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The Effect of Parent-Targeted Obesity Messaging on Parental Weight Talk Intention: A Randomized Controlled Experiment

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ABSTRACT

It is unknown if parent-targeted health messages about childhood obesity affect parental weight communication with children (e.g., encouraging a child to diet). This randomized, controlled, online experiment assessed the effects of exposure to different message frames on parental intentions to 1) engage in weight communication with their child and, 2) follow the health advice in the message. A diverse sample of U.S. parents ($N = 452$) were randomly assigned to one of three conditions: 1) a mock news article emphasizing childhood obesity (weight-framed message) with health behavior advice for parents; 2) an article with identical health behavior advice for parents, but framed within the context of improving children's school performance (school-framed message); and 3) a no-treatment control group. Following message exposure, parents completed online surveys assessing their intention to engage in weight communication and the recommended health behaviors. Hierarchical linear regression was used to assess the relationship between experimental condition and the outcome variables. Parents in the weight-frame condition were significantly more likely to report intention to engage in weight communication with their child than parents in the control group, while there was no difference between the school-frame condition and the control group. Parents in both message conditions were equally likely to report intention to adopt the health advice, but parental weight-based self-stigma moderated the relationships. Parent-targeted health advice that features childhood obesity may encourage parents to engage in weight communication with their children. Our findings can inform the development of health messages targeting parents about children's weight-related health.

The manner in which obesity-focused health messages are framed to the public plays a significant role in how they are interpreted (Saguy, 2013), and can have implications for people's beliefs and associated behaviors (Sun et al., 2016). Considerable research has examined the role of message framing on topics related to obesity and nutrition (Guenther et al., 2021), particularly the framing of responsibility for addressing obesity (e.g., individual vs. society) and how these messages relate to public perceptions of obesity (Temmann et al., 2021). However, less is known about the potential consequences of obesity-related message framing strategies, especially regarding childhood obesity messages targeting parents. In particular, it is unknown whether traditional weight-framed health messages lead parents to engage in weight communication with their children, commonly referred to as "weight talk." Parental weight talk can include encouraging their child to diet or commenting on their child's body weight or size, and is associated with negative health outcomes in children (Gillison et al., 2016; Yourell et al., 2021). Therefore, the current study assessed the effects of being exposed to parent-targeted health advice that emphasized either a weight-framed or non-weight framed message on parental intentions to 1) engage in weight talk with their child, and 2) make the recommended health behavior changes described in the message. In addition, we examined whether parental weight-based self-stigma moderated these relationships.

Message frames

Altering the way an issue is presented can influence attitudes and behaviors, a phenomenon known as "framing effects" (Chong & Druckman, 2007). For example, news articles that frame obesity in a medical context have been shown to invoke fewer stigmatizing social media comments than obesity articles that are framed about individual lifestyle behaviors (Busam & Solomon-Moore, 2023), and simple language manipulations (e.g., "Obesity causes health problems" vs. "Obese people develop health problems") can influence who people hold accountable for addressing obesity (McGlynn & McGlone, 2019). In the context of childhood obesity messaging, framing effects can influence public awareness and policy support regarding obesity prevention (Barry et al., 2013, 2014; Gollust et al., 2013). Negative framing of childhood obesity messages can also evoke more negative emotions and attitudes than positively framed messages (Mayer et al., 2022). However, less is known about the influence of childhood obesity message framing on parental responses.

Just as obesity prevention messages can be framed to emphasize different strategies to address obesity (e.g., individual vs. society), messages aimed at promoting certain health behaviors can be framed with or without mention of obesity.

Given that parents are often the target of childhood obesity messages (Friedman, 2015; Saguy & Gruys, 2010), it is important to understand how parents react to health advice emphasizing their child's weight versus health messages that do not, as this can inform health communication efforts. For example, research on adult-focused obesity messaging has found that health messages that feature body size acceptance or make no reference to body weight are perceived to be more motivating for engaging in health behaviors and less stigmatizing than traditional anti-obesity messages (Puhl et al., 2013; Rathbone et al., 2022). Therefore, in the present study we used an "emphasis framing" approach, which consists of highlighting different yet relevant considerations of the same topic (Chong & Druckman, 2007; Sun et al., 2016), to compare parent-targeted health advice framed within the context of managing child weight versus a frame that did not emphasize weight. Specifically, we assessed whether the weight-framed message has the negative consequence of promoting parental weight talk.

