial barriers to engaging in health promoting behaviors (Rogers et al., 2012), impacting children's diet and physical activity habits, and likely shaping health and weight-related discourse within the family. Our study may have missed important aspects of family health communication among diverse families, limiting our ability to draw conclusions and generalize our findings about the nature of weight talk among families with school-aged children, and highlighting the importance of continued research on family health communication in more diverse samples.

In addition to the limited diversity among our participants, the small sample size is also a limitation of the current study. This led to low frequency of some family weight talk variables on the daily survey, especially the description code variables. This may help explain why some of our hypotheses surrounding the daily diary variables were not supported and limits the

conclusions that can be drawn from our findings. Additionally, we were unable to use the daily diary variables in some of our more complex models due to the low frequency of the variables. The small sample size may also have impacted the codes that were generated based on the descriptions of family weight talk. It's possible that other themes would have emerged given a larger sample. For example, we found some evidence of descriptions that could have fallen into a distinct category such as body kindness ("I also told her that it's ok if she gains weight…I didn't want her to think that it was bad to gain weight and I wanted her to understand that the person on the show wasn't a bad person"), mindful eating (e.g., "I spoke to him about giving his body enough time to tell him that it is full"), or responsiveness (e.g., "I praised her for taking care of herself"); however, given the limited number of narratives fitting these descriptors, we did not add these additional categories. It is important to keep in mind that our codes are not exhaustive and should be adjusted based on findings that emerge in the future.

As more data is collected for the current study and future research on family weight talk is conducted, it is imperative that researchers identify avenues of recruiting diverse families to participate in research on family health communication. One recruitment avenue that has been successful is the use of Facebook advertisements that employ zip code targeting. In fact, a recent study demonstrated that an 8-week Facebook advertisement strategy yielded a diverse, nationwide sample of over 600 parents with school-age children (Skeens et al., 2022). In addition, researchers could work with experienced marketing professionals to design targeted recruitment materials that are culturally and linguistically appropriate for diverse parents and children (Vuong, et al., 2020; Skeens et al., 2022). Drawing from community-based research approaches could also be valuable because when researchers partner with local organizations that serve the populations of interest, this can build trust between families and researchers and

increase family motivation for study participation (UyBico et al., 2007). Similarly, recruitment through health care systems may be fruitful, as healthcare professionals could provide their patients with direct referrals to the research study (UyBico et al., 2007). Taken together, a coordinated and comprehensive recruitment approach that incorporates multiple strategies is integral to recruiting a diverse sample for future research (UyBico et al., 2007).

Recruiting a more diverse sample may require changes to the study methodology, as well. As one possibility, it may be important to incorporate grandparents and other caregivers into the study design as research shows that extended family members often play a more important role in Latinx and Black families than in White families, and influence children's eating and physical activity behaviors (Peña et al., 2012; Burke et al., 2021). Additionally, it may be important to reduce or modify the demands of the study (i.e., reduce number of baseline questionnaires, remove some daily diary content) to make it more feasible for parents with lower educational attainment and fewer resources to complete the study efficiently. Considering modifications to the current study's methodology and thoughtfully designing future methodologies with respect for diverse populations would improve the research on family health communication.

In addition to issues related to generalizability and cultural relevance, our findings are also limited by the cross-sectional design. As such, we cannot parse out the direction of the effects that emerged or make conclusions about causality. Our findings provide a single snapshot of family weight talk and cannot inform how these processes emerge and evolve over time. While our study used a daily diary method, which to our knowledge has not been used in this context previously, parents varied in the extent to which they fully responded to the prompt each day, and the self-report nature of the daily diary likely limited the types of responses provided by parents. The daily diary prompt asked parents to report on the interaction in as much detail as

possible (i.e., what was said, what happened before the conversation, how the child reacted, what happened after the conversation, and what they were thinking and feeling), yet few participants included all of this information each day, with some participants writing much more than others, or writing more on some days and less on others. It may be important to consider how our daily diary method could pull for increased detail from parents - perhaps probing for various details (i.e., emotion, child response) in separate question and response boxes. Given the self-report nature of the daily diary and our instruction to 'choose the most salient' conversation to describe, it is possible that parents chose to portray themselves in a positive light, and were unlikely to report harsh, restrictive, or shaming conversations that occurred within their family. Future research should consider methodologies that can capture real-time family weight talk in a way that reduces potential social desirability biases among parents. For example, families may be able to have a device within the home that intermittently records the family's audio, with those instances of family weight talk being transcribed and the focus of study. Alternatively, researchers may be able to record family meals and analyze health-related communication that arises in this context. Given the importance of supporting health habits in children, it is vital to continue developing innovative methodologies that allow us to gain a deeper understanding of real-time family health-related communication.

Finally, it should be noted that our study is conceptualized within a euro-centric framework and a developmental systems perspective. This inherently biases our study in that the measures used were largely developed and validated in middle class, White samples, and influenced by the weight-normative perspective of Western society. Additionally, the developmental literature reviewed during the conceptualization phase of this study has a large focus on obesity prevention and intervention, which influenced our approach and guided us

toward a more weight-normative view of health. Future research should consider evidence from the health at any size, body kindness, and positive psychology perspectives, as well. For example, research could consider additional constructs such as body image flexibility or intuitive eating as child health outcomes of interest. Additionally, using a different measure of weight and health-related conversations (or adapting the current measure) to inquire about conversation topics such as body appreciation, family and societal values surrounding health and weight, and self-compassion could be a fruitful avenue of investigation.

Clinical Implications and Conclusion

While it is of great importance to replicate these findings in a larger sample, results from the current study suggest considerations for promoting health and well-being in children. Interventions aimed at promoting effective health communication within families may be able to use knowledge gained through this study to identify those families where communication styles suggest risk for negative impacts on children's health and well-being and help parents shift their styles to those that demonstrate more effectiveness in supporting children's well-being. Interesting relations between weight talk and parental affective experience emerged in our study and this information may inform efforts to motivate shifts in discourse among parents, as well. While parents' attitudes and beliefs appear to be influencing child health outcomes, these internal experiences may be difficult to target through family-based intervention, thus family health-related communication may be a more concrete and tangible way of targeting the intergenerational transmission of negative weight-related beliefs and positively impacting children's health and attitudes. Parent beliefs may drive engagement in weight talk as a mechanism of motivating health behavior change in children. As this means of motivating behavior change is largely unsuccessful and can undermine children's ability to engage in health

promoting habits (Lampard et al., 2008; Hansen et al., 2014), interventions should equip parents with more effective strategies for motivating their children to engage in health behaviors. Preventative interventions aimed at educating parents about the potential negative implications of weight talk and language that may be perceived as stigmatizing by children, as well as effective means of motivating health behavior within the family (e.g., increasing availability of fruit and vegetables, modeling health behavior) are of vital importance. Our work may be considered alongside literature on positive body image (Frisén & Holmqvist, 2010; Wood-Barcalow et al., 2010; Halliwell, 2015) as researchers and professionals are considering how best to support parents in promoting health and well-being in their children.

In conclusion, the current study expands our conceptualization of the manner in which families talk about health and weight, suggests important parental attitudes and beliefs that shape this talk, and adds to our understanding of the impact of family weight talk on child health and well-being. Our study makes an important contribution to the literature in beginning to understand the nuances of family weight talk and how professionals might support effective health-related communication within families. Given the continued rise in children failing to meet national recommendations for both diet and physical activity, and the increase in child obesity interventions, this work may contribute meaningfully to continued investigation on how to best support families in working toward greater health and well-being.

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Table 1

Participant Characteristics

Characteristic	*n*	%	
Mean Parent Age in Years (*SD*)		41.34 (6.00)	
Mean Child Age in Years (*SD*)		10.76 (.75)	
Parent Gender (%)			
Mother		84%	
Father		16%	
Child Gender			
Girl		45%	
Boy		48.3%	
Not Listed		5%	
Race/Ethnicity		Parent	Child
White		74.7%	65%
Black/African American		10.7%	10%
Bi-Racial/Multi-Racial		6.7%	5%
Asian/Asian American		5.3%	6.7%
Middle Eastern/Arab American		1.3%	1.7%
Native Hawaiian/Other Pacific Islander		0%	1.7%
Other, don't know, prefer not to answer		0%	8.3%
Household Income			
<$10,000		2.7%	
$10,000-24,999		1.3%	
$25,000-49,999		17.3%	
$50,000-75,999		14.7%	
$75,000-99,999		16%	
>$100,000		37.3%	
Prefer not to answer		10.7%	

Table 1 (continued)

Parent Education	
Graduate or professional training	48.1%
College Degree	29.1%%
Some College	15.2%
Vocational Training	1.3%
High School Diploma or GED	1.3%

Note. N = 60 families total (n = 79 parents and n = 60 children).

Table 2a

Descriptive statistics for parent baseline survey variables

Variable	Observed Min	Observed Max	Mean	SD	Skew	Kurtosis
Health Conversations	1.00	5.00	3.19	1.12	-.08	-.74
Weight Conversations	1.00	4.50	1.67	.76	1.91	4.14
Self/Other Conversations	1.00	4.00	1.91	.85	.97	.25
Anti-Fat Attitudes	1.00	7.54	3.26	1.46	.76	.37
Stigmatizing Situations Inventory	.00	4.90	.73	.99	2.10	4.67
Weight Bias Internalization	1.45	5.36	3.07	1.13	.50	-.94
Total Risks	0	27.00	7.99	7.51	.93	-.24
Family Functioning	2.58	4.00	3.35	.36	-.13	-.64
Parenting Total	39.00	79.00	66.04	7.87	-.92	1.21
Snack Consumption	.50	4.14	1.87	.68	1.09	1.63
Fruit/Vegetable Consumption	1.30	5.10	2.81	.74	.40	.42
Physical Activity Total	0.00	46.00	12.58	10.86	1.33	1.82
HRQoL Total	43.75	100.00	80.02	14.51	-.83	-.07
Total Difficulties	.00	24.00	7.25	5.85	1.12	.72
Prosocial Behaviors	4.00	10.00	8,77	1.51	-1.36	1.43
COVID-19 Stress	1.00	4.20	2.38	.85	.31	-.66
Caregiver Burden	1.00	3.70	2.02	.63	-.07	-.66
Food Insecurity	.00	21.00	1.08	3.44	4.35	20.62

Table 2b

Descriptive statistics for child baseline survey variables

Variable	Observed Min	Observed Max	Mean	SD	Skew	Kurtosis
Health Conversations	1	5	2.79	1.01	.11	-.93
Weight Conversations	1	4	1.53	.74	2.00	3.33
Self/Other Conversations	1	4	1.59	.75	1.65	2.41
Family Functioning	2.25	4.00	3.43	.43	-.44	-.53
Parenting Total	10.00	31.00	23.07	3.97	-1.28	2.66
Snack Consumption	.71	3.29	1.98	.60	.31	-.36
Fruit/Vegetable Consumption	1.20	4.10	2.65	.72	.01	-.47
Physical Activity Total	.13	3.16	1.62	.63	.30	.36
HRQoL Total	29.38	100	67.65	16.60	-.02	-.54
Total Difficulties	0	27	9.25	6.18	.74	.25
Prosocial Behaviors	3	10	8.31	1.88	-1.19	.71
CHEAT Total	0	25	5.62	4.93	1.63	2.91

Table 2c

Descriptive Statistics for Daily Survey Variables

Variable	Min	Max	Mean	SD	Skew	Kurtosis
Family Weight Talk Scale Percentage Scores						
Conversations about…						
Healthy Diet	0%	100%	38%	33%	.48	-.90
Physical Activity	0%	100%	35%	33%	.70	-.75
Child weight/size	0%	100%	6%	17%	3.75	15.82
Child weighing too much	0%	100%	3%	14%	5.73	37.57
Child eating differently	0%	100%	21%	28%	1.34	.98
Child exercising to lose weight	0%	100%	6%	19%	3.72	13.52
Self	0%	100%	9%	21%	2.55	6.42
Others	0%	100%	6%	16%	3.85	19.69
Narrative Code Percentage Scores						
Food Focused	0%	100%	63%	40%	-.56	-1.24
Physical Activity Focused	0%	50%	4%	12%	3.13	8.83
Weight Focused	0%	100%	13%	24%	2.10	4.30
Positive Valence	0%	100%	12%	25%	2.48	6.17
Negative Valence	0%	100%	11%	21%	2.19	4.86
Neutral Valence	0%	100%	72%	35%	-.86	-.71
Mixed Valence	0%	75%	5%	15%	3.07	9.15
Limit Setting	0%	100%	15%	29%	1.80	2.15
Teaching Opportunity	0%	100%	50%	40%	.04	-1.56
Challenge	0%	100%	12%	12%	2.16	3.43

Table 2c (continued)

Directive/Command	0%	100%	26%	27%	1.08	-.14
Restriction	0%	100%	6%	6%	3.82	15.26
Overly Focused on Health	0%	50%	3%	3%	4.06	15.80
Child	0%	100%	72%	72%	-.88	-.63
Self	0%	67%	4%	4%	3.72	13.92
Family	0%	100%	12%	12%	2.07	3.39
Other	0%	100%	6%	6%	3.74	16.41
General	0%	100%	12%	12%	2.40	4.90
Total Stigma	0%	100%	20%	20%	1.16	.12
Additional Daily Diary Variables						
Total Negative Affect	9.00	20.60	11.78	2.92	1.78	2.74
Total Positive Affect	11.00	49.50	23.92	8.23	.87	.76
Child Diet	2.00	4.00	3.26	.69	-.38	-.86
Child Physical Activity	1.00	5.00	3.28	1.12	-.10	-.72

Note. Percentage scores are based on the number of daily surveys completed over the five days.

Table 3

Zero-order correlations between parent and child report of same construct

	Child Report										
Parent Report	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1.Health Conversations	.36**										
2.Weight Conversations		.59**									
3.Self/Other Conversations			.62**								
4.Family Functioning				.47**							
5.Parenting					.09						
6.Snack Consumption						.60**					
7.Fruit/Vegetable Consumption							.57**				
8.Physical Activity Total								.37**			
9.HRQoL Total									.38**		
10.Total Difficulties										.70**	
11.Prosocial Behaviors											.44**

Note. **$p<.01$

Table 4a

Zero-order correlations between study variables on parent baselines survey

Variable	2.	3.	4.	5.	6.	7.	9.	10.	11.	12.	13.	14.	15.	16.
1. Health Conversations	.42**	.13	.11	.15	-.11	.25*	.04	.13	-.08	.13	.14	-.22†	.04	-.16
2. Weight Conversations	--	.56**	.51**	.66**	.41**	.60**	-.36**	-.46**	.43**	.26*	-.01	-.59**	.45**	-.25*
3. Self/Other Conversations		--	.51**	.38**	.48**	.34**	-.24*	-.24*	.21†	.03	-.13	-.38**	.36**	-.07
4. Anti-Fat Attitudes			--	.47**	.51**	.38**	-.40**	-.40**	.42**	.03	-.09	-.52**	.33**	-.35**
5. Stigmatizing Situations				--	.54**	.62**	-.35**	-.52**	.49**	.20†	-.07	-.53**	.40**	-.29**
6. Weight Bias Internalization					--	.58**	-.45**	-.33**	.38**	-.08	-.23†	.38**	.43**	-.19
7. Total Risks						--	-.47**	-.29*	.39**	-.04	-.16	-.62**	.49**	-.43**
9. Family Functioning							--	.44**	-.43**	.08	.13	.53**	-.36**	.22†
10. Parenting								--	-.48**	-.16	.26*	.49**	-.34**	.34**
11. Snack Consumption									--	.40**	.04	-.45**	.17	-.31**
12. Fruit/Vegetable Consumption										--	.20	-.05	-.11	-.004
13. Physical Activity Total											--	.02	-.17	.13
14. HRQoL Total												--	-.64**	.59**
15. Total Difficulties													--	-.45**
16. Prosocial Behaviors														--

Note. **p<.01. *p<.05. † p<.10

Table 4b

Zero-order correlations between study variables on child baseline survey

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Health Conversations	.44**	.30**	-.003	.13*	.19	.06	.08	-.02	-.19	.18
2. Weight Conversations	--	.71**	-.19	-.12	.16	.43**	-.05	-.09	-.11	-.20
3. Self/Other Conversations		--	-.17	-.11	.15	.30*	-.02	.03	-.01	-.14
4. Family Functioning			--	.09	.38**	-.21	.05	.20	-.29*	.05
5. Parenting				--	.03	-.04	.08	.07	-.14	.47**
6. Fruit/Vegetable Consumption					--	.19	.28*	.13	-.14	-.07
7.Snack Consumption						--	.04	-.22†	.04	-.12
8. Physical Activity Total							--	.36**	-.12	.18
9. HRQoL Total								--	-.44**	.28*
10. Total Difficulties									--	-.51**
11. Prosocial Behaviors										--

Note. **p<.01. *p<.05. † p<.10

Table 5

Correlations between parent and child report of family weight talk

Parent Report	Child Report		
	Health Conversations	Weight Conversations	Self/Other Conversations
Health Conversations	.36**	.11	-.07
Weight Conversations	.39**	.59**	.59**
Self/Other Conversations	.18	.33*	.62**

Note. ***p*<.01. **p*<.05

Table 6

Correlations between daily survey family weight talk scale percentage scores

Conversations about…	2.	3.	4.	5.	6.	7.	8.
Healthy Diet	.30*	.31**	.37**	.47**	.43**	.36**	.31**
Physical Activity	--	.33**	.34**	.40**	.48**	.35**	.41**
Child weight/size		--	.77**	.40**	.78**	.60**	.77**
Child weighing too much			--	.42**	.81**	.52**	.83**
Child eating differently				--	.43**	.37**	.42**
Child exercising to lose weight					--	.54**	.85**
Self						--	.56**
Other							--

Note. **p<.01. *p<.05

Table 7

Correlations between daily survey family weight talk scale percentage scores and baseline survey family weight talk variables

	Parent Report			Child Report		
Percentage of Conversations about…	Health Conversations	Weight Conversations	Self/Other Conversations	Health Conversations	Weight Conversations	Self/Other Conversations
Healthy Diet	.24*	.38**	.24*	.33**	.43**	.15
Physical Activity	.42*	.36**	.32**	.25†	.22†	.15
Child weight/size	.11	.60**	.40**	.08	.46**	.46**
Child weighing too much	.16	.56**	.38**	.25	.55**	.51**
Child eating differently	.20	.35**	.21†	.13	.28*	.12
Child exercising to lose weight	.22†	.61**	.38**	.24†	.57**	.43**
Self	.06	.34**	.42**	.22†	.29*	.24†
Other	.11	.49**	.36**	.09	.43**	.37**

Note. ***p*<.01. **p*<.05. † p<.10

Table 8

Zero-Order correlations between percentage scores for daily diary narrative codes

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
1. Food Focused	-.11	-.26*	.03	-.19	.02	-.01	.29*	.19	-.25*	.37**	.20	.12	.38**	-.06	-.20	-.19	-.13	-.09
2. Physical Activity Focused		.17	.20	-.01	-.27*	.30*	-.03	.23	-.14	-.19	-.06	.25†	.08	.15	-.02	.10	.05	.10
3. Weight Focused			.06	.20	-.26*	.11	.04	-.07	-.16	-.28*	-.14	-.06	-.21†	.43**	-.16	.59**	.12	.60**
4. Positive Valence				.02	-.75**	.08	.03	.09	.03	.01	-.10	.07	.15	.10	-.06	-.01	-.12	-.02
5. Negative Valence					-.36**	-.10	.32*	.02	.07	-.11	-.09	.05	-.11	.26*	.14	.04	-.07	.18
6. Neutral						-.42**	-.22†	-.16	-.07	.13	.11	-.28*	-.08	-.25*	-.04	-.09	.17	-.26*
7. Mixed							.02	.15	.21	-.02	.05	.44**	.01	.03	.17	.16	-.13	.28*
8. Limit Setting								-.01	-.11	.01	.002	-.06	.32*	-.06	-.20	.09	-.17	.22†
9. Teaching Opportunity									-.06	-.18	.07	.09	.24	.00	.04	-.18	-.11	-.06
10. Challenge										-.07	-.07	-.11	-.39**	.02	.68**	-.06	.48	-.18
11. Directive/ Command											.09	.07	.36**	-.17	-.16	-.12	-.27*	-.05