Negative consequences

It is common for health communication campaigns to have negative consequences ranging from ineffective messaging to counterproductive outcomes (Cho & Salmon, 2007). For example, research examining adolescents' reactions to obesity-focused public service announcements found that messages featuring the esthetic benefits of weight loss induced anxiety among recipients (Dooley et al., 2010). Research has also shown that using negative imagery of obesity on sugar-sweetened beverages had the consequence of promoting weight stigma (Hayward & Vartanian, 2019). Similarly, interviews of parents' reactions to a problem-focused versus a solution-focused obesity prevention campaign found the problem-focused messages to be demotivating, disempowering, and stigmatizing (Thomas et al., 2014). This evidence highlights the importance of considering the potential negative consequences of obesity-related health messages.

Of particular concern regarding parent-targeted anti-obesity messages is that certain types of messages may promote parental engagement in weight talk. As many as 61% of parents engage in weight talk with their children, ranging from direct encouragement to lose weight to teasing or making comments about their child's body size or shape (Puhl et al., 2022). Findings from a meta-analysis and a systematic review demonstrate that this common practice is associated with eating pathology, body dissatisfaction, and higher body mass index (BMI) among children and adolescents, and suggest instead that parents should promote healthy behaviors without referencing body weight (Gillison et al., 2016; Yourell et al., 2021). To date, health messages have commonly featured weight, and some researchers advocate for messages that elicit parental concern for their child's weight in order to motivate parents to make healthy changes (Moore et al., 2012). Yet, evidence indicates that greater parental concern for their child's weight is associated with their engagement in negative feeding practices (Loth et al., 2021) and increased likelihood of weight talk (Neumark-Sztainer et al., 2008).

Researchers have theorized that public discourse pertaining to childhood obesity may be shaping the perceptions of parents regarding their children's diets and could be eliciting food and weight anxiety (Petersen et al., 2014). Several qualitative studies involving interviews of Australian mothers provide some initial evidence that health messages about childhood obesity may inadvertently encourage parents to engage in weight talk (Tanner et al., 2013; Wright et al., 2015). Recent evidence also suggests that the framing of brief educational materials featuring obesity can impact how parents explain obesity to their children, showing that being exposed to information that described weight as controllable resulted in parents using weight-stigmatizing themes when explaining obesity to children (Lydecker et al., 2024). However, many nuances of weight-focused conversations between parents and children remain to be understood. For example, parents may differ in their weight talk practices on the basis of race/ethnicity, gender, and income (Berge et al., 2015, 2016), but findings have been mixed (Pudney et al., 2023). Evidence also suggests that parent characteristics, such as having recently dieted and their perception of their child's weight status, are associated with greater frequency of weight conversations with children (Winkler et al., 2018). However, it is not clear how a parent's personal experiences or perceptions on weight shapes their interpretations of weight-focused messages.

The potential role of weight-based self-stigma

When a child has a stigmatized identity, parents can experience "stigma by association" in which they are blamed and shamed for their child's stigmatized condition (Corrigan & Miller, 2004; Davis & Manago, 2016; Francis, 2012). This form of associative stigma is common among parents of children with high body weight, making parents vulnerable to being stereotyped as a result of their child's weight (Hamlington et al., 2015; K. M. Lee et al., 2022; Zenlea et al., 2017). But beyond being stigmatized by others, evidence suggests that some parents internalize this blame, shame, and responsibility resulting in a form of self-stigma called "affiliate stigma" (Davis & Manago, 2016; Eaton et al., 2016; Mak & Cheung, 2008). While affiliate stigma has received little attention in the weight stigma literature, qualitative research has begun to shed some light on this issue, suggesting that self-blame and feeling that one deserves blame from others are common sentiments among parents of children with weight concerns (Davis et al., 2018; Gorlick et al., 2021). Specifically, the health messages that parents receive (e.g., from physicians and the media), may induce feelings of guilt and anxiety in parents around managing their children's weights and diets (Gorlick et al., 2021; Petersen et al., 2014; Tanner et al., 2013), and may contribute to their weight talk (Davis et al., 2018; Wright et al., 2015); however, these relationships have yet to be studied directly. Of note, qualitative evidence suggests that these feelings may present themselves in parents of children as young as preschool-age, as well as parents of children who are not overweight (Wright et al., 2015).