Table 8 (continued)

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
12. Restriction												.02	.11	-.10	.04	-.08	-.12	.25†
13. Overly Focused on Health													-.02	.06	.18	-.09	.03	.06
14. Child														-.22†	-.53**	-.15	-.60**	-.01
15. Self															.03	-.10	-.02	.13
16. Family																-.17	-.12	-.14
17. Other																	-.06	.48**
18. General																		-.13
19. Total Stigma																		

Note. **p<.01. *p<.05. † p<.10

Table 9

Zero-order correlations between daily diary variables and parent affect

Conversations about…	Positive Affect	Negative Affect
Healthy Diet	.09	.42**
Physical Activity	.29*	.38**
Child weight/size	.17	.59**
Child weighing too much	.27*	.61**
Child eating differently	.15	.51**
Child exercising to lose weight	.24†	.67**
Self	.09	.35**
Other	.18	.58**
Daily Diary Description Code Percentage Score		
Food Focused	-.08	-.06
Physical Activity Focused	-.14	-.08
Weight Focused	-.11	.05
Positive Valence	.25*	-.03
Negative Valence	-.27*	.22†
Neutral Valence	-.17	-.10
Mixed Valence	.25*	-.08
Limit-Setting	-.16	.02
Teaching Opportunity	-.05	-.07
Challenge	.26*	-.16
Directive/Command	.04	.02
Restriction	-.11	-.09
Overly Focused on Health	-.04	.17

Table 9 (continued)

Child	.02	-.03
Self	.002	-.07
Family	.11	-.10
Other	-.17	.01
General	-.12	.15
Stigma	.02	.31*

Note. Affect scores were created by averaging sum of reported positive emotion and negative emotion, respectively, across the daily surveys

**p<.01. *p<.05. † p<.1

Table 10

Means for family weight talk by parent and child gender

	Mother	Father	Girl	Boy
	Child Report			
Health Conversations	2.65	3.22	2.86	2.58
Weight Conversations	1.46*	2.08*	.65	.85
Self/Other Conversations	1.57	1.89	.67	.86
	Parent Report			
Health Conversations	3.14	3.41	3.11	3.26
Weight Conversations	1.59*	2.08*	.78	.77
Self/Other Conversations	1.89	2.04	1.97	1.87
Proportion of Conversations about				
Child diet	.35	.53	.40	.37
Child physical activity	.31*	.56*	.33	.37
Child weight/size	.03*	.23*	.04	.09
Child weighing too much	.01	.15	.01	.05
Child eating differently	.16*	.45*	.19	.23
Child exercising to lose weight	.02*	.27*	.03	.08
Self	.06	.25	.10	.08
Others	.04	.18	.03	.09
Proportion of Daily Diary Descriptions				
Food Focused	.62	.68	.70	.59
Physical Activity Focused	.04**	.00**	.05	.02
Weight Focused	.14	.10	.08	.18
Positive Valence	.15**	.00**	.11	.14
Negative Valence	.12	.06	.10	.12

Table 10 (continued)

Neutral Valence	.69**	.92**	.70	.73
Mixed Valence	.06**	.00**	.07	.04
Limit Setting	.17**	.03**	.14	.17
Teaching Opportunity	.52	.41	.51	.50
Challenge	.13	.07	.10	.13
Directive/Command	.26	.29	.30	.24
Restriction	.05	.15	.08	.05
Overly Focused on Health	.03*	.00*	.04	.01
Child	.75	.61	.74	.73
Self	.05*	.00*	.03	.05
Family	.27	.16	.11	.13
Other	.07	.02	.04	.08
General	.08	.32	.11	.09
Stigma	.27	.38	.21	.21

Note. Child baseline survey sample included 30 boys and 29 girls; parent baseline survey sample included 12 fathers and 63 mothers; parent daily survey included 11 fathers and 59 mothers

** $p<.01$, * $p<.05$

Table 11

Zero-order correlations between BMI and daily diary family weight talk variables

	Parent BMI	Child BMI
Parent Baseline		
Health Conversations	-.26*	.13
Weight Conversations	.01	.50**
Self/Other Conversations	.14	.39**
Child Survey		
Health Conversations	-.18	.19
Weight Conversations	-.08	.52**
Self/Other Conversations	.21	.49**
Conversations about…		
Healthy Diet	-.25*	.26*
Physical Activity	-.37**	.19
Child weight/size	-.17	.48**
Child weighing too much	-.32**	.28**
Child eating differently	-.29*	.17
Child exercising to lose weight	-.38**	.52**
Self	-.39**	.10
Other	-.35**	.36**
Description Code Percentage Scores		
Food Focused	-.06	-.28*
Physical Activity Focused	-.06	-.09
Weight Focused	.02	.28*

Table 11 (continued)

Positive Valence	-.04	-.16
Negative Valence	-.05	.06
Neutral Valence	.08	.08
Mixed Valence	.04	-.09
Limit Setting	.09	-.07
Challenge	-.04	-.01
Directive/Command	-.14	-.13
Restriction	.13	-.04
Overly Focused on Health	.05	-.10
Child	-.13	-.31*
Self	-.15	.00
Family	.07	-.04
Other	.03	.11
General	.15	.44**
Total Stigma	.01	.14

Note. **p<.01. *p<.05

Table 12

Zero-Order correlations between family weight talk variables and parent experiences/beliefs

	Anti-Fat Attitudes	Stigmatizing Situations Inventory	Weight Bias Internalization	Total Risks
Parent Baseline Survey				
Health Conversations	.11	.15	-.11	.25*
Weight Conversations	.51**	.66**	.41**	.60**
Self/Other Conversations	.51**	.38**	.48**	.34**
Child Baseline Survey				
Health Conversations	.17	.20	-.02	.20
Weight Conversations	.45**	.39**	.24†	.38**
Self/Other Conversations	.47**	.44**	.47**	.32*
Daily Diary Family Weight Talk Scale (conversations about…)				
Healthy Diet	.34**	.18	.00	.19
Physical Activity	.40**	.19	-.07	.19
Child weight/size	.42**	.56**	.33**	.45**
Child weighing too much	.40**	.43**	.23†	.39**
Child eating differently	.41**	.29*	.06	.18
Child exercising to lose weight	.54**	.48**	.22†	.45**
Self	.31**	.37**	.25*	.30*
Other	.48**	.41**	.28*	.41**
Daily Diary Description Codes				
Food Focused	-.16	-.21†	-.21	-.25†
Physical Activity Focused	-.13	.03	.00	-.001
Weight Focused	.14	.12	.20	-.09
Positive Valence	-.06	-.17	.05	-.13
Negative Valence	.06	.02	.09	.12

Table 12 (continued)

Neutral Valence	.02	.12	-.06	.13
Mixed Valence	-.01	-.11	-.06	-.14
Limit-Setting	.01	-.17	.06	-.06
Teaching Opportunity	-.16	-.12	-.17	-.22†
Challenge	-.17	-.15	-.25*	.02
Directive/Command	.08	-.16	-.09	-.01
Restriction	-.03	-.05	-.06	.07
Overly Focused on Health	.11	-.08	.05	-.14
Child	-.07	-.20	-.08	-.20
Self	.03	.07	.15	-.06
Family	-.19	-.15	-.24†	.05
Other	.10	-.04	.09	-.11
General	.20	.39**	.25*	.31*
Stigma	.28*	.19	.20	.08

Note. ***p*<.01. **p*<.05. † p<.10

Table 13

Zero-order correlations between family weight talk on the baseline survey and child health outcomes

	Fruit/Vegetable Consumption		Snack Consumption		Physical Activity Total		HRQoL Total		Total Difficulties		Prosocial	
	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report
Health Conversations												
Parent Report	.13	.26*	-.08	.04	.06	-.08	-.22†	-.23†	-.16	-.13	.04	-.09
Child Report	.09	.19	.02	.06	-.14	.08	-.19	-.02	.04	-.19	-.07	.18
Weight Conversations												
Parent Report	.26*	.23†	.34**	.18	-.04	.18	-.60**	-.20	.45**	-.13	-.25*	.17
Child Report	.28*	.16	.48**	.43**	.02	-.05	-.44**	-.09	.11	-.11	-.38**	-.20
Self/Other Conversations												
Parent Report	.03	.12	.21†	.13	-.12	.13	-.38**	-.29*	.36**	-.11	-.07	.17
Child Report	.19	.15	.51**	.30*	-.02	-.02	-.37**	.03	.31*	-.01	-.10	-.14

Note. ***p*<.01. **p*<.05. † p<.10

Table 14

Zero-order correlations between daily survey family weight talk scale percentage scores and child health outcomes

	Fruit/Vegetable Consumption		Snack Consumption		Physical Activity Total		HRQoL		Total Difficulties		Prosocial Behavior	
	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report
Healthy Diet	.26*	.28*	.22†	.28*	.03	-.10	-.31**	-.11	-.05	-.04	-.20†	-.12
Physical Activity	.11	.35**	.07	.24†	.16	.03	-.24*	-.12	.16	-.12	-.18	-.01
Child weight/size	.16	.27*	.39**	.32*	.01	-.08	-.36**	-.14	.15	.19	-.08	-.26*
Child weighing too much	.14	.02	.30*	.33*	.08	-.11	-.40**	-.14	.09	.00	-.06	-.02
Child eating differently	.11	.37**	.27*	.27*	.01	-.02	-.25*	-.08	.14	.07	-.23†	-.12
Child exercising to lose weight	.29*	.18	.44**	.43**	.07	-.01	-.48**	-.12	.15	.02	-.17	-.06
Self	.17	.07	.38**	.29*	.06	-.04	-.28*	-.17	.05	-.02	-.11	.01
Other	.25*	.15	.36**	.29*	.07	.10	-.39**	-.05	.15	.14	-.10	-.04

Note. All family weight talk scale percentage scores are parent report.

***p*<.01. **p*<.05. † p<.10

Table 15

Zero-order correlations between daily diary code percentage scores and child health outcomes

	Fruit/Vegetable Consumption		Snack Consumption		Physical Activity Total		HRQoL Total		Total Difficulties		Prosocial Behavior	
	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report	Parent Report	Child Report
Food Focused	.17	.09	.01	-.09	-.01	.09	.38**	-.15	-.19	-.06	.10	-.01
Physical Activity Focused	.03	.11	-.01	.06	-.02	-.08	.10	.06	.10	.08	.002	.03
Weight Focused	-.05	-.13	.10	.27†	-.02	.07	-.13	.05	.07	.01	-.01	.18
Valence												
Positive Valence	-.06	.18	-.16	-.08	.16	.04	-.05	.08	.01	.01	.15	-.06
Negative Valence	-.34**	-.12	.03	.14	-.10	.13	-.33**	-.18	.34**	.42**	-.03	-.08
Neutral Valence	.17	-.18	.13	-.07	.004	-.06	.10	-.19	-.04	-.10	-.18	-.02
Mixed Valence	.14	.26†	-.06	-.01	-.03	-.03	.03	.14	-.14	-.15	.12	.17
Function												
Limit Setting	-.17	-.02	-.10	-.01	.08	-.07	.20	.07	.11	.28*	.19	-.06
Teaching Opportunity	.06	.14	-.18	.00	-.08	.11	.22†	.13	.09	.13	.02	-.06
Challenge	-.14	.02	-.23†	-.24†	-.09	.03	.01	.07	.01	-.07	-.08	.03
Directive/Command	.24†	.04	.13	-.08	.20	.03	.02	-.30*	-.09	-.20	-.08	-.11
Restriction	-.003	.08	.21†	.13	-.18	.02	.07	-.10	.09	.14	-.25*	-.14
Overly Focused on Health	.12	.17	.18	-.30*	.15	-.13	.06	-.02	-.20	-.06	-.04	.11
Focus												
Child	.14	.18	-.09	.01	.20	-.03	.10	-.01	.04	-.04	.03	-.10
Self	-.17	-.18	.01	.18	-.15	.02	-.12	.04	-.07	.05	.08	.07
Family	-.17	-.05	-.08	-.06	.12	.06	.004	-.01	.02	.11	-.14	-.03
Other	.12	.08	.07	-.01	-.10	.18	-.02	.10	.02	-.11	.03	.24
General	.02	-.07	.16	.05	-.07	-.14	-.09	-.02	.04	.09	-.03	-.01
Total Stigma	-.07	.03	.28*	.34*	-.06	.12	-.03	-.10	.16	.05	-.09	.03

Note. ***p*<.01. **p*<.05. † p<.10

Figure 3

Mediation Model Assessing Indirect Effect of Parent Risk Perception on Child Snack Consumption via Weight Talk Composite

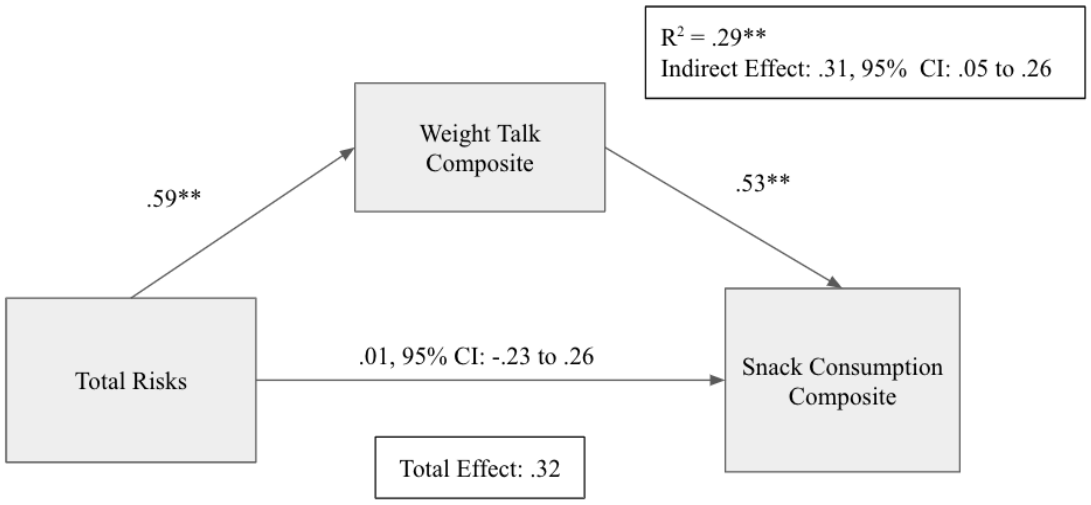


Figure 4

Mediation Model Assessing Indirect Effect of Parent Risk Perception on Child Snack Consumption via Self/Other Composite

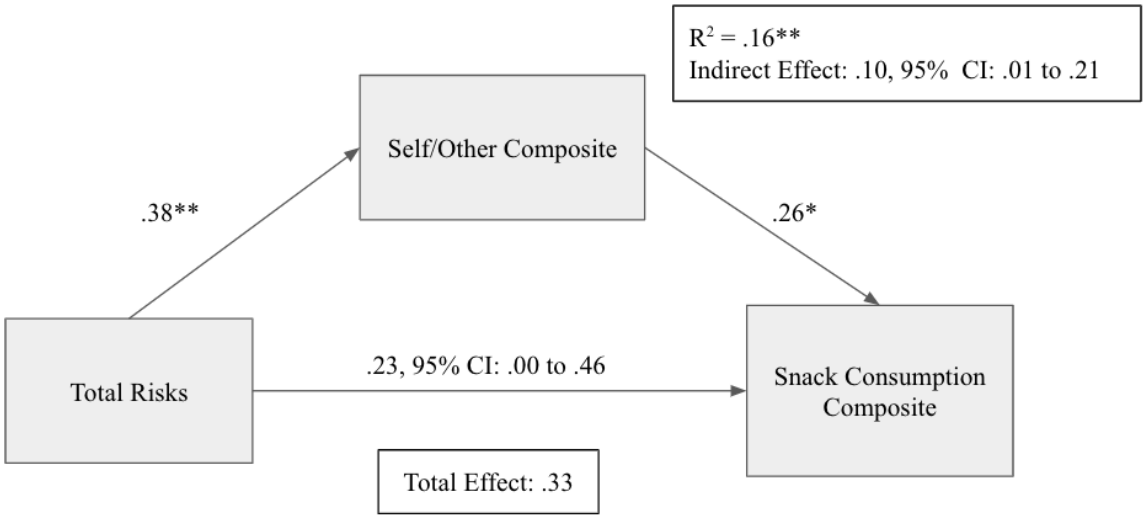


Figure 5

Mediation Model Assessing Indirect Effect of Parent Risk Perception on Child Snack Consumption via Conversations about Child Weight/Size

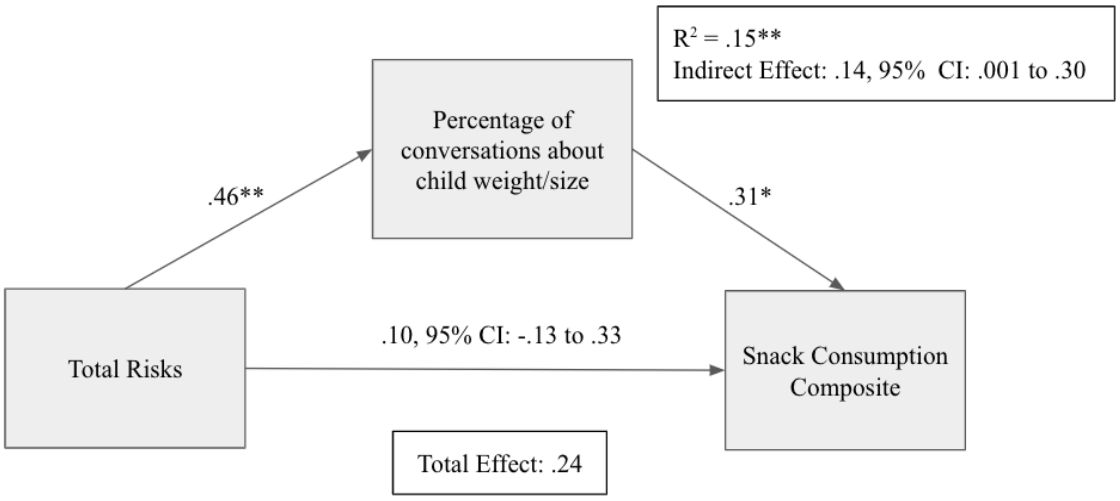


Figure 6

Mediation Model Assessing Indirect Effect of Parent Risk Perception on Child Snack Consumption via Conversations about Child Weighing too Much

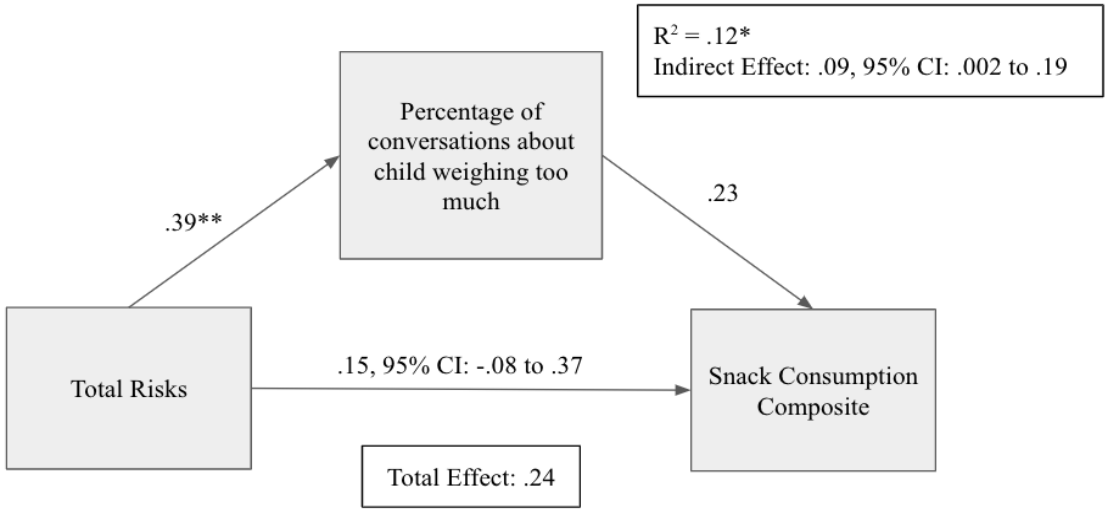


Figure 7

Mediation Model Assessing Indirect Effect of Parent Weight-Related Attitudes on Child Snack Consumption via Conversations about Exercising to Lose Weight

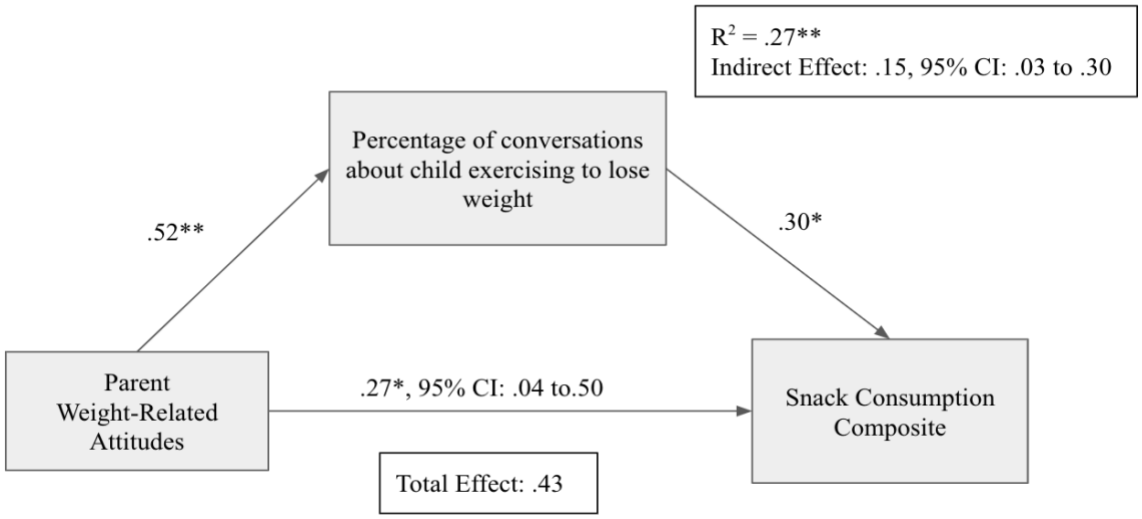


Figure 8

Mediation Model Assessing Indirect Effect of Parent Risk Perception on Child Snack Consumption via Conversations about Exercising to Lose Weight

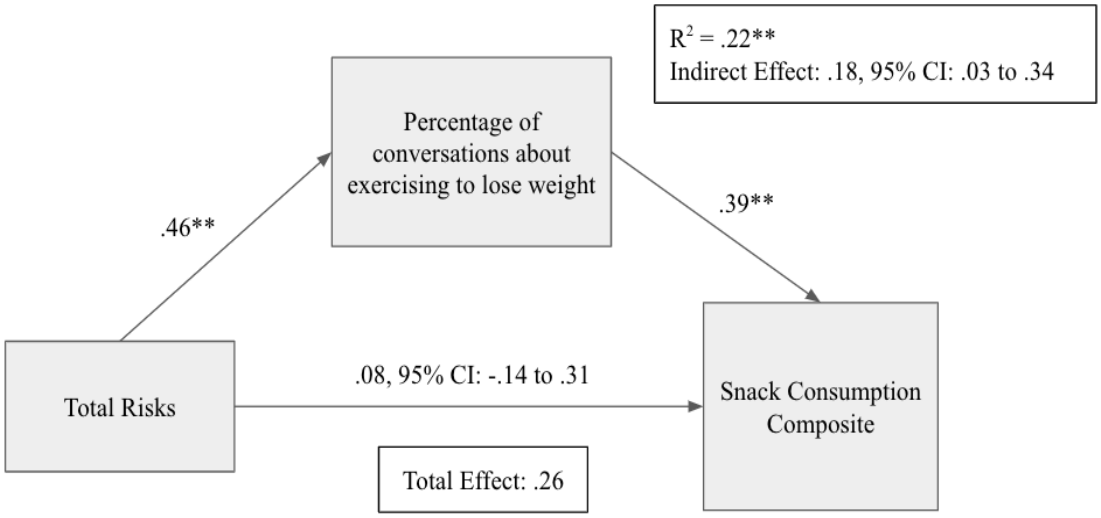


Figure 9

Mediation Model Assessing Indirect Effect of Parent Weight-Related Attitudes on Child Snack Consumption via Conversations about Others' Weight

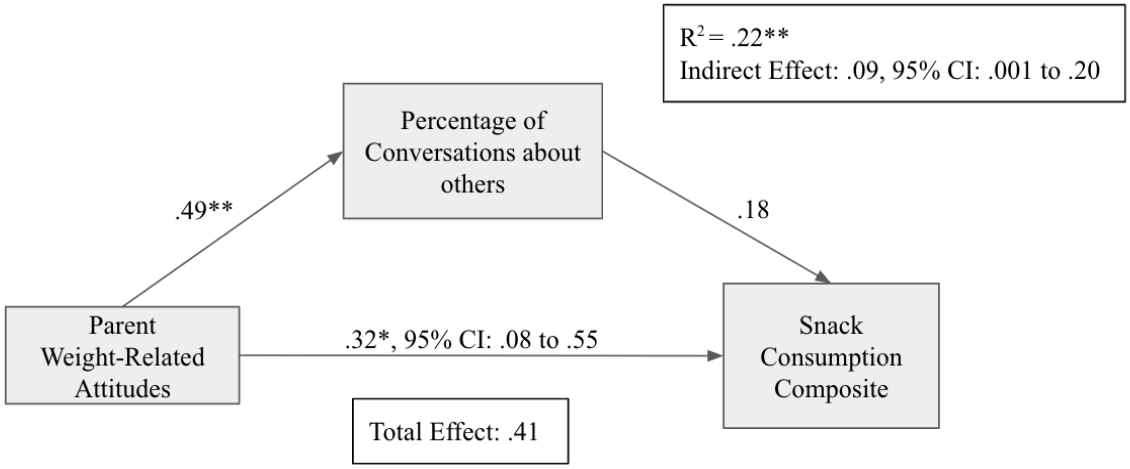


Figure 10

Mediation Model Assessing Indirect Effect of Parent Risk Perception on Child Snack Consumption via Conversations about Others' Weight

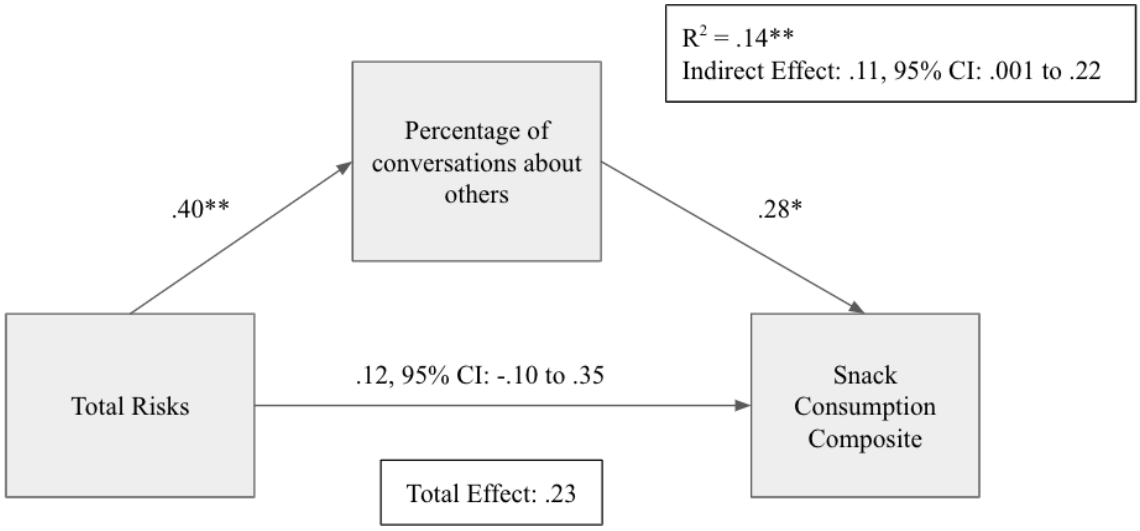


Figure 11

Mediation Model Assessing Indirect Effect of Parent Weight-Related Attitudes on Child Fruit/Vegetable Consumption via Weight Talk Composite

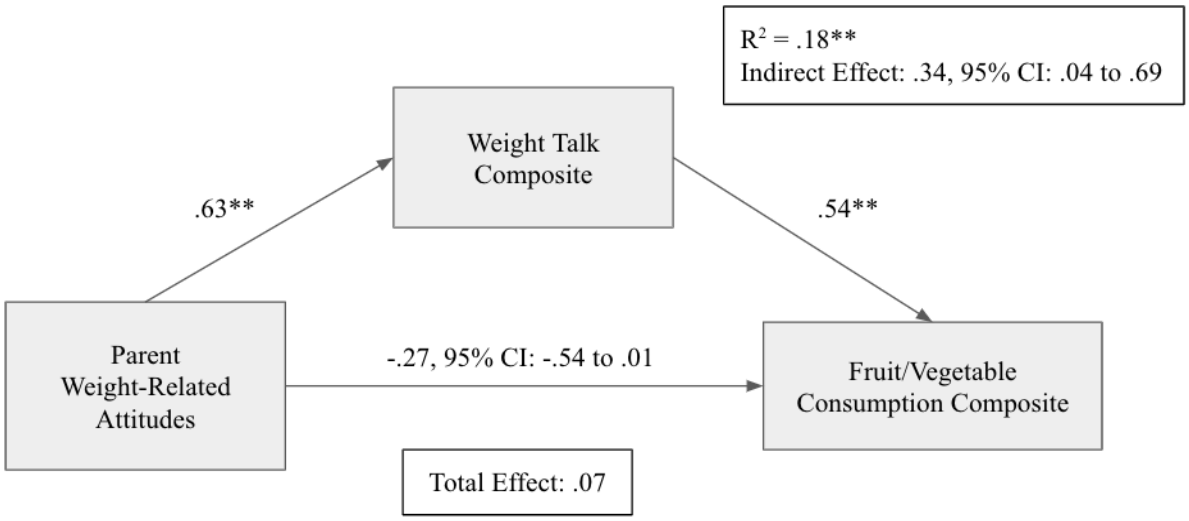


Figure 12

Mediation Model Assessing Indirect Effect of Parent Risk Perception on Child Fruit/Vegetable Consumption via Weight Talk Composite

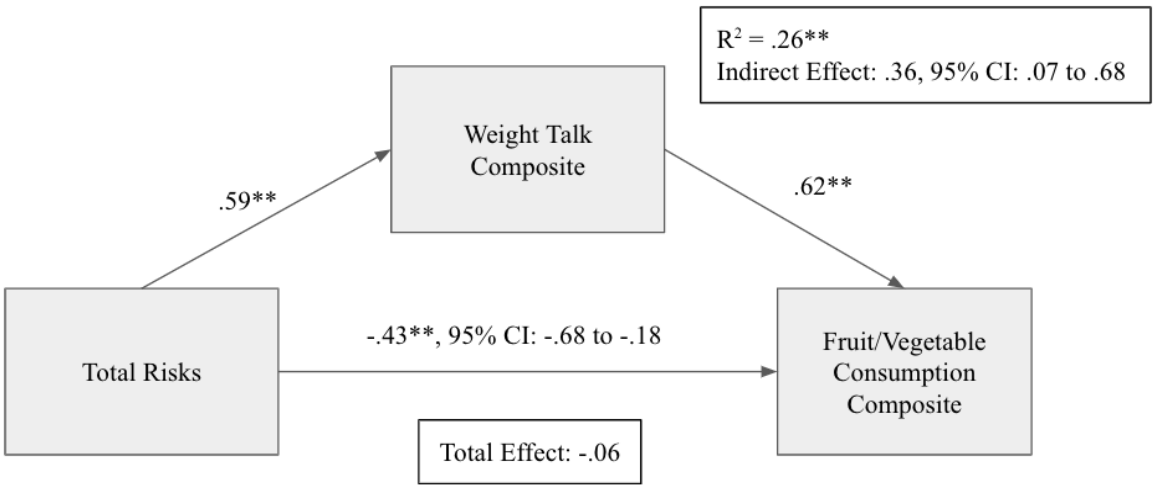


Figure 13

Mediation Model Assessing Indirect Effect of Parent Weight-Related Attitudes on Child Fruit/Vegetable Consumption via Conversations about Exercising to Lose Weight

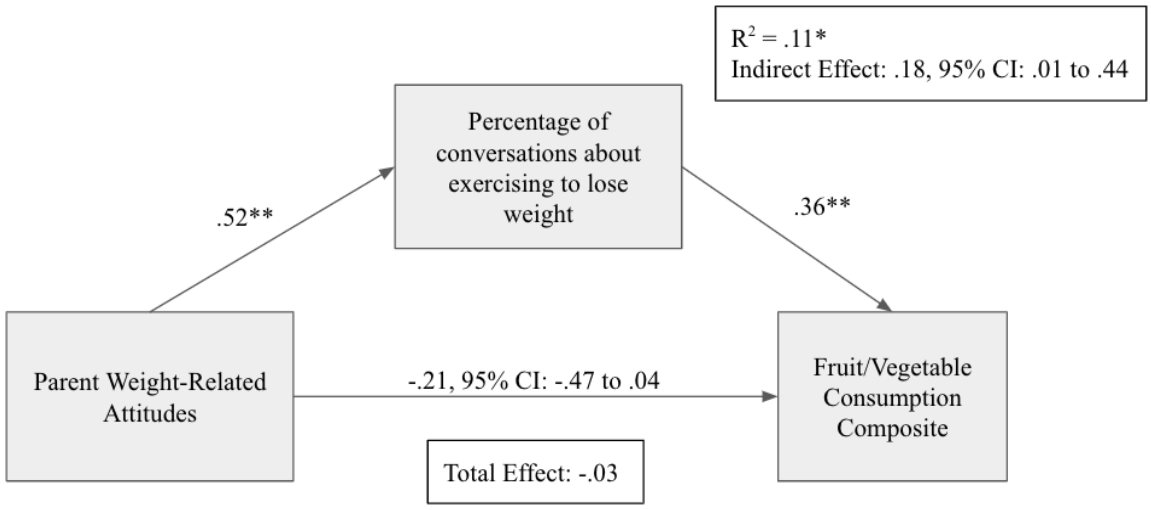


Figure 14

Mediation Model Assessing Indirect Effect of Parent Risk Perception on Child Fruit/Vegetable Consumption via Conversations about Exercising to Lose Weight

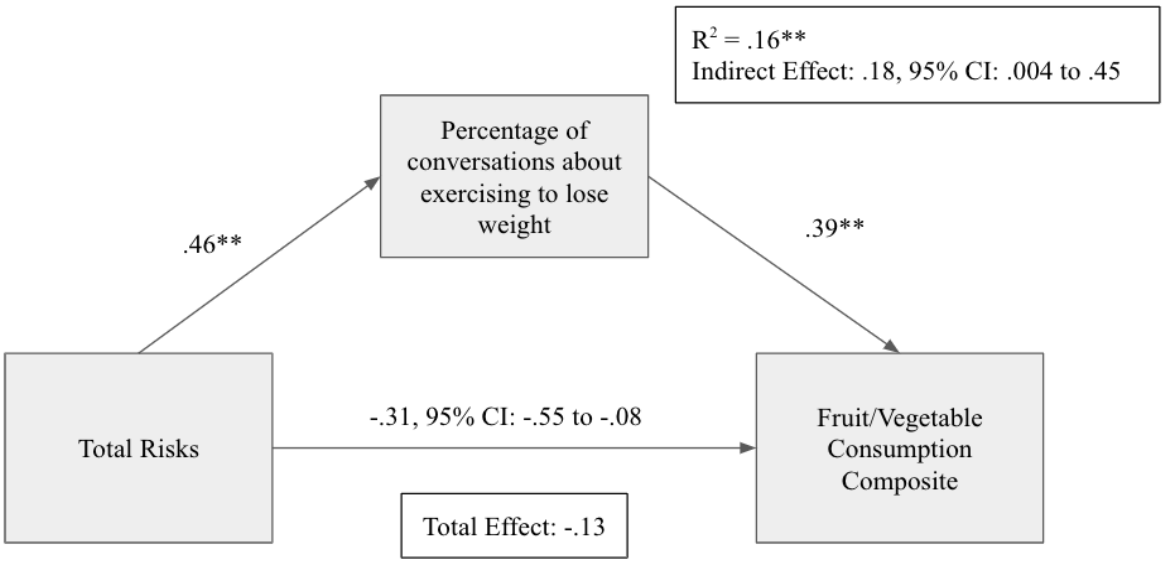


Figure 15

Mediation Model Assessing Indirect Effect of Parent Weight-Related Attitudes on Fruit/Vegetable Consumption via Conversations about Others' Weight

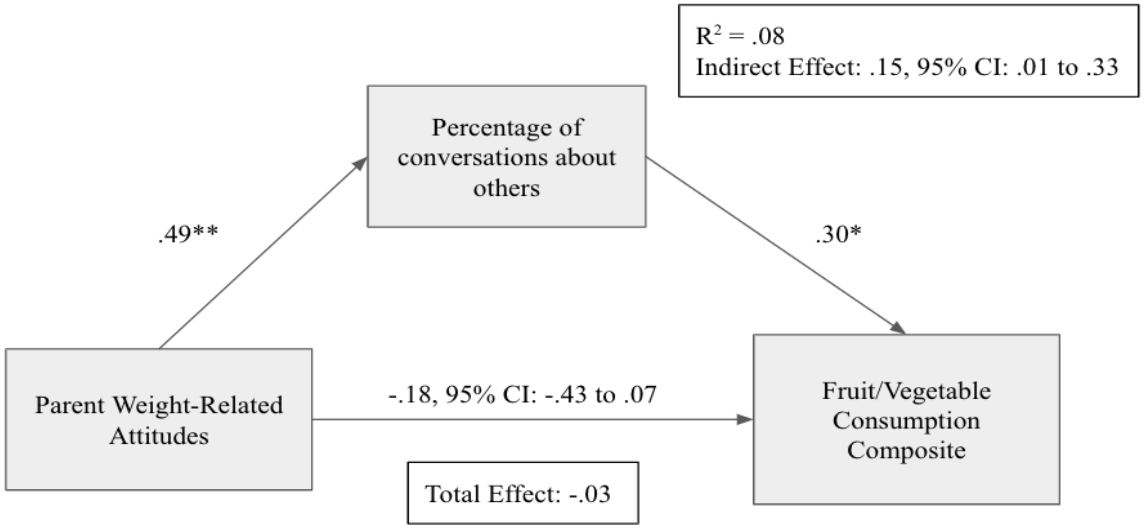


Figure 16

Mediation Model Assessing Indirect Effect of Parent Weight-Related Attitudes on Parent Report of Child HRQoL via Weight Talk Composite