The qualitative literature exploring themes related to affiliate stigma also indicates that parents who have struggled with weight themselves may be particularly vulnerable to self-blame for their

child's weight (Davis et al., 2018; Gorlick et al., 2021; Tanner et al., 2013). It is common for adults to feel self-stigma about their own body weight, known as weight bias internalization (WBI), which occurs when an individual is aware of weight-based societal stereotypes and applies these views to oneself, engaging in self-blame and self-stigma (Durso & Latner, 2008; Pearl & Puhl, 2014). Unlike affiliate weight stigma, which involves self-blame for the stigmatized weight status of another person (e.g., one's child), weight bias internalization involves self-blame for one's own weight status. Evidence suggests that parental experiences of weight stigma (e.g., being teased, treated unfairly, etc.) is associated with greater weight talk, and that this relationship is mediated by parental WBI (Pudney et al., 2019). More recently, evidence shows that affiliate stigma is associated with parental WBI, and higher levels of both of these forms of self-stigma are associated with greater parental weight talk (Pudney et al., 2024). However, there is a dearth of research examining links among self-stigma, weight talk, and health messages. Both forms of stigma may play a role in parental reactions to health messages about childhood obesity, as parents who have internalized negative beliefs about their own body weight and/or their role in their child's body weight may be sensitive to parent-targeted child health advice. Findings from the interviews of mothers described above indicate that the tendency of anti-obesity health messages to blame mothers may exacerbate mothers' eating and body issues, and may result in overly controlling parenting practices (Tanner et al., 2013). Given that an individual's preconceptions influence how they interpret message framing (Busam & Solomon-Moore, 2023; Entman, 1993; Scheufele, 1999), it is important to consider the role of self-stigma in parents' reactions to different message frames.

In the current study, we assessed the effects of being exposed to parent-targeted health advice that emphasized either a weight-framed or non-weight framed message on parental intentions to 1) engage in weight talk with their children, and 2) make the recommended health behavior changes in their child described in the health message. In addition, we examined whether exposure to the message frame predicted behavioral intentions of parents as a function of affiliate stigma and weight bias internalization. We hypothesized that the parents exposed to the non-weight framed message would express greater intentions to make the recommended behavior changes than parents exposed to the weight-framed message, relative to the control group. We also hypothesized that the parents exposed to the weight-framed message would express greater intentions to engage in weight talk with their child than parents exposed to the non-weight framed message, relative to the control group. Regarding self-stigma (affiliate stigma and weight bias internalization), we hypothesized that these variables would moderate the relationships between message frame and intentions to make the recommended behavior changes, as well as the relationships between message frame and intentions to engage in weight talk.

Methods

Participants

The sample consisted of 452 adults living in the United States with at least one child between the ages of 6 and 17.

Quotas were set prior to data collection to obtain similar sample sizes across racial/ethnic groups and parental gender, resulting in the final sample being 60% mothers and 32% White, 34% Black, and 34% Hispanic. Participants had a mean age of 40 years ($SD = 9.69$, range = 18 to 80) and the mean age of their children was 12 years ($SD = 3.22$, range = 6.0 to 17.9). The average BMI of the parents was 26.82 kg/m^2 ($SD = 7.70$, range = 14 to 62) and the average BMI percentile for their children was 69.99% ($SD = 33.70$, range = 0 to 100; see Table 1).

Procedures

Data were collected summer 2020 via an online survey through Qualtrics, a national panel company with access to several million people from across the United States. Qualtrics invited a random subsample of adults with at least one child between the ages of 6 and 17 to take the survey and provided participants with standard incentives, such as cash, gift cards, redeemable points, and vouchers (Qualtrics, 2019). The survey was advertised as a study on "Parents' Reactions to Health Advice in the News Media" and did not reference body weight in order to limit self-selection bias. Parents with more than one child between the ages of 6 and 17 were asked to select one child of their choosing on which to answer survey questions. Participation was anonymous, voluntary, and participants provided informed consent. All procedures were approved by the University of Connecticut's Institutional Review Board.

A total of 1,079 people entered the survey, but 627 participants were excluded by Qualtrics due to quality issues, such as failing the manipulation check (described below), providing inconsistent selections, entering biologically impossible height and weight combinations for themselves or their child, or for exceeding the demographic quotas. After these exclusions, the final analytic sample consisted of 452 adults who met sample demographic quotas with completed survey data.

After beginning the survey and providing demographic data, participants were randomly assigned to one of three experimental conditions. In Condition 1 ($n = 150$), parents were instructed to read a mock news article with health behavior advice for parents framed within the context of helping their child maintain a healthy weight (see Stimuli Construction below). Parents assigned to Condition 2 ($n = 153$) were instructed to read a mock news article with the same health behavior advice as Condition 1, but framed within the context of helping their child do better in school and made no mention of body weight (see below). Parents assigned to Condition 3 ($n = 149$) served as a no-treatment control group. After reading the news article, participants in Conditions 1 and 2 answered a manipulation check (described below) in order to confirm that they read and understood the articles.

Stimuli construction for experimental conditions

Condition 1

As shown in Figure 1, the weight-framed message in Condition 1 (148 words in length) was adapted from a 2020 *U.S. News* online news article urging parents to employ six health

Table 1. Sample characteristics.

	Total Sample		Weight Frame Condition	School Frame Condition	Control Group
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>M</i>	<i>M</i>
Parent* Age (years)	39.77	9.69	40.00	39.44	39.86
Parent BMI	26.82	7.70	27.08	28.80	24.56
Child Age (years)	12.11	3.22	11.88	12.42	12.02
Child BMI Percentile	69.99	33.70	72.49	67.19	70.42
	Total Sample		Weight Frame Condition	School Frame Condition	Control Group
	<i>N</i>	%	<i>N</i>	<i>N</i>	<i>N</i>
<i>Parent Sex</i>					
Male	179	39.6	61	31	87
Female	272	60.2	88	122	62
<i>Parent Gender</i>					
Man	178	39.4	62	29	87
Woman	273	60.4	88	124	61
Non-binary	1	0.2	0	0	1
<i>Child Sex</i>					
Male	252	55.8	77	85	90
Female	200	44.2	73	68	59
<i>Child Gender</i>					
Boy	249	55.1	76	84	89
Girl	202	44.7	74	68	60
<i>Race/Ethnicity</i>					
White, non-Hispanic, non-Latino	146	32.3	47	21	78
Black or African American	153	33.8	54	74	25
Latino, Hispanic, or Mexican-American	153	33.8	49	58	46
<i>Latino Sub-Group**</i>					
Mexican	100	65.4	34	39	27
Dominican	7	4.6	1	4	2
Puerto Rican	23	15.0	5	11	7
Cuban	8	5.2	3	4	1
Guatemalan	3	2.0	1	1	1
Columbian	2	1.3	1	1	0
El Salvadorian	5	3.3	1	3	1
Honduran	2	1.3	1	0	1
Other	15	9.8	3	6	6
<i>Born in U.S.</i>					
Yes	409	90.5	133	142	134
No	36	8	14	10	12
<i>Household Income (U.S. dollars, annually)</i>					
Under \$25,000	65	14.4	21	28	16
\$25,000 – \$49,999	99	21.9	39	36	24
\$50,000 – \$74,499	75	16.6	21	34	20
\$75,000 – \$99,999	61	13.5	20	22	19
\$100,000 – \$124,999	47	10.4	14	14	19
\$125,000 or more	103	22.8	35	18	50
<i>Education</i>					
Less than high school or GED	6	1.3	1	2	3
High school or GED	79	17.5	30	31	18
Vocational/technical school (2 years)	17	3.8	7	7	3
Some college	77	17.0	24	32	21
College graduate	153	33.8	48	58	47
Postgraduate degree or higher	120	26.5	40	23	57
<i>Parent BMI Category (kg/m²)</i>					
Less than 18.5	50	11.1	15	10	25
18.5 to 24.9	155	34.3	52	42	61
25 to 29.9	129	28.5	47	45	37
30 or greater	117	25.9	36	55	26
<i>Child BMI Percentile Category</i>					
Less than 5th	34	7.5	9	12	13
5th to less than 85th	180	39.8	59	66	55
85th to less than 95th	67	14.8	21	27	19
95th or greater	161	35.6	56	47	58
<i>Experienced Stigma</i>					
No	237	52.4	85	83	69
Yes	215	47.6	65	70	80

*17 of the parents identified as one of the following caregivers: grandmother, sibling, aunt, cousin, and guardian; **Percentages for the Latino sub-groups represent the proportion of the participants whose racial/ethnic identity was Latino, Hispanic, or Mexican-American.

The screenshot shows a news article header with a navigation bar containing 'News', 'NEWS >>', 'Business', 'Opinion', 'Tech', 'Science', 'Health', and 'Sports'. Below the navigation bar, the breadcrumb 'HOME / HEALTH' is visible. The main headline is 'Health Tip: Help Your Child Maintain a Healthy Weight'. The date and time are 'Jan. 1, 2020, at 7:00 a.m.'. Social media sharing icons for Facebook, Twitter, YouTube, and Email are present. The article text begins with '(NEWS) -- Did you know that childhood obesity is a major problem in the United States? According to the Council for Healthy Children, preventing obesity can reduce your child's risk of cardiovascular disease, high cholesterol, high blood pressure, and prediabetes. By helping your child make changes, you can help them maintain a healthy weight. To help your child maintain a healthy weight, the Council encourages parents to:' followed by a bulleted list of six items: 'Eat meals together as a family as often as possible.', 'Provide water with meals instead of sugary drinks like soda.', 'Encourage your child to find physical activities that they enjoy.', 'Ask your child what vegetables and fruits they would like to have with their meals and snacks.', 'Help your child develop a bedtime and morning routine so they get enough sleep.', and 'Be a role model by enjoying healthy food in front of your child.'