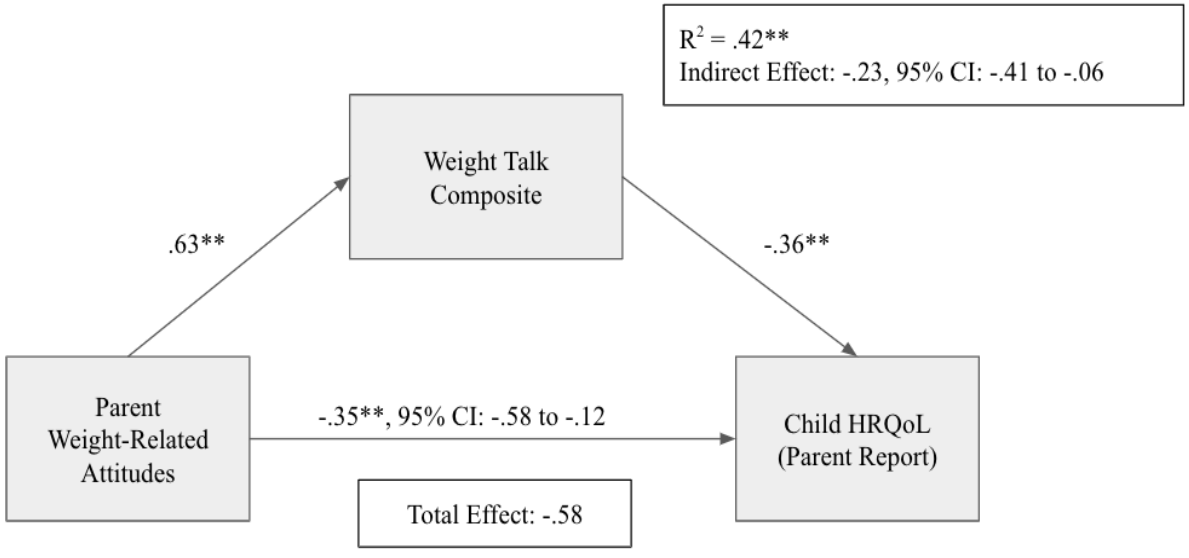


Figure 17

Mediation Model Assessing Indirect Effect of Parent Risk Perception on Parent Reported Child HRQoL via Weight Talk Composite

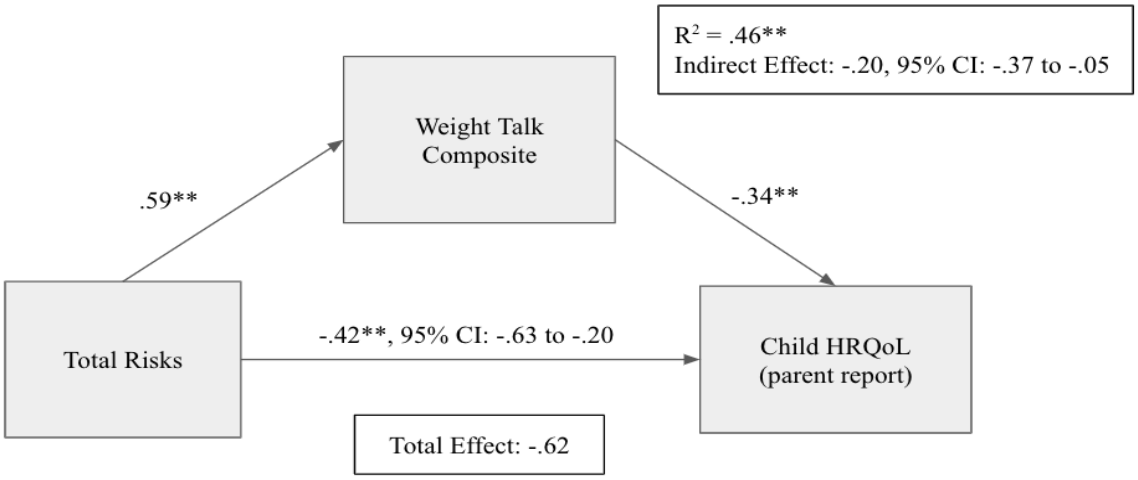


Figure 18

Mediation Model Assessing Indirect Effect of Parent Weight-Related Attitudes on Parent Report of Child HRQoL via Conversations about Exercising to Lose Weight

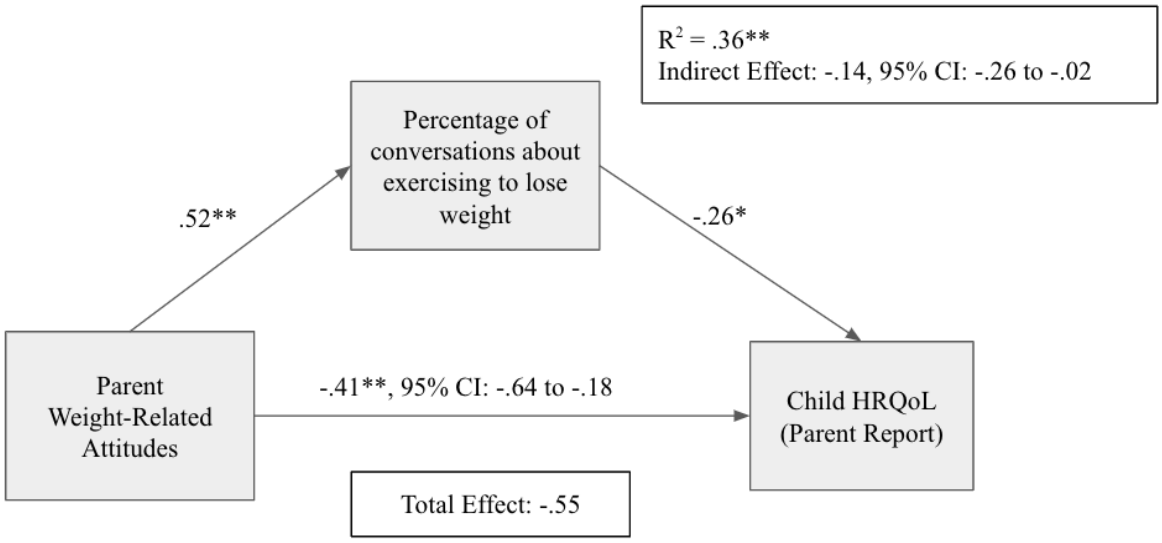


Figure 19

Mediation Model Assessing Indirect Effect of Parent Risk Perception on Parent Reported Child HRQoL via Conversations about Exercising to Lose Weight

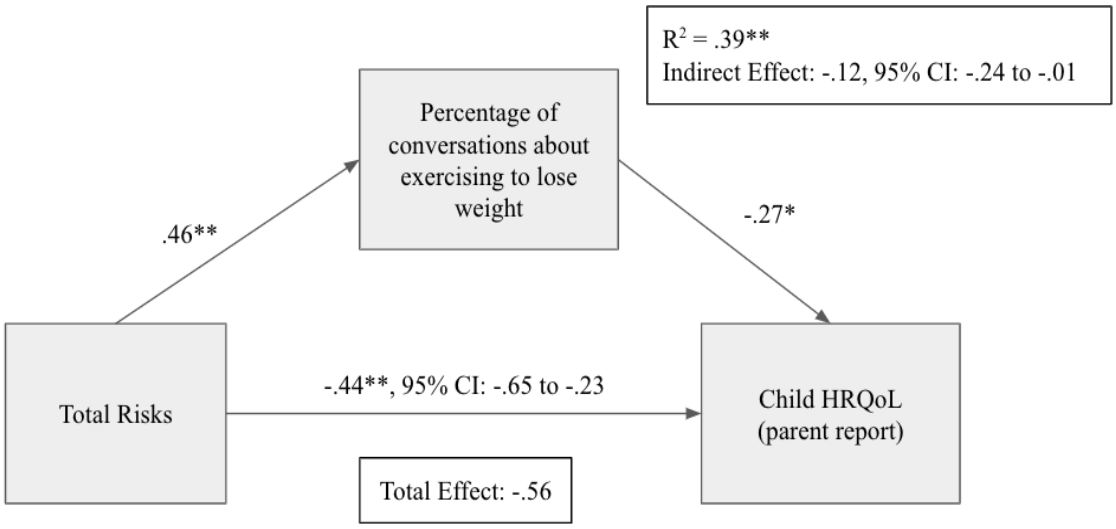


Figure 20

Mediation Model Assessing Indirect Effect of Parent Weight-Related Attitudes on Parent Report of Child HRQoL via Conversations about Child Weighing too Much

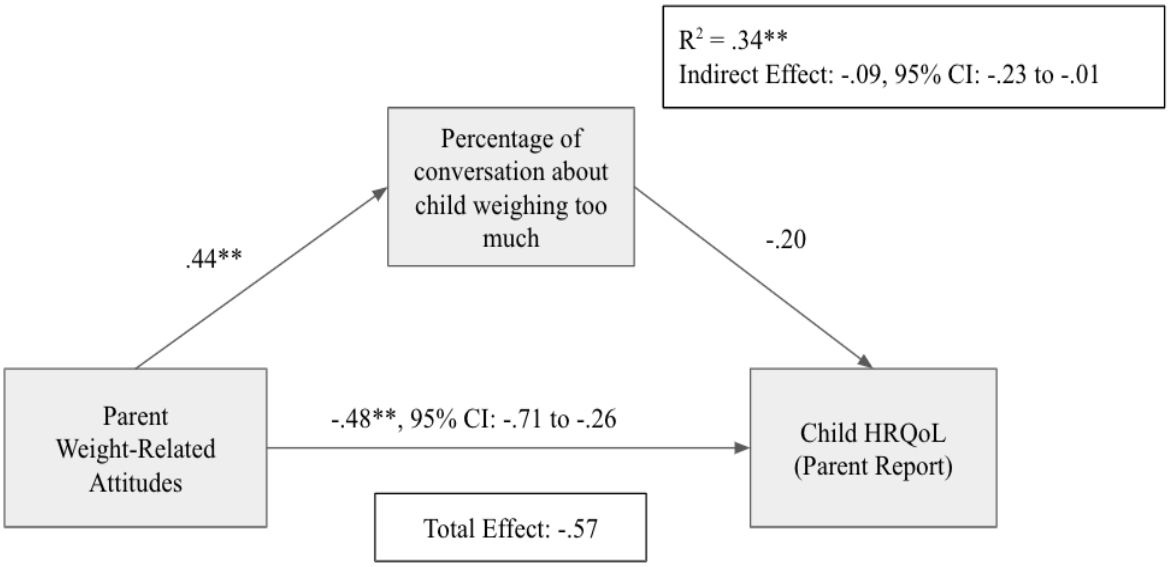


Figure 21

Conditional Indirect Effects of Parent Weight-Related Attitudes on Child Fruit/Vegetable Consumption via Self/Other Composite

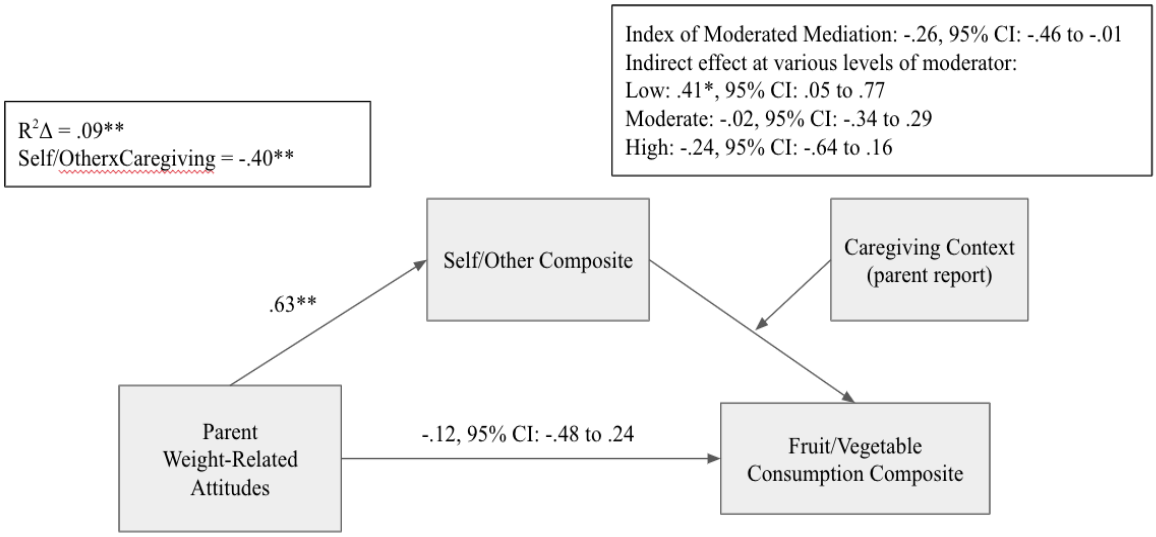


Figure 22

Conditional Indirect Effects of Parent Risk Perception on Child Fruit/Vegetable Consumption via Self/Other Composite

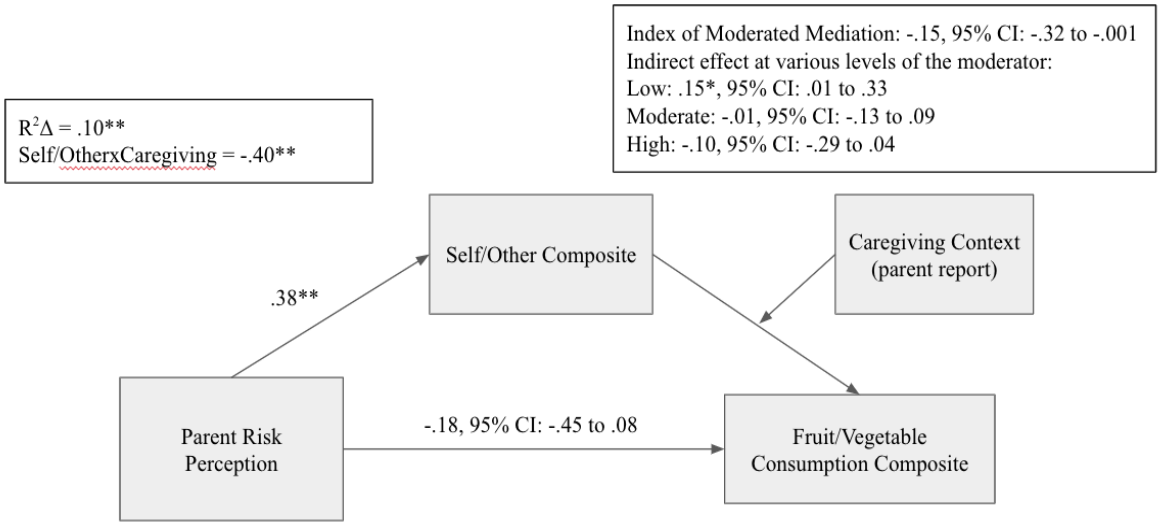


Figure 23

Conditional Indirect Effects of Parent Weight-Related Attitudes on Child Physical Activity via Self/Other Composite

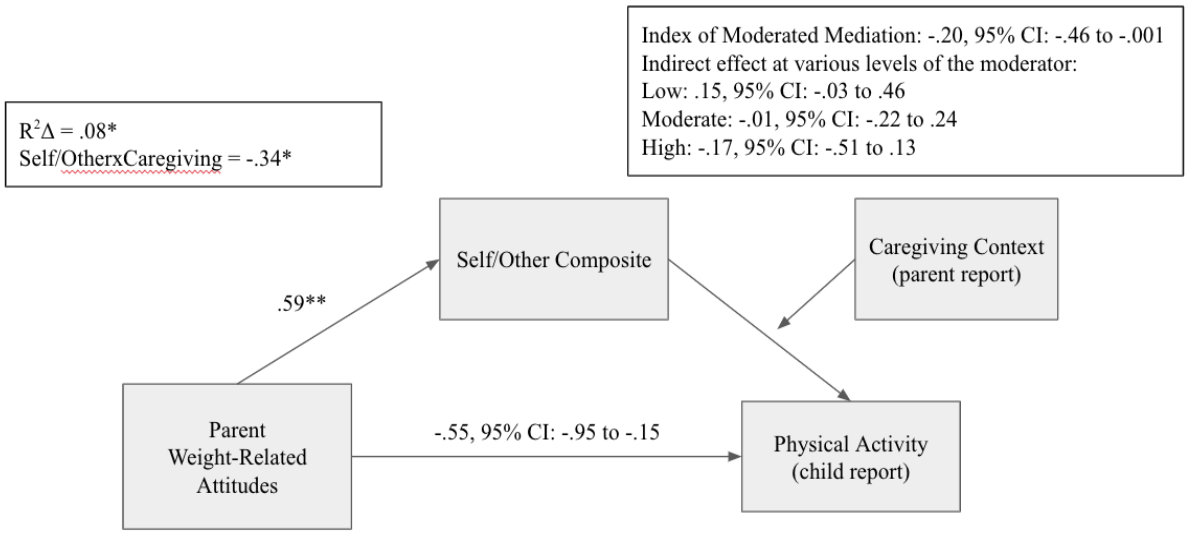


Figure 24

Interaction between Caregiving Context and Weight Talk Composite on Child Fruit/Vegetable Consumption

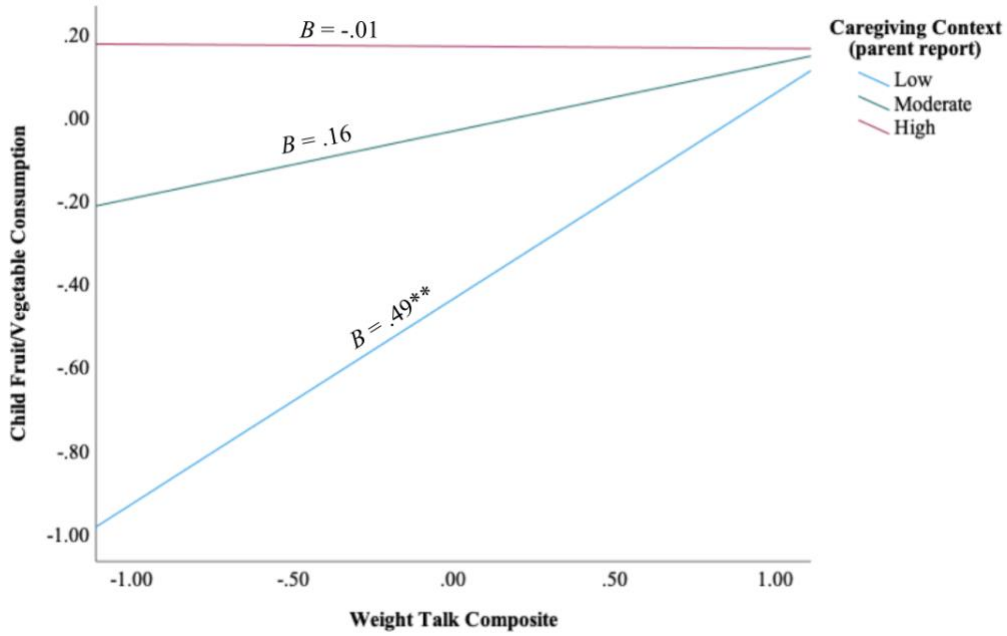


Figure 25

Interaction between Caregiving Context and Percentage of Conversations about Child Weight/Size on Child Fruit/Vegetable Consumption