Figure 1. Condition 1: weight-framed message.

behavior changes for the purpose of helping their child safely lose weight in order to prevent obesity and associated health risks (U.S. News, 2020). The article's reference to obesity-related health risks remains unchanged from the original article, but any reference to helping children lose weight was changed to helping them maintain a healthy weight as this is more reflective of current health messaging (Golden et al., 2016; Rodgers, 2016). In addition, in line with research suggesting that people are more receptive to child-focused health messages in which the outcomes are framed as something to be gained rather than lost (Mayer et al., 2022; Zahid & Reicks, 2018), the phrase "obesity can increase your child's risk" was replaced with "preventing obesity can reduce your child's risk." The adapted version of the article for this study cited a fictitious "Council for Healthy Children" rather than Children's Hospital Los Angeles (the original source described in the article), and while the content of the health advice to parents remains the same as the original article, the advice was rephrased to be more specific. For example, the advice from the original news article to "Make sure your child is getting

enough sleep" was changed to "Help your child develop a bedtime and morning routine so they get enough sleep."

Condition 2

Condition 2 (166 words) was written in the same format as Condition 1 and provides the same six health behavior changes, but the health advice is framed within the context of promoting their child's school achievement (see Figure 2). We selected school achievement as the non-weight comparison topic because evidence suggests it can be improved by engaging in the same six weight-related health behaviors (e.g., good sleep habits and healthy lifestyle behaviors) and it is a topic that most parents believe is important. In this condition, the headline and the first part of the message was altered by replacing the weight-related content with content about children's success in school. Just as the weight-focused message listed four benefits of preventing obesity, the health-focused message listed four school-related benefits of healthy habits and cited the same fictitious "Council for Healthy Children." Both conditions were formatted to resemble the original U.S. News article.

The screenshot shows a news article header with a navigation bar containing 'News', 'NEWS >>', 'Business', 'Opinion', 'Tech', 'Science', 'Health', and 'Sports'. Below the navigation bar, the breadcrumb 'HOME / HEALTH' is visible. The main headline is 'Health Tip: Help Your Child Do Better in School'. The date and time are 'Jan. 1, 2020, at 7:00 a.m.'. Social media sharing icons for Facebook, Twitter, YouTube, and Email are present. The article text begins with '(NEWS) -- Did you know that poor school achievement is a major problem for kids in the United States? According to the Council for Healthy Children, children who practice healthy habits find it easier to stay focused during class, have more energy after school, experience fewer behavioral issues, and have fewer absences from school due to illness. By helping your child make changes, you can help them do better in school. To help your child do better in school, the Council encourages parents to:' followed by a bulleted list of six items: 'Eat meals together as a family as often as possible.', 'Provide water with meals instead of sugary drinks like soda.', 'Encourage your child to find physical activities that they enjoy.', 'Ask your child what vegetables and fruits they would like to have with their meals and snacks.', 'Help your child develop a bedtime and morning routine so they get enough sleep.', and 'Be a role model by enjoying healthy food in front of your child.'

Figure 2. Condition 2: school-framed message.

Measures

Participants completed self-report measures to assess demographic characteristics and anthropometrics for both themselves and their child. Following the experimental manipulation, parents in Conditions 1 and 2 answered a manipulation check question to ensure their understanding of the news article. Participants completed measures to assess health behavior intention, intention to engage in weight-focused conversations, affiliate stigma, weight bias internalization, and experienced weight stigma.

Demographics and anthropometrics

Participants provided their age, sex, gender identity, race, ethnicity, education, household income, and their child's sex and age in years and months. Participants reported height and weight for themselves and their child which we used to calculate parent BMI and child BMI percentiles using the CDC's Children's BMI Group Calculator, which accounts for age and sex (Centers for Disease Control and Prevention, 2018).

Manipulation check

After reading their assigned article, participants in Conditions 1 and 2 were provided with four topics and asked to select the topic that their article was about. Participants who answered the question incorrectly ($n = 315$) were excluded from analysis.