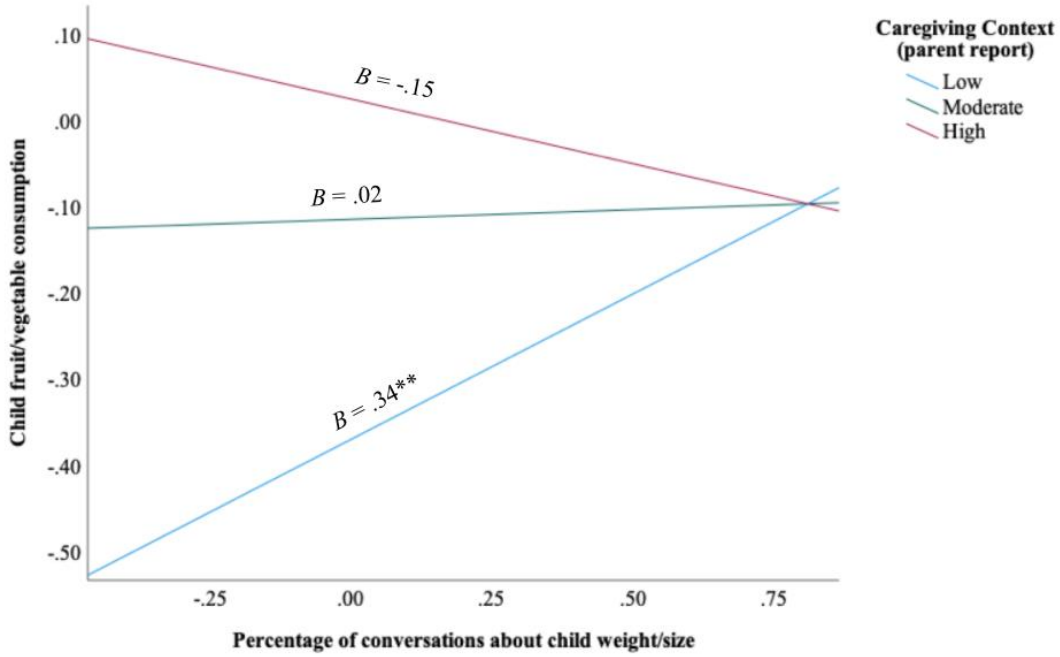


Figure 26

Interaction between Caregiving Context and Percentage of Conversations about Child Eating Differently on Child Fruit/Vegetable Consumption

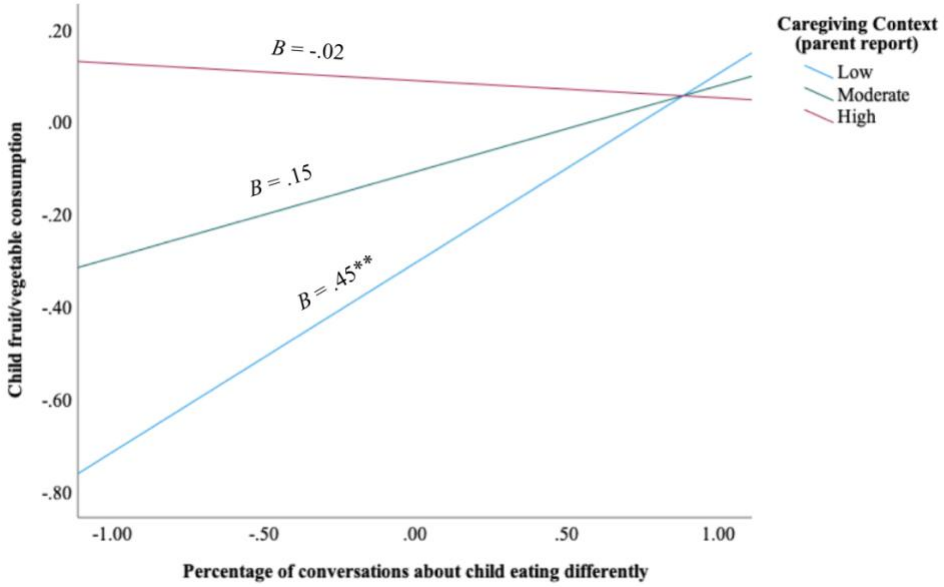


Figure 27

Interaction between Caregiving Context and Percentage of Conversations about Self on Child Snack Consumption

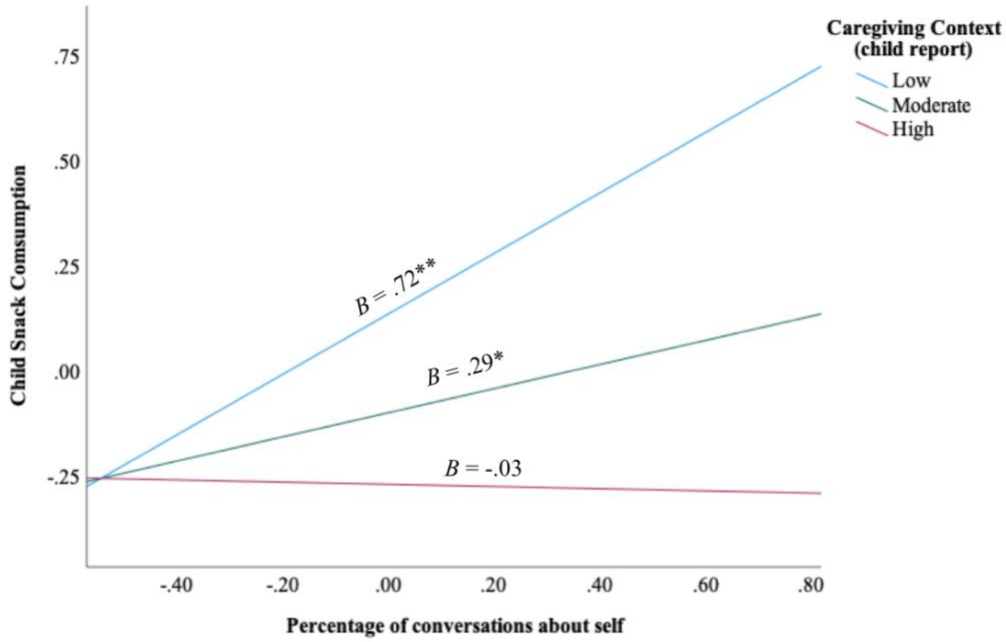
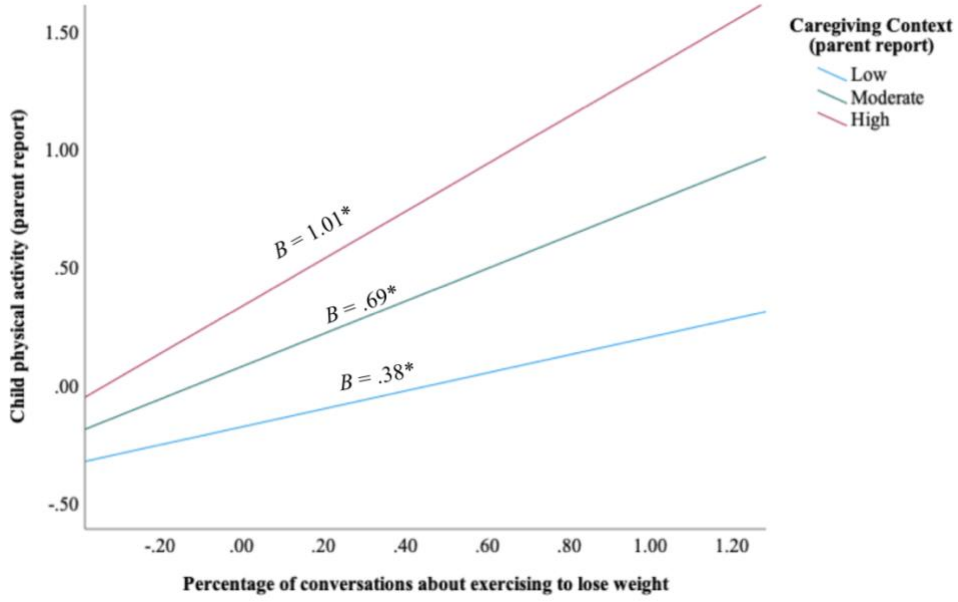


Figure 28

Interaction between Caregiving Context and Percentage of Conversations about Exercising to Lose Weight on Child Physical Activity



APPENDIX A: STUDY QUESTIONNAIRES

Screening Questions

1. Are you the parent of a 10 to 12-year-old child?
   Yes No
2. How is your child performing academically?
   Not at all well
   Slightly below average
   Average
   Above average
   Exceptionally
3. How would you rate your child's reading level?
   Below grade level
   On grade level
   Above grade level
4. Does your child have any physical or developmental disabilities that would prevent him or her from completing the questionnaire independently?
   Yes No
5. Would your child need assistance completing an online set of questionnaires? The questionnaires should take your child about 30 minutes to complete.
   Yes No
6. [if answers to screening question 2 or 3 indicate child has difficulty with reading and/or academics, or response to screening question 4 or 5 is 'yes'] Your answers suggest that your child may need help completing the online survey. A research assistant will contact you to set up a time for a phone call with your child to help him/her complete the survey. Please provide your contact information below. Select "I decline to be contacted by a research assistant", if you do not want your child to complete the study via phone. Note: if you decline to be contacted by a research assistant, you will be deemed ineligible for study participation.

   __I agree to be contacted by a research assistant
   __I decline to be contacted by a research assistant

Please complete the following information. The information below will only be used to share study information (i.e., child survey link, daily questionnaire link), contact you to set up a telephone appointment for your child to complete the questionnaires (if applicable), and/or distribute gift cards.

First Name:
Last Name:
Email:
Phone Number:
Cell Service Provider (AT&T, Verizon, etc.):
Mailing Address:
Child's Name:

Child Info (parent only)

1. How old is your child in years?

2. How is your child performing academically?
   - Not at all well
   - Slightly below average
   - Average
   - Above average
   - Exceptionally

3. How would you rate your child's reading level?
   - Below grade level
   - On grade level
   - Above grade level

4. Would your child need assistance completing a series of questionnaires? The questionnaires should take about 30 minutes to complete.

5. What is your child's birthdate?

6. Is your child _____ Male _____Female _____ Not listed

7. How tall is your child? Feet:_____ Inches:_____

8. How much does your child weight? Pounds: _____

9. Which one of the groups below would you say best represents your child's race?
   - White or Caucasian
   - Black or African American
   - Asian or Asian American
   - Native Hawaiian or Other Pacific Islander
   - American Indian or Alaska Native
   - Middle Eastern or Arab American
   - Bi-racial or Multi-racial
   - Other (please specify): _____

10. What grade is your child in?
    - Kindergarten
    - First grade
    - Second grade
    - Third grade
    - Fourth grade
    - Fifth grade
    - Sixth grade
    - Seventh grade

- Eighth grade

11. Is your child's school currently in-person, virtual, hybrid, summer break?

The following questions ask about your family's environment.

12. Not feeling safe in my neighborhood keeps me from exercising
    - 1 (strongly disagree)
    - 2 (somewhat disagree)
    - 3 (neither agree nor disagree)
    - 4 (somewhat agree)
    - 5 (strongly agree)

13. I can do most of my shopping at local stores.
    - 1 (strongly disagree)
    - 2 (somewhat disagree)
    - 3 (neither agree nor disagree)
    - 4 (somewhat agree)
    - 5 (strongly agree)

14. There are many places to go where my family can be active (i.e., parks, gyms) within a short distance of my home.
    - 1 (strongly disagree)
    - 2 (somewhat disagree)
    - 3 (neither agree nor disagree)
    - 4 (somewhat agree)
    - 5 (strongly agree)

15. Please list a few activities your child enjoys.

16. Does your child have difficulty with any of the following (select all that apply)?
    - Psychological problems
    - Emotional problems
    - Physical problems
    - Behavioral problems
    - No problems

16. Aside from your 9 to 12-year-old child that you are answering the questions about, do you have any other children?
- Yes (If Yes, how many total children do you have?)
- No

Family Weight Talk Scale

Pudney, E. V., Himmelstein, M. S., & Puhl, R. M. (2019). The role of weight stigma in parental weight talk. *Pediatric Obesity*, *14*(10), e12534.

Scoring: Responses are averaged to create subscale scores. Higher scores represent greater frequency of conversations/comments.

Health Conversations Subscale – items 1 & 2
Weight Conversations Subscale – items 3-6
Comments about Oneself/Others Subscale – items 7 & 8

[Parent Report]

The following questions ask about your conversations with your child over the past week. Remember: If you have more than one 10 to 12-year-old child, please select ONE child to answer all survey questions about.

Response Scale: 1 = never or rarely to 5 = almost every day

1. How often in the past week have you had a conversation with your child about healthy eating habits?
2. How often in the past week have you had a conversation with your child about being physically active?
3. How often in the past week have you had a conversation with your child about their weight or size?
4. How often in the past week have you told your child they weigh too much?
5. How often in the past week have you told your child that they should eat differently?
6. How often in the past week have you told your child that they should exercise in order to lose weight or keep from gaining weight?

Response Scale: 1 = never to 5 = very often

7. How often do you talk about your own weight, shape, or size with your children?
8. How often do you make comments about other people's weight, shape, or size with your children?

[Child Report]

Please answer the following questions about the parent who is completing this study alongside you.

Response Scale: 1 = never or rarely to 5 = almost every day

1. How often in the past week has your parent had a conversation with you about healthy eating habits?

2. How often in the past week has your parent had a conversation with you about being physically active?
3. How often in the past week has your parent had a conversation with you about your weight or size?
4. How often in the past week has your parent told you that you weigh too much?
5. How often in the past week has your parent told you that you should eat differently?
6. How often in the past week has your parent told you that you should exercise in order to lose weight or keep from gaining weight?

Response Scale: 1 = never to 5 = very often

7. How often does your parent talk about their own weight, shape, or size with you?
8. How often does your parent make comments about other people's weight, shape, or size with you?

Daily Diary Questionnaire

Family Weight Talk Questionnaire (Pudney et al., 2019) – instructions adapted to reflect entire family in the past day.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063.

Please remember to answer all survey questions about **the 10 to 12-year old child that is completing the study alongside you.** Provide this child's birthdate below.

Month_____
Day_____
Year_____

Think back about your family's interactions today. Did you or any member of your family…?

1. have a conversation/s with your child about healthy eating habits?
   _____Yes _____No

   [If yes] which family member was involved in the conversation? Check all that apply.
   _____Me (parent) _____My Partner _____Child _____Sibling _____Other

2. have conversation/s with your child about being physically active?
   _____Yes _____No

   [If yes] which family member was involved in the conversation? Check all that apply.
   _____Me (parent) _____My Partner _____Child _____Sibling _____Other

3. have a conversation/s with your child about their weight or size?
   _____Yes _____No

   [If yes] which family member was involved in the conversation? Check all that apply.
   _____Me (parent) _____My Partner _____Child _____Sibling _____Other

4. tell your child they weigh too much?
   _____Yes _____No

   [If yes] which family member was involved in the conversation? Check all that apply.
   _____Me (parent) _____My Partner _____Child _____Sibling _____Other

5. tell your child that they should eat differently?
   _____Yes _____No

   [If yes] which family member was involved in the conversation? Check all that apply.

_____Me (parent) _____My Partner _____Child _____Sibling _____Other

6. tell your child that they should exercise in order to lose weight or keep from gaining weight?
   _____Yes _____No

[If yes] which family member was involved in the conversation? Check all that apply.
_____Me (parent) _____My Partner _____Child _____Sibling _____Other

7. talk about one's own weight, shape, or size with your child?
   _____Yes _____No

[If yes] which family member was involved in the conversation? Check all that apply.
_____Me (parent) _____My Partner _____Child _____Sibling _____Other

8. make a comment/s about other people's weight, shape, or size with you child?
   _____Yes _____No

[If yes] which family member was involved in the conversation? Check all that apply.
_____Me (parent) _____My Partner _____Child _____Sibling _____Other

If you responded 'yes' to any of the questions above, and you were part of the conversation (not just an observer)… [tailor following questions according to type of conversation/comment endorsed above]

1. Please describe in as much detail as possible the interaction (or one of the interactions) that you had with your child today about eating, physical activity, and/or their, your own, or others weight or size. In your description, please be sure to include what was said, as well as explain what happened before the conversation (or what sparked the conversation), how your child reacted during the conversation, what happened after the conversation, and what you were thinking and feeling during the conversation.

2. This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you generally felt this way while having this conversation with your child today.

	Very slightly or not at all	**A little**	**Moderately**	**Quite a bit**	**Extremely**
Interested					
Distressed					
Excited					
Upset					
Strong					

Guilty					
Scared					
Hostile					
Enthusiastic					
Proud					
Irritable					
Alert					
Ashamed					
Inspired					
Nervous					
Determined					
Attentive					
Jittery					
Active					
Afraid					

3. Describe the outcome of the conversation:

4. In thinking about the level of positivity during the conversation with your child about health/weight that you described above, how would you rate the conversation on a scale from 1 to 10, with 1 being the least positive and 10 being the most positive?

5. In thinking about the level of negativity during the conversation with your child about health/weight that you described above, how would you rate the conversation on a scale from 1 to 10, with 1 being the least negative and 10 being the most negative?

Keeping in mind the USDA recommendations for child diet to include a variety of fruits and vegetables, whole grains, fat-free and low-fat dairy products, a variety of protein foods, and oils…

How would you rate the healthfulness of your child's diet today? (check one)
_____Not at all healthy
_____Somewhat unhealthy
_____Moderately healthy
_____Mostly healthy
_____Extremely healthy

Keeping in mind the U.S. Department of Health and Human Services recommendations that children get 60-minutes of moderate to vigorous physical activity daily…

How would you rate your child's physical activity today? (check one)
_____Not at all active
_____Somewhat active
_____Moderately active
_____Very active
_____Extremely active

Antifat Attitudes Questionnaire (parent only)

Crandall, C. S. (1994). Prejudice against fat people: Ideology and self-interest. *Journal of Personality and Social Psychology, 66,* 882-894.

Scoring: Response are averaged, with higher scores indicating stronger anti-fat attitudes.

Response Scale: 0 – very strongly disagree to 9 = very strongly agree

Subscales: Dislike = items 1-7; Fear of Fat = items 8-10; Willpower = items 11-13

Instructions: Please indicate the extent to which you agree with the following statements on a scale from 1 'very strongly disagree' to 10 'very strongly agree'.

1. I really don't like fat people much.
2. I don't have many friends that are fat.
3. I tend to think that people who are overweight are a little untrustworthy.
4. Although some fat people are surely smart, in general, I think they tend not to be quite as bright as normal weight people.
5. I have a hard time taking fat people too seriously.
6. Fat people make me feel somewhat uncomfortable.
7. If I were an employer looking to hire, I might avoid hiring a fat person.
8. I feel disgusted with myself when I gain weight.
9. One of the worst things that could happen to me would be if I gained 25 pounds.
10. I worry about becoming fat.
11. People who weight too much could lose at least some part of their weight through a little exercise.
12. Some people are fat because they have no willpower.
13. Fat people tend to be fat pretty much through their own fault.

Stigmatizing Situations Inventory (parent only)

Vartanian, L. R. (2015). Development and validation of a brief version of the Stigmatizing Situations Inventory. *Obesity Science & Practice*, *1*(2), 119-125.

Instructions: Below is a list of situations that some people encounter because of their weight. Indicate whether, and how often, each of these situations happens to you.

Scoring: Responses are averaged to create total score, with higher scores indicating greater experiences of weight stigma.

Scale: 0 = never, 1 – once in your life, 2 – several times in your life, 3 – about once a year, 4 – several times per year, 5 = about once a month, 6 = several times per month, 7 = about once a week, 8 = several times per week, 9 = daily

1. Being glared at or harassed by bus passengers for taking up "too much" room.
2. Being singled out as a child by a teacher, school nurse, etc. because of your size.
3. Being stared at in public.
4. Children loudly making comments about your weight to others.
5. Having a doctor recommend a diet even if you did not come in to discuss weight loss.
6. Having a romantic partner exploit you, because s/he assumed you were "desperate" and would put up with it.
7. Having family members feel embarrassed by you or ashamed of you.
8. Having people assume that you overeat or binge-eat because you are overweight.
9. Not being hired because of you weight, shape, or size.
10. Overhearing other people making rude remarks about you in public.

Modified Weight Bias Internalization Scale (WBIS-M) (Parent only)

Pearl, R., & Puhl, R. (2014). Measuring internalized weight attitudes across body weight categories: Validation of the Modified Weight Bias Internalization Scale. *Body Image, 11*(1), 89–92. Doi: 10.1016/j.bodyim.2013.09.005

Scoring: Responses are averaged to create a Total Score, with higher scored indicated greater weight bias internalization. Items one and nine are reverse scored.

Response Scale: 1 = strongly disagree; 7 = strongly agree

Please indicate the extent to which you agree with the following statement.

1. Because of my weight, I feel that I am just as competent as anyone.
2. I am less attractive than most other people because of my weight.
3. I feel anxious about my weight because of what people might think of me.
4. I wish I could drastically change my weight.
5. Whenever I think a lot about my weight, I feel depressed.
6. I hate myself for my weight.
7. My weight is a major way that I judge my value as a person.
8. I don't feel that I deserve to have a really fulfilling social life, because of my weight.
9. I am OK being the weight that I am.
10. Because of my weight, I don't feel like my true self.
11. Because of my weight, I don't understand how anyone attractive would want to date me.

Child Weight Risk Questionnaire (parent only)

Scoring: Responses across each time period are averaged to create Likelihood, Concern, and Control composite scores. Higher scores reflect greater perceived likelihood that the risks will occur, greater concern about the risks, and greater perceived control over whether the risks will occur. The CWRQ Total score is created by averaging responses to the likelihood, concern, and control questions across all three time periods, with higher scores representing greater perception of child risk

Have you thought about the likelihood of your child refusing to eat a healthy snack (e.g., apple slices, carrots, yogurt) in the next year?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child refusing to play outside (even when it is safe and comfortable to be outside) in the next year?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child having trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight in the next year?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child having difficulty doing physical things that other children his/her age can do in the next year?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child being made fun of by peers because of his/her weight in the next year?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child having low self-esteem because of his/her weight in the next year?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child feeling upset because of his/her weight in the next year?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child having health complications because of his/her weight (e.g., asthma, high cholesterol, diabetes) in the next year?

(0)	(1)
No	Yes

Note: Items in this section will only be visible to parents who answer "yes" in the section above to having thought about each item.

<u>In the next year</u>, how likely is your child to:

(0)	(1)	(2)	(3)	(4)
Will not happen		Might happen		Will happen

- Refuse to eat a healthy snack (e.g., apple slices, carrots, yogurt)?
- Refuse to play outside (even when it is safe and comfortable to be outside)?
- Have trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight?
- Have difficulty doing physical things that other children his/her age can do because of his/her weight?
- Be made fun of by peers because of his/her weight?
- Have low self-esteem because of his/her weight?
- Feel upset because of his/her weight?
- Have health complications because of his/her weight (e.g., asthma, high cholesterol, diabetes)?

As a parent, how concerned would you be if your child did or experienced each of the following <u>in the next year</u>?

(0)	(1)	(2)	(3)	(4)
Not at all		Somewhat		Extremely

- Refused to eat a healthy snack (e.g., apple slices, carrots, yogurt)?
- Refused to play outside (even when it is safe and comfortable to be outside)?
- Had trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight?
- Had difficulty doing physical things that other children his/her age can do because of his/her weight?

- Was made fun of by peers because of his/her weight?
- Had low self-esteem because of his/her weight?
- Felt upset because of his/her weight?
- Had health complications because of his/her weight (e.g., asthma, high cholesterol, diabetes)?

As a parent, how much control do you have over whether or not your child does or experiences each of the following <u>in the next year</u>?

(0)	(1)	(2)	(3)	(4)
None		Some		A lot

- Refuses to eat a healthy snack (e.g., apple slices, carrots, yogurt).
- Refuses to play outside (even when it is safe and comfortable to be outside).
- Has trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight.
- Has difficulty doing physical things that other children his/her age can do because of his/her weight.
- Is made fun of by peers because of his/her weight.
- Has low self-esteem because of his/her weight.
- Feels upset because of his/her weight.
- Has health complications because of his/her weight (e.g., asthma, high cholesterol, diabetes).

Now we'll be asking you to anticipate the <u>future experiences</u> of your child.

Have you thought about the likelihood of your child regularly choosing unhealthy snacks over healthy snacks <u>as a teenager</u>?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child spending large amounts of time participating in sedentary activities (e.g., watching TV, playing video games, using phone, tablet or computer) <u>as a teenager</u>?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child having trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight as a teenager?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child struggling in school (e.g., receiving bad grades, having trouble focusing) because of his/her weight as a teenager?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child being made fun of by peers because of his/her weight as a teenager?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child having low self-esteem because of his/her weight as a teenager?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child suffering from depression or anxiety because of his/her weight as a teenager?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child having health complications because of his/her weight (e.g., asthma, high cholesterol, diabetes) as a teenager?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child being overweight as a teenager?

(0)	(1)
No	Yes

Note: Items in this section will only be visible to parents who answer "yes" in the section above to having thought about each item.

As a teenager, how likely is your child to:

(0)	(1)	(2)	(3)	(4)
Will not happen		Might happen		Will happen

- Regularly choose unhealthy snacks over healthy snacks?
- Spend large amounts of time participating in sedentary activities (e.g., watching TV, playing video games, using phone, tablet, or computer)?

- Have trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight?
- Struggle in school (e.g., receive bad grades, have trouble focusing) because of his/her weight?
- Be made fun of by peers because of his/her weight?
- Have low self-esteem because of his/her weight?
- Suffer from depression or anxiety because of his/her weight?
- Have health complications because of his/her weight (e.g., asthma, high cholesterol, diabetes)?
- Be overweight?

As a parent, how concerned would you be if your child did or experienced each of the following <u>as a teenager</u>?

(0)	(1)	(2)	(3)	(4)
Not at all		Somewhat		Extremely

- Regularly chose unhealthy snacks over healthy snacks?
- Spent large amounts of time participating in sedentary activities (e.g., watching TV, playing video games, using phone, tablet, or computer)?
- Had trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight?
- Struggled in school (e.g., receive bad grades, have trouble focusing) because of his/her weight?
- Was made fun of by peers because of his/her weight?
- Had low self-esteem because of his/her weight?
- Suffered from depression or anxiety because of his/her weight?
- Had health complications because of his/her weight (e.g., asthma, high cholesterol, diabetes)?
- Was overweight?

As a parent, how much control do you have over whether or not your child does or experiences each of following when he/she <u>is a teenager</u>?

(0)	(1)	(2)	(3)	(4)
None		Some		A lot

- Regularly chooses unhealthy snacks over healthy snacks.
- Spends large amounts of time participating in sedentary activities (e.g., watching TV, playing video games, using phone or tablet).
- Has trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight.
- Struggles in school (e.g., receive bad grades, have trouble focusing) because of his/her weight.
- Is made fun of by peers because of his/her weight.
- Has low self-esteem because of his/her weight.
- Suffers from depression or anxiety because of his/her weight.
- Has health complications because of his/her weight (e.g., asthma, high cholesterol, diabetes).
- Is overweight.

Now, we'll be asking you to anticipate your child's experiences <u>as an</u> <u>adult</u>.

Have you thought about the likelihood of your child regularly choosing unhealthy snacks over healthy snacks <u>as an adult</u>?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child spending large amounts of time participating in sedentary activities (e.g., watching TV, playing video games, using phone, tablet, or computer) <u>as an adult</u>?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child having trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight <u>as an adult</u>?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child being limited in job or career choice because of his/her weight as an adult?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child having problems in social or romantic relationships because of his/her weight as an adult?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child having low self-esteem because of his/her weight as an adult?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child suffering from depression or anxiety because of his/her weight as an adult?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child feeling stigmatized or discriminated against due to his/her weight as an adult?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child having health complications because of his/her weight (e.g., diabetes, high blood pressure, or heart disease) as an adult?

(0)	(1)
No	Yes

Have you thought about the likelihood of your child being overweight as an adult?

(0)	(1)
No	Yes

As an adult (age 18+), how likely is your child to:

(0)	(1)	(2)	(3)	(4)
Will not happen		Might happen		Will happen

- Regularly choose unhealthy snacks over healthy snacks?
- Spend large amounts of time participating in sedentary activities (e.g., watching TV, playing video games, using phone, table, or computer)?
- Have trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight?

- Be limited in job or career choice because of his/her weight?
- Have problems in social or romantic relationships because of his/her weight?
- Have low self-esteem because of his/her weight?
- Suffer from depression or anxiety because of his/her weight?
- Feel stigmatized or discriminated against due to his/her weight?
- Have health complications because of his/her weight (e.g., diabetes, high blood pressure, or heart disease)?
- Be overweight?

As a parent, how concerned would you be if your child did or experienced each of the following <u>as an adult</u> (age 18+)?

(0)	(1)	(2)	(3)	(4)
Not at all		Somewhat		Extremely

- Regularly chose unhealthy snacks over healthy snacks?
- Spent large amounts of time participating in sedentary activities (e.g., watching TV, playing video games, using phone, tablet, or computer)?
- Had trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight?
- Was limited in job or career choice because of his/her weight?
- Had problems in social or romantic relationships because of his/her weight?
- Had low self-esteem because of his/her weight?
- Suffered from depression or anxiety because of his/her weight?
- Felt stigmatized or discriminated against due to his/her weight?
- Had health complications because of his/her weight (e.g., diabetes, high blood pressure, or heart disease)?
- Was overweight?

As a parent, how much control do you have over whether or not your child does or experiences each of the following when he/<u>she is an adult</u> (age 18+)?

(0)	(1)	(2)	(3)	(4)
None		Some		A lot

- Regularly chooses unhealthy snacks over healthy snacks.
- Spends large amounts of time participating in sedentary activities (e.g., watching TV, playing video games, using phone, tablet, or computer).
- Has trouble participating in activities that take a lot of energy (e.g., soccer, bike riding) because of his/her weight.
- Is limited in job or career choice because of his/her weight.
- Has problems in social or romantic relationships because of his/her weight.
- Has low self-esteem because of his/her weight.
- Suffers from depression or anxiety because of his/her weight.
- Feels stigmatized or discriminated against due to his/her weight?
- Has health complications because of his/her weight (e.g., diabetes, high blood pressure, or heart disease).
- Is overweight.

Family Functioning

Epstein, N., Baldwin, L., & Bishop, D. (1983). The McMaster Family Assessment Device*. *Journal of Marital and Family Therapy*, *9*(2), 171–180. Doi: 10.1111/j.1752 0606.1983.tb01497.x

Scoring: Items 2, 4, 6, 8, 10, 12 are reverse scored. Scores are averaged to create a total score with higher scores indicating greater family functioning.

Response scale: 1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree

Instructions: This next section contains a number of statements about families. Please read each statement carefully, and decide how well it describes your own family. You should answer as to how you see your family.

For each statement there are four (4) possible responses:

Strongly agree: select strongly agree if you feel that the statement describes your family very accurately.

Agree: select agree if you feel that the statement describes your family for the most part.

Disagree: select disagree if you feel that the statement does not describe your family for the most part.

Strongly disagree: select strongly disagree if you feel that the statement does not describe your family at all.

General Functioning

1. Planning family activities is difficult because we misunderstand each other.
2. In times of crisis we can turn to each other for support.
3. We cannot talk to each other about the sadness we feel.
4. Individuals are accepted for what they are.
5. We avoid discussing our fears and concerns.
6. We can express feelings to each other.
7. There are lots of bad feelings in the family.
8. We feel accepted for what we are.
9. Making decisions is a problem for our family.
10. We are able to make decisions about how to solve problems.
11. We don’t get along well together.
12. We confide in each other.

Parenting (parent report)

Frick, P. J. (1991). The Alabama parenting questionnaire. *Unpublished rating scale, University of Alabama*.

Response Scale: 5-point scale anchored from 'never' to 'always'

Scoring: Responses are summed with higher scores reflecting more involvement and positive parenting.

Involvement

1. You have a friendly talk with your child.
2. You volunteer to help with special activities that your child is involved in (e.g., sports, Boy/Girl Scouts, church youth groups).
3. You play games or do other fun things with your child.
4. You ask your child about his/her day in school.
5. You help your child with his/her homework.
6. You ask your child what his/her plans are for the coming day.
7. You drive your child to a special activity.
8. You talk to your child about his/her friends.
9. Your child helps plan family activities.
10. You attend PTA meetings, parent/teacher conferences, or other meetings at your child's school.

Positive Parenting

1. You let your child know when he/she is doing a good job with something.
2. You reward or give something extra to your child for obeying you or behaving well.
3. You compliment your child when he/she does something well.
4. You praise your child if he/she behaves well.
5. You hug or kiss your child when he/she has done something well.
6. You tell your child that you like it when he/she helps around the house.

Parenting (child report)

Gullone, E., & Robinson, K. (2005). The inventory of parent and peer attachment—Revised (IPPA-R) for children: a psychometric investigation. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice*, *12*(1), 67-79.

Scoring: A Total Parent Dimension score is created by summing the responses to the Trust and Communication subscales, and then subtracting the sum of responses on the Alienation subscale and will be used in all analyses.

Instructions: The next section contains a number of statements about parents. Read each statement carefully, and decide how well it describes your relationship with **the parent who is completing this study alongside you.**

Response Scale: Always True – Sometimes True – Never True

**Items updated to reflect a single parent rather than 'parents'.

1. My parent respects my feelings.
2. My parent is a good parent.
3. I wish I had a different parent.
4. My parent accepts me as I am.
5. I can't depend on my parent to help me solve a problem.
6. I like to get my parent's view on things I'm worried about.
7. It does not help to show my feelings when I am upset.
8. My parent can tell when I'm upset about something.
9. I feel silly or ashamed when I talk about my problems with my parent.
10. My parent expects too much from me.
11. I easily get upset at home.
12. I get upset a lot more than my parent knows about.
13. When I talk about things with my parent they listen to what I think.
14. My parent listens to my opinions.
15. My parent has his/her own problems, so I don't bother him/her with mine.
16. My parent helps me to understand myself better.
17. I tell my parent about my problems and troubles.
18. I feel angry with my parent.
19. I don't get much attention at home.
20. My parent supports me to talk about my worries.
21. My parent understands me.
22. I don't know who I can depend on.
23. When I am angry about something, my parent tries to understand.
24. I trust my parent.

25. My parent doesn’t understand my problems.
26. I can count on my parent when I need to talk about a problem.
27. No one understands me.
28. If my parent knows that I am upset about something, he/she ask me about it.

Child Diet

Davison, B., Saeedi, P., Black, K., Harrex, H., Haszard, J., Meredith-Jones, K., Quigg, R., Skaeff, S., Stoner, L., Wong, J. E., & Skidmore, P. (2017). The association between parent diet quality and child dietary patterns in nine-to eleven-years-old children from Dunedin, New Zealand. *Nutrients, 9(*483), 1-11. Doi: 10.3390/nu9050483

Instructions: Now we are going to ask you about your [your child's diet] and the food you [he/she] typically eats in a day. Please answer honestly and think about your [your child's] typical diet in one day, including breakfast, lunch, dinner, snacks, and drinks.

Response scale: Never – less than once a week – once a week – 2-4 days a week – 5-6 days a week – once a day, every day – every day, more than once

**some items updated to include examples

1. Fruits
2. Vegetables
3. Whole Milk
4. 1%, 2% or Skim Milk
5. Cheese
6. Yogurt
7. Ice cream
8. Processed meats (such as sausage, salami, luncheon meat, bacon, ham)
9. Other meats (such as beef, chicken)
10. Fish (including canned tuna or salmon, fish cakes, fish fingers, fish pie, battered fish)
11. Fruit juice (such as orange juice, apple juice)
12. Diet Fizzy drinks (such as Diet Coke, Pepsi Max, Sprite Zero and any other light or sugar free varieties)
13. Standard Fizzy Drinks (such as Coke, Pepsi, Sprite, Fanta, Ginger Beer)
14. Breakfast cereals
15. White Bread
16. Wholegrain Bread
17. Rice
18. Pasta
19. Potatoes
20. Potato chips, potato snacks, corn chips
21. Fresh fries
22. Biscuits
23. Bakery food
24. Snack bars
25. Candy/sweets
26. Chocolate
27. Tomato sauce/ketchup
28. Sandwich spreads (peanut butter, Nutella, jam, honey)

International Physical Activity Questionnaire Short Form (IPAQ-SF) (parent report)

Craig, C. L., Marshall, A. L., Sjöström, M., Bauman, A. E., Booth, M. L., Ainsworth, B. E., ... & Oja, P. (2003). International physical activity questionnaire: 12-country reliability and validity. *Medicine & Science in Sports & Exercise*, *35*(8), 1381-1395.

Instructions: We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time your child spend being physically active in the **last 7 days**. Please answer each question even if you do not consider your child to be an active person. Please think about the activities your child does at school, as part of house and yard work, to get from place to place, and in his/her spare time for recreation, exercise or sport.

Think about all the **vigorous** activities that your child did in the **last 7 days**. **Vigorous** physical activities refer to activities that take hard physical effort and make your child breathe much harder than normal. Think only about those physical activities that your child did for at least 10 minutes at a time.

1. During the **last 7 days**, on how many days did your child do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?

_____Days per week
_____No vigorous physical activities (skip to question 3)

2. How much time did your child usually spend doing **vigorous** physical activities on one of those days?

_____Hours per day
_____Minutes per day
_____Don't know/Not sure

Think about all the **moderate** activities that your child did in the **last 7 days**. **Moderate** activities refer to activities that take moderate physical effort and make your child breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

3. During the **last 7 days**, on how many days did your child do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

_____Days per week
_____No moderate physical activities (skip to question 5)

4. How much time did your child usually spend doing **moderate** physical activities on one of those days?

_____Hours per day
_____Minutes per day
_____Don't know/Not sure

Think about the time your child spent **walking** in the **last 7 days**. This includes at school and at home, walking to travel from place to place, and any other walking that your child has done solely for recreation, sport, exercise, or leisure.

5. During the **last 7 days**, on how many days did your child **walk** for at least 10 minutes at a time?

_____Days per week
_____No vigorous physical activities (skip to question 7)

6. How much time did your child usually spend **walking** on one of those days?

_____Hours per day
_____Minutes per day
_____Don't know/Not sure

The last question is about the time your child spent **sitting** on a weekday during the **last 7 days**. Include time spent at school, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

7. During the **last 7 days**, how much time did you spend **sitting** on a **week day**?

_____Hours per day
_____Minutes per day
_____Don't know/Not sure

Physical Activity Questionnaire for Children (child report)

Kowalski, K. C., Crocker, P. R. E., & Donen, R. M. (2004). The physical activity questionnaire for older children (PAQ-C) and adolescents (PAQ-A) manual. Saskatoon, Canada: College of Kinesiology, University of Saskatchewan.

Some sections are adapted given the COVID-19 pandemic and widespread virtual learning.

We are trying to find out about your level of physical activity from the last 7 days (in the last week). This includes sports or dance that make you sweat or make your legs feel tired, or games that make you breathe hard, like tag, skipping, running, climbing, and others.

Remember:

There are no right and wrong answers – this is not a test.