Health behavior intentions

Parental intentions to engage in the six health behaviors described in the messages presented in Conditions 1 and 2 were assessed by asking parents their likelihood of engaging in each of the six health behavior recommendations in the next 12 months. For example, "In the next 12 months, how likely is it that you will eat meals together as a family as often as possible?" Response options ranged from 1 (*extremely unlikely*) to 7 (*extremely likely*) and the scale was scored by calculating the mean response. These questions were modeled from measures used in a study of parental health behavior change intentions (Jordan et al., 2015), and reflect conventional measures of behavior intention (Fishbein & Ajzen, 2010). The Cronbach's alpha for this measure in the present sample was .87.

Intentions to engage in weight-focused conversations

Parental intentions to engage in weight-focused conversations with their child were assessed by asking participants to complete a four-item scale of weight-focused conversations that was adapted to assess their future intentions (Berge et al., 2015; Jordan et al., 2015; Lytle et al., 1999). For example, "In the next 12 months, how likely is it that you will have a conversation with your child about his/her weight or size?" The other three questions assessed parental intentions to mention to their child that they (a) weigh too much, (b) should eat differently, or (c) exercise in order to lose weight or keep from gaining weight. Response options ranged from 1 (*extremely unlikely*) to 7 (*extremely likely*) and the scale was scored by calculating the mean response. The Cronbach's alpha for this measure in the present sample was .91.

Affiliate stigma

Affiliate stigma was measured using the Parents' Self-Stigma Scale (Eaton et al., 2019), which has previously been modified to assess affiliate stigma among parents within the context of child body weight (Pudney et al., 2024). This 11-item scale assesses parental thoughts of self-blame, self-shame, and "bad-parent" self-beliefs about their child's body size, such as "I feel guilty about my child's body size." Response options ranged from 1 (*never*) to 5 (*almost all the time*) and responses to the 11 items were averaged. The Cronbach's alpha for this measure in the present sample was .78.

Weight bias internalization

WBI was measured using the 10-item Modified Weight Bias Internalization scale (WBIS-M; Durso & Latner, 2008; M. S. Lee & Dedrick, 2016; Pearl & Puhl, 2014). An example item is: "My weight is a major way that I judge my value as a person." Response options ranged from 1 (*strongly disagree*) to 7 (*strongly agree*) and responses to the 10 questions were averaged. The Cronbach's alpha for this measure in the present sample was .93.

Experienced weight stigma

Experienced weight stigma was measured with three (*yes/no*) questions asking parents if they had ever been teased, treated unfairly, or discriminated against because of their weight (Puhl et al., 2011). Participants were dichotomously coded as having experienced weight stigma if they answered *yes* to any of the three questions.

Statistical analysis

Data were analyzed in SPSS (version 26). We used Pearson's chi-square to compare sociodemographic variables across the experimental groups and one-way ANOVA with a Bonferroni correction for post hoc mean comparisons among the experimental groups. Using linear regression, we tested the relationship between experimental condition and the outcome variables (weight-focused conversation intentions and health behavior intentions). The models were adjusted for parental BMI, child BMI percentile, parent and child gender, parent and child age, race, household income, and education. We also adjusted the models for experienced weight stigma in order to isolate the unique contributions of affiliate stigma and weight bias internalization. For each model, we used a hierarchical model building process in which the adjustment variables described above were entered into the first Step and the message condition entered into the second Step. To test for moderation, we entered affiliate stigma and WBI into the third Step of two separate models with interactions between each self-stigma variable and the message frame in Step 4. We followed the same process to explore potential moderation effects of race/ethnicity, household income, and parental gender. Interaction effects were plotted using Dawson's (2020) excel template to aid in interpretation.

Results

Descriptive analyses

The sociodemographic characteristics of participants randomly assigned to each of the three experimental conditions

are summarized in Table 1. Participants across the three conditions significantly differed in terms of the distribution of parental sex and gender ($p < .001$), race ($p < .001$), household income ($p = .002$), education ($p = .005$), and parental BMI category ($p < .001$). In addition, participants in the weight frame and the school frame conditions had significantly higher BMIs than those in the control group ($p = .012$ and $p < .001$, respectively). While these differences may seem surprising, the participants were assigned at random to each of the three conditions so any significant differences in characteristics between the groups prior to participating in the experiment can be attributed to chance (de Boer et al., 2015). In terms of the primary measures, the mean scores of WBI, affiliate stigma, health behavior intention, and weight-focused conversation intention are reported in Table 2. The participants in the school-framed condition had lower scores of WBI and affiliate stigma than those in the control group ($p = .019$ and $p = .003$, respectively). Of note, there were no significant differences in the mean scores of health behavior intentions among the three

groups, and all three groups indicated a high level of agreement with intention to adopt the health advice. Table 3 reports correlations between the key outcome variables.