1. Please answer all the questions as honestly and accurately as you can – this is very important.

1. Physical activity in your spare time: Have you done any of the following activities in the past 7 days (last week)? If yes, how many times? (Mark only one circle per row.)
    a. Skipping
    b. Rowing/canoeing
    c. In-line skating
    d. Tag
    e. Walking for exercise
    f. Bicycling
    g. Jogging or running
    h. Aerobics
    i. Swimming
    j. Baseball, softball
    k. Dance
    l. Football
    m. Badminton
    n. Skateboarding
    o. Soccer
    p. Street hockey
    q. Volleyball
    r. Floor hockey
    s. Basketball
    t. Ice skating
    u. Cross-country skiing
    v. Ice hockey/ringette
    w. Other: _____
2. Do you have Physical Education (PE) classes as part of your in-person or online school day? Yes – No

[If yes] In the last 7 days, during your physical education (PE) classes, how often were you very active (playing hard, running, jumping, throwing)? (check one only)
   a. I don't participate in PE
   b. Hardly ever
   c. Sometimes
   d. Quite often
   e. Always

3. In the last 7 days, what did you do most of your free time during the school day (i.e., recess, breaks from online school)? (check one only)
   a. Sat down (talking, reading, doing schoolwork)
   b. Stood around or walked around
   c. Ran or played a little bit
   d. Ran around and played quite a bit
   e. Ran and played hard most of the time
4. In the last 7 days, what did you normally do at lunch (besides eating lunch)? (check one only)
   a. Sat down (talking, reading, doing schoolwork)
   b. Stood around or walked around
   c. Ran or played a little bit
   d. Ran around and played quite a bit
   e. Ran and played hard most of the time
5. In the last 7 days, on how many days right after school, did you do sports, dance, or play games in which you were very active? (check one only)
   a. None
   b. 1 time last week
   c. 2 or 3 times last week
   d. 4 times last week
   e. 5 times last week
6. In the last 7days, on how many evenings did you do sports, dance, or play games in which you were very active? (check one only)
   a. None
   b. 1 time last week
   c. 2 or 3 times last week
   d. 4 or 5 times last week
   e. 6 or 7 times last week
7. On the last weekend, how many times did you do sports, dance, or play games in which you were very active? (check one only)
   a. None
   b. 1 time
   c. 2 or 3 times
   d. 4 or 5 times
   e. 6 or more times
8. Which one of the following describes you best for the last 7 days? Read all five statements before deciding on the one answer that describes you.

a. All of most of my free time was spent doing things that involve little physical effort
b. I sometimes (1 to 2 times last week) did physical things in my free time (e.g., played sports, went running, swimming, bike riding, did aerobics)
c. I often (3 to 4 times last week) did physical things in my free time
d. I quite often (5 to 6 times last week) did physical things in my free time
e. I very often (7 or more times last week) did physical things in my free time

9. Mark how often you did physical activity (like playing sports, games, doing dance, or any other physical activity for each day last week.
   None Little Bit Medium Often Very Often

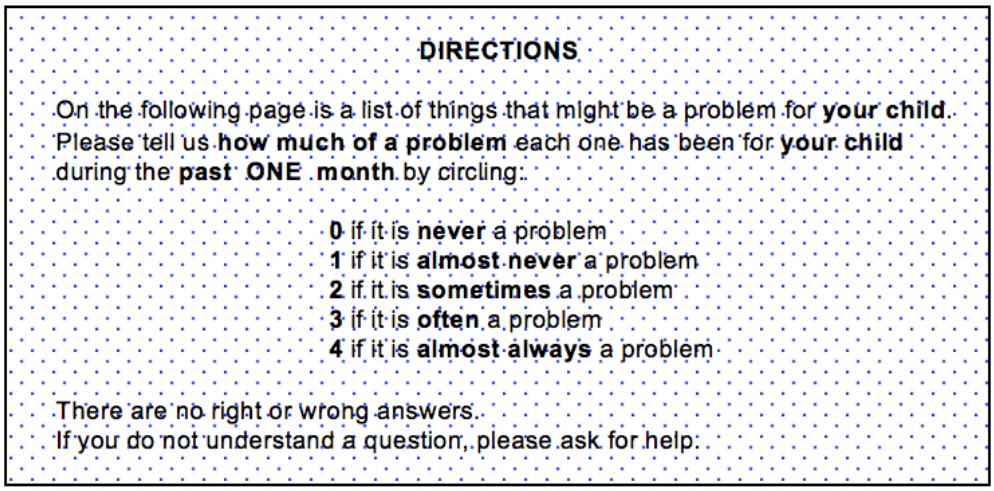
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday

10. Were you sick last week, or did anything prevent you from doing your normal physical activities? Yes or No
    If yes, what prevented you? _____

The Pediatric Quality of Life Inventory Version 4.0 (Parent Report)

Varni, J. W., Seid, M., Knight, T. S., Uzark, K., & Szer, S. I. (2002). The PedsQLtm 4.0 generic core scales: Sensitivity, responsiveness, and impact on clinical decision-making. *Journal of Behavioral Medicine, 25*(2), 175-193.

Scoring: Items are reverse-scored and linearly transformed to a 0-100 scale (0=100, 1=75, 2=50, 3=25, 4=0), so that higher scored indicate better HRQOL. Scale scores are computed as the sum of the items divided by the number of items answered. If more than 50% of the items in the scale are missing, the scale score is not computed. The Physical Health Summary Score is the same as the Physical Functioning Scale. The Psychosocial Summary Score is computed by summing the items in the Emotional, Social, and School Functioning Scales and dividing by the number of items answered.



DIRECTIONS

On the following page is a list of things that might be a problem for **your child**. Please tell us **how much of a problem** each one has been for **your child** during the **past ONE month** by circling:

0 if it is **never** a problem
1 if it is **almost never** a problem
2 if it is **sometimes** a problem
3 if it is **often** a problem
4 if it is **almost always** a problem

There are no right or wrong answers.
If you do not understand a question, please ask for help.

PHYSICAL FUNCTIONING *(problems with...)*	Never	Almost Never	Some-times	Often	Almost Always
1. Walking more than one block	0	1	2	3	4
2. Running	0	1	2	3	4
3. Participating in sports activity or exercise	0	1	2	3	4
4. Lifting something heavy	0	1	2	3	4
5. Taking a bath or shower by him or herself	0	1	2	3	4
6. Doing chores around the house	0	1	2	3	4
7. Having hurts or aches	0	1	2	3	4
8. Low energy level	0	1	2	3	4

EMOTIONAL FUNCTIONING *(problems with...)*	Never	Almost Never	Some-times	Often	Almost Always
1. Feeling afraid or scared	0	1	2	3	4
2. Feeling sad or blue	0	1	2	3	4
3. Feeling angry	0	1	2	3	4
4. Trouble sleeping	0	1	2	3	4
5. Worrying about what will happen to him or her	0	1	2	3	4

SOCIAL FUNCTIONING *(problems with...)*	Never	Almost Never	Some-times	Often	Almost Always
1. Getting along with other children	0	1	2	3	4
2. Other kids not wanting to be his or her friend	0	1	2	3	4
3. Getting teased by other children	0	1	2	3	4
4. Not able to do things that other children his or her age can do	0	1	2	3	4
5. Keeping up when playing with other children	0	1	2	3	4

SCHOOL FUNCTIONING *(problems with...)*	Never	Almost Never	Some-times	Often	Almost Always
1. Paying attention in class	0	1	2	3	4
2. Forgetting things	0	1	2	3	4
3. Keeping up with schoolwork	0	1	2	3	4
4. Missing school because of not feeling well	0	1	2	3	4
5. Missing school to go to the doctor or hospital	0	1	2	3	4

The Pediatric Quality of Life Inventory Version 4.0 (child report)

Varni, J. W., Seid, M., Knight, T. S., Uzark, K., & Szer, S. I. (2002). The PedsQLtm 4.0 generic core scales: Sensitivity, responsiveness, and impact on clinical decision-making. *Journal of Behavioral Medicine, 25*(2), 175-193.

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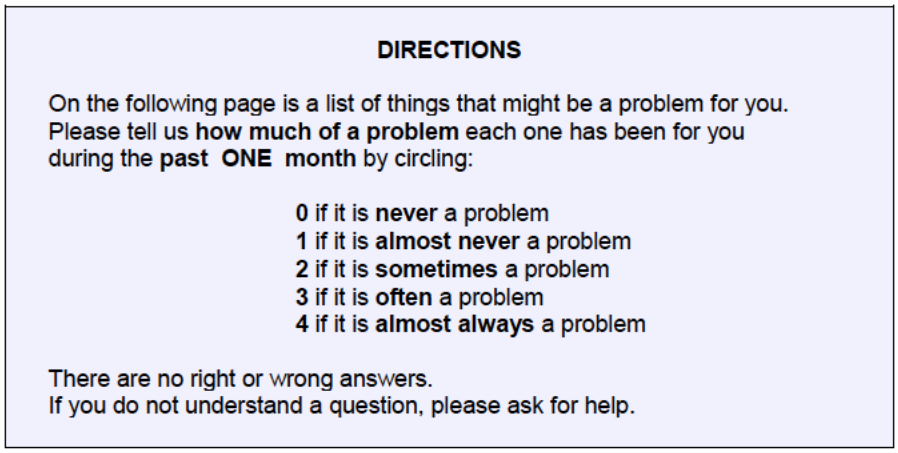

DIRECTIONS

On the following page is a list of things that might be a problem for you. Please tell us **how much of a problem** each one has been for you during the **past ONE month** by circling:

0 if it is **never** a problem
1 if it is **almost never** a problem
2 if it is **sometimes** a problem
3 if it is **often** a problem
4 if it is **almost always** a problem

There are no right or wrong answers.
If you do not understand a question, please ask for help.

*In the past **ONE month**, how much of a **problem** has this been for you …*

ABOUT MY HEALTH AND ACTIVITIES *(problems with…)*	Never	Almost Never	Some-times	Often	Almost Always
1. It is hard for me to walk more than one block	0	1	2	3	4
2. It is hard for me to run	0	1	2	3	4
3. It is hard for me to do sports activity or exercise	0	1	2	3	4
4. It is hard for me to lift something heavy	0	1	2	3	4
5. It is hard for me to take a bath or shower by myself	0	1	2	3	4
6. It is hard for me to do chores around the house	0	1	2	3	4
7. I hurt or ache	0	1	2	3	4
8. I have low energy	0	1	2	3	4

ABOUT MY FEELINGS *(problems with…)*	Never	Almost Never	Some-times	Often	Almost Always
1. I feel afraid or scared	0	1	2	3	4
2. I feel sad or blue	0	1	2	3	4
3. I feel angry	0	1	2	3	4
4. I have trouble sleeping	0	1	2	3	4
5. I worry about what will happen to me	0	1	2	3	4

HOW I GET ALONG WITH OTHERS *(problems with…)*	Never	Almost Never	Some-times	Often	Almost Always
1. I have trouble getting along with other kids	0	1	2	3	4
2. Other kids do not want to be my friend	0	1	2	3	4
3. Other kids tease me	0	1	2	3	4
4. I cannot do things that other kids my age can do	0	1	2	3	4
5. It is hard to keep up when I play with other kids	0	1	2	3	4

ABOUT SCHOOL *(problems with…)*	Never	Almost Never	Some-times	Often	Almost Always
1. It is hard to pay attention in class	0	1	2	3	4
2. I forget things	0	1	2	3	4
3. I have trouble keeping up with my schoolwork	0	1	2	3	4
4. I miss school because of not feeling well	0	1	2	3	4
5. I miss school to go to the doctor or hospital	0	1	2	3	4

Strengths and Difficulties Questionnaire (parent report)

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: a research note. *Journal of Child Psychology and Psychiatry*, *38*(5), 581-586.

Subscales

- Emotional Problems: items 3, 8, 13, 16, 24
- Conduct Problems: items 5, 7, 12, 18, 22
- Hyperactivity: items 2, 10, 15, 21, 25
- Peer Problems: items 6, 11, 14, 19, 23
- Prosocial Behaviors: 1, 4, 9, 17, 20

Items 7, 21, 25, 11, 14 are reverse scored

Scoring: Items are summed to create five subscale scores, with higher scores representing greater emotional problems, conduct problems, hyperactivity symptoms, peer problems, and prosocial behaviors. Items that make up the first four subscales can be summed to create a Total Difficulties score, with higher scores representing greater social-emotional difficulty.

Instructions: For each item, please mark the box for Not True, Somewhat True, or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of this young person's behavior over the last six months or this school year.

Response Scale: 0 – 'not true' 1 – 'somewhat true' 2 – 'certainly true'

1. Considerate of other people's feelings
2. Restless, overactive, cannot stay still for long
3. Often complains of headaches, stomach-aches, or sickness
4. Shares readily with other youth, for example books, games, food
5. Often loses temper
6. Would rather be alone that with other youth
7. Generally well behaved, usually does what adults request
8. Many worries or often seems worried
9. Helpful if someone is hurt, upset, or feeling ill
10. Constantly fidgeting or squirming
11. Has at least one good friend
12. Often fights with other youth or bullies them
13. Often unhappy, depressed or tearful
14. Generally liked by other youth
15. Easily distracted, concentration wanders
16. Nervous in new situations, easily loses confidence
17. Kind to younger children
18. Often lies or cheats

19. Picked on or bullied by other youth
20. Often offers to help others (parents, teachers, children)
21. Thinks things out before acting
22. Steals from home, school, or elsewhere
23. Gets along better with adults than with other children
24. Many fears, easily scared
25. Good attention span, sees work through to the end

Strengths and Difficulties Questionnaire (Child Report)

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: a research note. *Journal of Child Psychology and Psychiatry*, *38*(5), 581-586.

Subscales

- Emotional Problems: items 3, 8, 13, 16, 24
- Conduct Problems: items 5, 7, 12, 18, 22
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Scoring: Items are summed to create five subscale scores, with higher scores representing greater emotional problems, conduct problems, hyperactivity symptoms, peer problems, and prosocial behaviors. Items that make up the first four subscales can be summed to create a Total Difficulties score, with higher scores representing greater social-emotional difficulty.

Instructions: For each item, please mark the box for Not True, Somewhat True, or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of how things have been for you over the last six months.

1. I try to be nice to other people. I care about their feelings.
2. I am restless, I cannot stay still for long.
3. I get a lot of headaches, stomach-aches, or sickness.
4. I usually share with others, for example CD's, games, food.
5. I get very angry and often lose my temper.
6. I would rather be along than with people of my age.
7. I usually do as I am told.
8. I worry a lot.
9. I am helpful if someone is hurt, upset, or feeling ill.
10. I am constantly fidgeting or squirming.
11. I have one good friend or more.
12. I fight a lot. I can make other people do what I want.
13. I am often unhappy, depressed, or tearful.
14. Other people my age generally like me.
15. I am easily distracted, I find it difficult to concentrate.
16. I am nervous in new situations. I easily lose confidence.
17. I am kind to younger children.
18. I am often accused of lying or cheating.
19. Other children or young people pick on me or bully me.
20. I often offer to help others (parents, teachers, children).

21. I think before I do things.
22. I take things that are not mine from home, school, or elsewhere.
23. I get along better with adults than with people my own age.
24. I have many fears, I am easily scared.
25. I finish the work I’m doing. My attention is good.

Child Eating Attitudes Questionnaire

Maloney, M., McGuire, J., Daniels, S., & Specker, B. (1989). Dieting behavior and eating attitudes in children. *Pediatrics*, 84, 482489.

Scale: 1 (always) (2) very often (3) often (4) sometimes (5) rarely 6 (never)
Scoring:1 gets a 3, 2 gets a 2, 3 gets a 1, 4, 5, & 6 get a 0; sum scores

Instructions: The next section contains a number of statements about children's attitudes about food. Please read each statement carefully, and decide how well it describes you.

1. I am scared about being overweight.
2. I stay away from eating when I am hungry.
3. I think about food a lot of the time.
4. I have gone on eating binges where I feel that I might not be able to stop.
5. I cut my food into small pieces.
6. I am aware of the energy (calorie) content in foods that I eat.
7. I try to stay away from foods such as breads, potatoes, and rice.
8. I feel that others would like me to eat more.
9. I vomit after I have eaten.
10. I feel very guilty after eating.
11. I think a lot about wanting to be thinner.
12. I think about burning up energy (calories) when I exercise.
13. Other people think I am too thin.
14. I think a lot about having fat on my body.
15. I take longer than others to eat my meals.
16. I stay away from foods with sugar in them.
17. I eat diet foods.
18. I think that food controls my life.
19. I can show self-control around food.
20. I feel that others pressure me to eat.
21. I give too much time and thought to food.
22. I feel uncomfortable after eating sweets.
23. I have been dieting.
24. I like my stomach to be empty.
25. I enjoy trying new rich foods.
26. I have the urge to vomit after eating.

CHEAT Demographics

1. Are you…? __male __female __other
2. Which one of the groups below would you say best represents your race?

White or Caucasian
Black or African American
Asian or Asian American
Native Hawaiian or Other Pacific Islander
American Indian or Alaska Native
Middle Eastern or Arab American
Bi-racial or Multi-racial
Other (please specify): _____
Don't know/Prefer not to answer

3. Age in years: __10 years old __11 years old __12 years old
4. Grade in school: second grade, third grade, fourth grade, fifth grade, sixth grade, seventh grade, eighth grade, other _____
5. Have you ever *wanted* to be thinner? Yes – No
6. Have you ever *tried* to lose weight? Yes – No
7. Has your mother ever been on a diet to lose weight? Yes – No
8. Is your mother overweight? Yes – No
9. Has your father ever been on a diet to lose weight? Yes – No
10. Is your father overweight? Yes – No
11. Has your brother or sister ever been on a diet to lose weight? Yes – No – I don't have a sibling(s)
12. Have you ever had a friend on a diet to lose weight? Yes – No
13. I feel: Too fat – Just right – Too thin
14. Others think I am: Too fat – Just right – Too thin
15. How many hours of TV do you watch a day?
    0-1
    2-3
    4-5
    6 or more
16. How tall are you? __Feet __Inches
17. How much do you weight? __Pounds

COVID-19 Family Stress Screener (parent only)

Huth-Bocks, A. (2020). Covid-19 Family Stress Screener.

The current coronavirus (COVID-19) outbreak is causing extra stress for many people, including families with children of all ages. We would like to know how things are going for you and your family related to this situation. Please answer the following questions about your experiences and feelings over the last few weeks, using the following scale.

1 Strongly Disagree	2 Somewhat Disagree	3 Neither Agree nor Disagree	4 Somewhat Agree	5 Strongly Agree

Because of COVID-19 related events and changes, I have felt increased stress about:

1. Food running out or being unavailable	1	2	3	4	5
2. Losing a job or decrease in family income	1	2	3	4	5
3. Housing or utilities	1	2	3	4	5
4. Loss of or limited childcare	1	2	3	4	5
5. Taking care of children, including those who are normally in school	1	2	3	4	5
6. Tension or conflict between household members	1	2	3	4	5
7. Physical health concerns for me or a family member	1	2	3	4	5
8. Increased anxiety or depression	1	2	3	4	5
9. Reminders of past stressful/traumatic events	1	2	3	4	5
10. Loss of social connections, social isolation	1	2	3	4	5

Burden Scale for Family Caregivers-Short From (BSFC-s) (parent only)

Pendergrass, A., Malnis, C., Graf, U., Engel, S., & Graessel, E. (2018). Screening for caregivers at risk: Extended validation of the short version of the Burden Scale for Family Caregivers (BSFC-s) with a valid classification system for caregivers caring for an older person at home. *BMC Health Services Research*, *18*(1), 229-238.

Instructions: We are asking you for information about your present caregiving situation. The present situation comprises the caregiving you provide to family members (or friends). This may include child care or care for someone who is ill. This may be any kind of support up to nursing care.

Response scale: strongly agree – agree- disagree – strongly disagree

1) My life satisfaction has suffered because of the care.
2) I often feel physically exhausted.
3) From time to time, I wish I could 'run away' from the situation I am in.
4) Something I don't really feel like 'myself' as I did before.
5) Since I have been a caregiver, my financial situation has decreased.
6) My health is affected by the care situation.
7) The care takes a lot of my own strength.
8) I feel torn between the demands of my environment (such as family) and the demands of the care.
9) I am worried about my future because of the care I give.
10) My relationship with other family members, relatives, friends, and acquaintances are suffering as a result of the care.

Stanford-Washington University Eating Disorder Screen (parent only)

Graham, A. K., Trockel, M., Weisman, H., Fitzsimmons-Craft, E. E., Balantekin, K. N., Wilfley, D. E., & Taylor, C. B. (2018). A screening tool for detecting eating disorder risk and diagnostic symptoms among college-age women. *Journal of American College Health, 67*(4), 357-366.

Instructions: Please carefully read the following questions and choose the answer that best reflects **YOUR** feelings, behaviors, and experiences.