Regression models

As shown in Table 4, the final model predicting parental intentions to engage in weight-focused conversations with their child explained 26% of the variance in parental intentions to engage in weight-focused conversations ($F(13, 421) = 11.14, p < .001$). Participants in the weight-frame condition were significantly more likely to report intentions to engage in weight-focused conversations with their child than participants in the control group, although the effect size was small ($\beta = .15, p = .003$). There was no significant difference in these intentions between parents in the school-frame condition and the control group. When examining the overall main effects in the models predicting parental intentions to engage in the recommended behavior

Table 2. Primary measures across experimental conditions.

Key Variable	Experimental Condition	N	M	SD
Weight Bias Internalization	Weight Frame Condition	150	3.24	1.50
	School Frame Condition	153	2.92	1.51
	Control Group	149	3.43	1.78
	Total Sample	452	3.20	1.61
Affiliate Stigma	Weight Frame Condition	150	2.30	0.68
	School Frame Condition	153	2.12	0.65
	Control Group	149	2.40	0.78
	Total Sample	452	2.27	0.71
Health Behavior Intentions	Weight Frame Condition	150	6.12	0.89
	School Frame Condition	152	5.98	1.06
	Control Group	149	6.03	0.98
	Total Sample	451	6.04	0.98
Weight-Focused Conversation Intentions	Weight Frame Condition	150	4.39	1.81
	School Frame Condition	152	3.75	1.97
	Control Group	149	4.30	1.89
	Total Sample	451	4.14	1.91

Table 3. Correlations between key outcome variables.

	1	2	3	4
1. Weight Bias Internalization	1			
2. Affiliate Stigma	.560**	1		
3. Health Behavior Intentions	-.104*	-.118*	1	
4. Weight-Focused Conversation Intentions	.323**	.520**	.151**	1

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

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

Table 4. Hierarchical regression analysis for weight-focused conversation intentions.

Variable	Final Model				
	B	SE(B)	β	t	p
Parent BMI	-0.01	0.01	-0.04	-0.79	.430
Child BMI%ile	0.01	0.00	0.13	2.79	.006
Mothers (ref. fathers)	-0.74	0.22	-0.19	-3.32	<.001
Girl (ref. boy)	-0.04	0.17	-0.01	-0.22	.827
Parent Age	0.00	0.01	0.02	0.40	.693
Child Age	0.02	0.03	0.03	0.53	.593
Black (ref. White)	-1.01	0.29	-0.25	-3.51	<.001
Hispanic (ref. White)	-0.90	0.26	-0.22	-3.52	<.001
Income	0.07	0.06	0.07	1.09	.275
Education	0.07	0.07	0.05	0.96	.340
Experienced Stigma	0.58	0.17	0.15	3.51	<.001
Weight Frame (ref. control)	0.60	0.20	0.15	2.95	.003
School Frame (ref. control)	0.34	0.21	0.08	1.57	.118

changes, message frame was not significant ($F(13, 421) = 1.72, p = .055$).

Interactions

Although the message frame did not predict parents' intentions to engage in the recommended behavior changes when examining the model's main effects, message frame did predict their behavior intentions when considering the influence of affiliate stigma (see Table 5). Specifically, participants who received the weight-framed message reported greater intentions to make the behavior changes suggested in the news article relative to the control group only when affiliate stigma was low; for parents with high levels of affiliate stigma, the difference in behavior intentions between those in the weight-framed message group and the control group was negligible ($\beta = -.14, p = .027$). Similarly, receiving the school-framed message was more strongly associated with increased intentions to make the behavior changes listed in the news article relative to the control group only when affiliate stigma was low; those with high levels of affiliate stigma reported lower intentions to make the health behavior changes in the school-framed group than those in the control group ($\beta = -.20, p = .002$).

Weight bias internalization (WBI) also moderated the relationship between message frame and parental intentions to

make the recommended behavior changes in a pattern similar to that of affiliate stigma (see Table 6). Parents who received the weight-framed message had greater intentions to make the health behavior changes relative to the control group when WBI was low, while the difference between the weight-frame group and the control group was negligible among participants with high levels of WBI ($\beta = -.17, p = .007$). Moreover, parents who received the school-framed message had greater intentions to make the behavior changes relative to the control group when WBI was low. In contrast, those with high levels of WBI had fewer intentions to make the behaviors changes in the school-framed message condition than those in the control group ($\beta = -.18, p = .006$). However, neither affiliate stigma or WBI moderated the relationships between message frame and parental intentions to engage in weight-focused conversations. In addition, race/ethnicity, household income, and parental gender did not moderate the relationships between message frame and any of the outcome variables.