1. How much more or less do you feel you worry about your weight and body shape than other adults your age?

- I worry a lot less than other adults
- I worry a little less than other adults
- I worry about the same as other adults
- I worry a little more than other adults
- I worry a lot more than other adults

2. How afraid are you of gaining 3 pounds?

- Not afraid of gaining
- Slightly afraid of gaining
- Moderately afraid of gaining
- Very afraid of gaining
- Terrified of gaining

3. When was the last time you went on a diet?

- I've never been on a diet
- I was on a diet about one year ago
- I was on a diet about 6 months ago
- I was on a diet about 3 months ago
- I was on a diet about 1 month ago
- I was on a diet less than 1 month ago
- I'm now on a diet

4. Compared to other things in your life, how important is your weight to you?

- My weight is not important compared to other things in my life
- My weight is a little more important than some other things
- My weight is more important than most, but not all, things in my life
- My weight is the most important thing in my life

5. Do you ever feel fat?

- Never
- Rarely
- Sometimes
- Often
- Always

6. In the past four weeks, have you had any times of eating in which you have had a sense of having lost control (e.g., feeling driven or compelled to eat; not being able to stop eating once you've started; not being able to keep yourself from eating large amounts of certain kinds of food in the first place; giving up on even trying to control your eating because you know that, no matter what, you're going to eat more than you want)? No Yes

   If yes, has this happened at least twice a week, on average, for the past month? No Yes
   Has this happened at least one time a week, on average, over the past three months? No Yes

   Have there been times that this happened in which you also ate what most people would regard as an unusually large amount of food, define as definitely more than most people would eat under similar circumstances (e.g., eating two full meals; eating three main courses; eating an unusually large amount of one food or combination of foods)? No Yes

   If yes, has this happened at least twice a week, on average, for the past month? No Yes
   Has this happened at least one time a week, on average, over the past three months? No Yes

7. In the past four weeks, have you ever done any of the following as a means to control your weight or shape:

   a. Made yourself throw-up? No Yes

   If yes, has this happened at least twice a week, on average, for the past month? No Yes
   Has this happened at least one time a week, on average, over the past three months? No Yes

   b. Use diuretics or laxatives? No Yes

   If yes, has this happened at least twice a week, on average, for the past month? No Yes
   Has this happened at least one time a week, on average, over the past three months? No Yes

   c. Exercised excessively (e.g., pushed yourself very hard; had to stick to a specific exercise schedule no matter what; felt compelled to exercise)

   If yes, has this happened at least twice a week, on average, for the past month? No Yes
   Has this happened at least one time a week, on average, over the past three months? No Yes

   d. Fasted (intentionally not eaten anything at all for a least 8 waking hours)?

   If yes, has this happened at least twice a week, on average, for the past month? No Yes
   Has this happened at least one time a week, on average, over the past three months? No Yes

8. Over the past four weeks, to what extent have your concerns about your weight/shape or your eating behaviors or rituals:

Not at all – a little – quite a bit – a lot

- Interfered with your school work?
- Interfered with your relationships or social life?
- Made you feel badly about yourself?

9. In the past year, have you weight much less than people thought you ought to weight? No Yes

   What was your lowest weight in the past year, including today? _____ pounds

   At your lowest weight were you very afraid that you could become fat? No Yes

Household Food Insecurity Access Scale (parent only)

Coates, J., Swindale, A., Bilinsky, P. (2007). *Household food insecurity access scale (HFIAS) for measurement of food access: Indicator guide (v. 3).* Washington, D.C: FHI 360/FANTA.

Response scale – yes or no, if yes, how often? Rarely – sometimes – often

In the past four weeks…

1. Did you worry that your household would not have enough food?
2. Were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?
3. Did you or any household member have to eat a limited variety of foods due to lack of resources?
4. Did you or any household member have to each some foods that you really did not want to eat because of a lack of resources to obtain other types of food?
5. Did you or any household member have to eat a smaller meal than your felt you needed because there was not enough food?
6. Did you or any household member have to eat fewer meals in a day because there was not enough food?
7. Was there ever no food to eat of any kind in your household because of lack of resources to get food?
8. Did you or any household member go to sleep at night hungry because there was not enough food?
9. Did you or any household member go a whole day and night without eating anything because there was not enough food?

Demographics (parent only)

1. How old are you in years? _____

2. Please select. Are you:
   - Male
   - Female
   - Not Listed: _____

3. What country do you live in? _____

4. How tall are you? Feet: ____ Inches: _____

5. How much do you weigh? Pounds: _____

6. Do you identify with a Hispanic, Latino or Spanish origin?
   Yes No Don't know/Prefer not to answer

7. Which one of the groups below would you say best represents your race?
   White or Caucasian
   Black or African American
   Asian or Asian American
   Native Hawaiian or Other Pacific Islander
   American Indian or Alaska Native
   Middle Eastern or Arab American
   Bi-racial or Multi-racial
   Other (please specify): _____
   Don't know/Prefer not to answer

8. What is your marital status?
   Single
   Married
   Common law marriage
   In a relationship
   Separated
   Divorced
   Widowed

9. Which one best describes your religious beliefs?
   Christian-Catholic
   Christian-Protestant
   Jewish
   Muslim
   Buddhist
   Hindu
   Agnostic

Atheist
Not affiliated
Other _____
Don't know/Not sure

10. What is the highest level of education you have completed?
Graduate or professional training
College
Vocational training
Some college
High school diploma or GED
Some high school
Junior high school
Less than 7 years
I prefer not to answer

11. Which of the following categories best describes your pre-tax household income in the last year?
Less than $10,000
$10,000 to $24,999
$25,000 to $49,999
$50,000 to $74, 999
$75,000 to $99,999
More than $100,000
I prefer not to answer

12. What is your current occupational status?
Employed
Unemployed
Retired
If you are employed, please list your current occupation: _____

13. Please indicate the number of times you have intentionally lost the following amount of weight **in your lifetime**:

Never, 1–2 times, 3–5 times, 6–10 times, More than 10 times
- 1 to 9 lbs
- 10–19 lbs
- 20–49 lbs
- 50–79 lbs
- 80–99 lbs

14. During the past month, how would you rate your sleep quality overall?
Very Good
Fairly Good
Fairly Bad

Bad

15. Do you currently smoke cigarettes?
    Yes
    No
16. On average, how many alcoholic drinks (one drink = 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of hard liquor) do you normally have in a week?
    Number of 12 ounce beers per week: _____
    Number of 5 ounce glasses of wine per week: _____
    Number of 1.5 ounce shots of liquor per week: _____

17. Subjective social status measure

Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy, White women. Health Psychology, 19(6), 586-592. doi:10.1037/0278 6133.19.6.586

Instructions: **Think of this as a ladder representing where people stand in the United States.** At the **top** of the ladder are the people who are best off -- those who have the most money, the most education, and the most respected jobs. At the **bottom** are the people who are the worst off -- who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the bottom.

Where would you place yourself on this ladder? Please indicate a number, 1-10, where you think you stand at this time in your life, relative to other people in the United States.

1 2 3 4 5 6 7 8 9 10

Attention Check Questions

Parent

I have been around the world ninety-two times.

- yes
- no

Mark strongly agree to this item.

- strongly agree
- agree
- neither agree nor disagree
- disagree
- strongly disagree

I was born on February 30th.

- true
- false

Please list a few things that you have answered questions about on this survey.

Child

I drink 50 glasses of milk every day.

- true
- false

Pigs can fly.

- yes
- no

Please tell us about a few activities that you like to do with your family.

APPENDIX B: CODING MANUAL

This manual provides directions for coding parent descriptions of family weight talk on the Daily Diary Questionnaire of the Family Health Communication Study (Gadaire & Armstrong, 2021).

You will code each description for topic, valence, function, focus, and likelihood of stigmatization. The descriptors within each of these categories are defined below and examples for each are provided for each code.

Topic

Topic describes what the conversation was about. We are interested in determining if the conversation was about food, physical activity, or weight/shape.

- *A description may cover multiple topics - if so, please code a '1' for each topic that is included in the description of the conversation. Topics are not mutually exclusive.*
- *Alternatively, a description may not be about food, physical activity, or weight - if so, code a '0' for all three topic options.*

Food: conversation about food or dietary habits

We had pork and asparagus for dinner.
[NAME] woke up early and drank 3 juice boxes and sugary cereal.
In the afternoon, I asked my child what fruits or vegetables he had eaten so far

Physical Activity: conversation about physical activity, exercise, or moving one's body

As with most days, I ask [NAME] to exercise. Today we did a 15 minute yoga routine and then some weight training together.
My son was not very physically active today.
It made me happy he saw the walk as a good opportunity on his own.

Weight: conversation about weight, body size, body shape, or appearance

She said today and in the past that she thinks she weighs too much, thinks her belly sticks out and is embarrassed by the number on the scale.
[NAME] was changing his shirt and showed me how he has abs - specially how he has a 4-pack.
The position he plays usually has larger players. He is anxious to gain weight and height.
I stated that I was not happy with my weight.

Valence

Valence describes the ***affective quality*** of the conversation, or how positive/'good' versus negative/'bad' the conversation is. We are interested in the emotions and/or reactions reported in the conversation, not the content of the conversation.

- The code that best reflects the description should be selected. *Judge the valence of the ENTIRE description.* If the conversation is equally positive and negative, select the 'mixed' code. If the description does not seem to be positive or negative, but has a "matter-of-fact" quality, then select the 'neutral' code.
- **Only one (positive, negative, neutral, or mixed) code should be marked in this category**.

Positive: positive emotion reported; positive child or parent response reported; description of positive emotion (i.e., smile)

My child said *he felt fast and strong* on the field and related that to the healthy choices he has been making with eating and lifestyle habits over the last few months.
At dinner she kept coming back to the table for more tater tots and I suggested she eat the orange slices instead. She loves them and *happily ate those instead.*
It was a *pleasant and positive conversation* and *I was happy* that she is so interested in healthy eating.
I was proud that she thinks a lot about what she eats and that will work well for her through life.

Negative: negative emotion reported; negative child or parent response reported; description of negative emotion (i.e., frown, huff, eye roll)

Also, when he completed the child survey, he mentioned saying his dad was overweight. I said technically I also was overweight based on my BMI. He seemed surprised by this. We then discussed what BMI was and how some people may not look overweight by society standards, but still may be considered overweight based on BMI. *It felt a little embarrassing* to admit to him that I was overweight.
My son argued at an ice cream shop because I only got him a kid size. *I was frustrated* because I felt he should be happy with what he got.
I stated that *I was not happy* with my weight.
He is *anxious* to gain weight and height. I explained that not just eating, but eating health, is what is important for growth.
Since she is very thin, there is no concern about her weight but we do limit her sugar intake for health purposes and dental purposes and try to explain the importance of eating a well-balanced, healthy meal. She *rolled her eyes and huffed a little*.

Neutral: not explicitly positive or negative; not enough detail reported to determine positive versus negative

My child made his taco from the ingredients I provided but it only included meat and cheese. I said please add some vegetables to your taco. He added some salad.
We discussed eating colors of the rainbow to fuel our body and build our immune system.
I tried to emphasize that foods are not bad but rather focus on how often we are including them in our diet.

Mixed: balance between positive and negative valence; two opposite emotions reported

We discussed going on a family walk and then doing some weights together when we returned. *[NAME] was excited* to go on the walk because he enjoys talking/ spending time together on the walks. And he generally likes walking as exercise. *He was not so enthusiastic* about doing some light weights afterwards but agreed to do so.
Since my son had just taken the survey, we were talking a lot about how why how we ate and exercise was very important for long term health. We discussed how many vegetables we should be eating a day and that we have not been eating enough vegetable. He was reviewing how many times he had worked out or played sports that week. He then mentioned how *he had felt pudgy a year ago*, but was long and lean now because of his working out. He is becoming *self-aware*.

Function

Function describes the purpose or goal of the conversation. There are a number of different functions that a conversation may serve and **descriptions may reflect multiple functions (with the exception of limit-setting and restriction)**.

- Please code a '1' for each function that fits the description.

Limit-Setting: appropriateness of certain foods with respect to time of day, amount, meal/portion size; parents establishing limitations on sedentary activities like video-games and TV time

- Note: a description cannot be coded for limit-setting and restriction; these are mutually exclusive

We talked about limiting that to twice a week since it's essentially frosting on case and wouldn't keep them full and give them energy they need to get through the day.
We took lunch with us to the lake and my son mentioned opening the Oreos we brought. I said sandwich and fruit first.
Our family has a maximum 1 soda per day rule.
My husband told [NAME] that he needs to get out and play. That [NAME] watches too much TV.

Teaching Opportunity: educational in nature; parents teaching children things about food, physical activity, or health habits; the information being taught does not have to be accurate

This morning we talked about eating a smoothie instead of bread/pancakes/carbs. She had a swim meet in a couple hours, so *we discussed what foods might fuel her best*.
I explained the importance of not skipping meals and not filling up on snacks all day.
I spoke to him about giving his body enough time to tell him that it is full and also that waffles are simple carbs.
I gave him a list of the downsides of being fat.

Protection/Acceptance: Serving the purpose of protecting the child from negative feelings about weight, food, or exercise; sending a message of acceptance regardless of actual behavior or body size

I also want him to be happy with himself and to not feel he has to be different in any way.
We also talked about exercise because she is playing soccer again and I am concerned that she may re-injure her knee because I'm concerned that she may have lost some strength over the summer.
I also told her that it's ok if she gains weight and that she could eat any food that she wanted to…

Challenge: Partnering with child in making healthy choices or engaging in healthy habits as a family

This morning we discussed going on a family hike at the greenway together to be active. Our 10 year old was happy to go because he generally likes the greenway and going on family walks.
Only me saying we should do a routine of exercise together and introduce more veggies and fruit to our daily diet.
This morning my husband and I had a conversation with our 10 year old and his brother about what we would do today for exercise.
I told him that we all have to eat healthier.

Directive or Command: Encouragement of or pressure to engage in health habits for child without explanation of why; challenge for child to engage in health habits, but no mention of doing so together as a family; telling a child directly what to do

My husband made him go for a bike ride this morning because "you need some physical activity".
My child had not finished everything on the plate and was asked to finish her portion of vegetables.
We advised him to exercise more often.

Restriction: restricting a child's access to certain foods or sedentary activities; controlling child food intake or behavior; does not involve negotiation or flexibility

- Different from limit-setting as the child does not gain access to the food - not about timing of eating or amount allowed, but restricting access all together.
- Note: a description cannot be coded for limit-setting and restriction; these are mutually exclusive

I told him that we all have to eat healthier and that *I was not getting him something sugary*.
This morning we talked about *eating a smoothie instead of bread/pancakes/carbs*.

Overly focused on Health: communications that convey limited flexibility regarding health habits to child

My daughter told me that her dad took her to a doughnut shop on the way to school today. I told them that is not a good habit so they should not go again because doughnuts for breakfast are not healthy…
This morning we talked about eating a smoothie instead of bread/pancakes/carbs.

Focus

Focus describes who the conversation is about. We are interested in whether the conversation is about the child, about the parent, about another person, about the family, or about something more general.

- Typically, only one focus will be coded in this category; however, there may be times when the conversation is focused multiple people (i.e., child and someone else; parent and someone else) and a '1' should be coded for each descriptor.

Child: Comments or conversation with specific reference to the child's dietary or physical activity habits or decisions, body shape, weight, or size.

I told him that I had looked up how much he should weigh for his height. He asked me with some apprehension in his voice if he weighs too much. I told him yes but that it wasn't too bad. I told him he needs to lose about 25 lbs.
My son was not very physically active today. I just reminded him that a healthy mind needs physical exercise.
I spoke to my child today in regards to possibly adding more green items to her plate. She likes to pick out the meat and even the bread however sometimes she does not like to eat the vegetables.

Self: comments or conversation about one's own weight, eating, or habits

I talked to my daughter about my own size.
Also, when he completed the child survey, he mentioned saying his dad was overweight. I said technically *I also was overweight based on my BMI.* He seemed surprised by this. We then discussed what BMI was and how some people may not look overweight by society standards, but still may be considered overweight based on BMI.

Family: reference to the family as a whole, not a specific family member

My husband talked about eating healthy.
Talked about different activities to do while camping - hiking, building a fort, etc.
We had a dinner conversation about potatoes and that white potatoes actually do have vitamins and other components that make them healthy. We discussed green vegetables and the fact that making sure we are eating on the "color wheel" and not just green, but also purple, reds, etc are important.
Today, my son and I went for a walk/run and set some physical goals for ourselves. My son had indicated he wanted to start exercising more, and I thought it would be good for us to do it together.

Other: comments or conversations about another person's weight, shape, size, diet, or habits; comments about overweight people broadly

We ran into a neighbor who said her 16 year old daughter was recovering from breast reduction surgery and that they removed 10 pounds. When we got home we told my husband and [NAME] asked "if someone gains weight bc they eat too much would it add weight to their breasts". I said typically you do not gain weight in your breasts. We commented that 10 pounds was a lot to remove from a 16 year old and just that we were glad she was doing ok.
We discussed a family friend's daughter who is probably 9 years old. She is physically overweight and we went to their house to visit.
My son told me about a new kid in class that wasn't able to move around very quickly during PE. He also added that he doesn't think it was because of his weight, he is well-rounded (his words), but [NAME] thinks he has some kind of disability. He said that two other students were incredibly nice to him and that he liked that.

General: comments or conversation without reference to a specific individual's weight, shape, size, or habits; unclear who is referenced in the conversation

General statements about the need to be active.

Offered kiwi fruit today, mentioned it had 3x the vitamin C of an orange
My child mentioned a few of the questions on the survey regarding eating habits and exercise.

Likelihood of Stigmatization

This category captures conversations that may be **stigmatizing** to the child or to people more broadly. Stigmatization is defined as 'describing or regarding someone or something as worthy of disgrace or great disapproval".

- A description should only be coded as potentially stigmatizing toward the child or toward something or someone more generally.

Child: conversation or comment that could be perceived as directly stigmatizing towards a child; explicitly referencing the child or implication directed at child

- According to the literature, types of comments or conversations that may be perceived as stigmatizing to a child include:
    - Teasing, criticism, shaming focused of the child's weight, eating, or other health behaviors, such as "Those pants are getting a little tight" and "You're chucky" (Berge et al., 2015; Eisenberg et al., 2006; O'Brien et al., 2016).
    - Name calling or disparaging nicknames, such as "fatso", "jelly belly", or "blubber-butt" (Berge et al., 2016).
    - Scare tactics, such as "You see those people on TV who are fat, you don't want to end up like that" (Hall et al., 2016).
    - Moralization of weight and lifestyle choices (i.e., fatness being a 'bad thing'; body weight as a marker of one's goodness or badness) (Hall et al., 2016).
    - Negative focus on specific body parts (MacDonald et al., 2015).
- Given the methodology of the current study (parent report, current weight talk), it is more likely that you will find subtle stigmatizing messages in the daily surveys. For example, discussion of dieting or avoiding certain foods to prevent overweight, comparing appearance or behavior to someone else (Lydecker et al., 2018), attention drawn to physical fitness (i.e., being out of breath; Jensen et al., 2009).

Talking to child about balancing eating sweets and exercising (as she was out of breath on a short uphill walk)
We talked about my child's weight and how he could exercise so as not to be overweight.
On the way home, I talked to my son about her weight and we discussed how she might be able to help herself through being more active and perhaps her parents should be helping her make better food choices. It was a positive discussion, not negative.

General: conversation that more generally stigmatizes individuals with overweight; not directed at child specifically; implying that there is a 'correct' way to be when it comes to weight or health habits

He did bring up how fat (sorry, we did use that non-PC term, because he put it in kids' terms) his new teachers assistant is, but with understanding and not judgement. He asked me to list my "fat" friends but I didn't have time.
In watching Hulu, I had turned on My 600 Pound Life. My daughter asked me why the person on the show was so big. I explained to her that they had some issues that made them want to eat when they were sad and they ended up eating more than they needed to and that over a long period of time, if a person eats too much food, especially if it's unhealthy food like fast food or soda, they can gain weight.
I stated that I was not happy with my weight.

Data Entry Instructions

The information below will help you understand the spreadsheet for coding daily survey descriptions.

- The column labeled ***description*** includes the written details of family weight talk that parents provided on that daily survey.
- After the description, there is a column for each of the descriptors in the categories of topic, valence, function, focus, and likelihood of stigmatization. There are 18 total columns that must be coded.
    - You will code either a '1' for present or '0' for absent in each of these columns for every written description.