Discussion

This study is the first to test the influence of health message framing on parental intentions to engage in weight talk with their children. Findings indicate that parents were more likely

Table 5. Health behavior intention: condition by affiliate stigma interaction.

Variable	Final Model				
	<i>B</i>	<i>SE(B)</i>	β	<i>t</i>	<i>p</i>
Parent BMI	0.00	0.01	0.01	0.20	.838
Child BMI%ile	0.00	0.00	-0.08	-1.52	.128
Mothers (ref. fathers)	0.26	0.13	0.13	2.00	.046
Girl (ref. boy)	-0.05	0.10	-0.02	-0.49	.622
Parent Age	0.00	0.01	0.03	0.60	.546
Child Age	-0.04	0.02	-0.12	-2.30	.022
Black (ref. White)	-0.12	0.17	-0.06	-0.71	.480
Hispanic (ref. White)	-0.12	0.15	-0.06	-0.82	.415
Income	0.07	0.04	0.13	1.98	.048
Education	-0.01	0.04	-0.02	-0.33	.742
Experienced Stigma	-0.07	0.10	-0.03	-0.68	.497
Weight Frame	0.15	0.12	0.07	1.29	.198
School Frame	-0.06	0.12	-0.03	-0.45	.652
Affiliate Stigma	0.08	0.12	0.06	0.67	.507
Affiliate Stigma X Weight Frame	-0.35	0.16	-0.14	-2.22	.027
Affiliate Stigma X School Frame	-0.50	0.16	-0.20	-3.12	.002

Table 6. Health behavior intention: condition by WBI interaction.

Variable	Final Model				
	<i>B</i>	<i>SE(B)</i>	β	<i>t</i>	<i>p</i>
Parent BMI	0.01	0.01	0.06	1.01	.312
Child BMI%ile	0.00	0.00	-0.09	-1.76	.079
Mothers (ref. fathers)	0.34	0.13	0.17	2.62	.009
Girl (ref. boy)	-0.07	0.10	-0.04	-0.77	.442
Parent Age	0.00	0.01	0.02	0.45	.652
Child Age	-0.04	0.02	-0.12	-2.21	.028
Black (ref. White)	-0.16	0.17	-0.08	-0.93	.352
Hispanic (ref. White)	-0.15	0.15	-0.08	-1.04	.300
Income	0.08	0.04	0.14	2.07	.040
Education	-0.02	0.04	-0.04	-0.58	.562
Experienced Stigma	-0.06	0.10	-0.03	-0.59	.553
Weight Frame	0.14	0.12	0.07	1.16	.249
School Frame	-0.06	0.12	-0.03	-0.50	.619
Weight Bias Internalization (WBI)	0.05	0.05	0.09	1.14	.256
WBI X Weight Frame	-0.19	0.07	-0.17	-2.72	.007
WBI X School Frame	-0.20	0.07	-0.18	-2.77	.006

to report intentions to engage in weight-focused conversations with their child after being exposed to health advice that was framed within the context of controlling their child's body weight compared to parents who were exposed to health advice that did not mention weight. Study findings also suggest that affiliate stigma and WBI moderated the influence of the different message frames on parental intentions to make the recommended behavior changes listed in the health message.

Parents exposed to the weight-frame condition reported greater intentions to engage in weight-focused conversations than participants in the control group, while parents exposed to the school-frame condition were at no increased likelihood of engaging in weight-focused conversations. This finding has important implications regarding health communication because it indicates that messages that feature body weight may prompt parents to engage in weight talk, even when the message states nothing about talking to children about weight. Both message frames encouraged parents to engage in the same health behaviors, but the message that featured body weight had the consequence of promoting weight talk. In light of evidence that parental weight talk may have negative implications for children's emotional wellbeing, body image, and eating behaviors (Yourell et al., 2021), it may be counterproductive to emphasize childhood obesity in health messages targeting parenting practices. Future research should continue to examine the consequences of weight-focused health messaging and consider the potential benefits of health messages that avoid referencing body weight.

The message frame predicted parental intentions to engage in the health behaviors recommended in the experimental conditions when considering parents' level of affiliate stigma and WBI. Parents who read either the weight-framed message or the school-framed message expressed similar or somewhat less intention to engage in the recommended health behaviors than those in the control group when either affiliate stigma or WBI was high, while they had greater intentions to adopt the healthy behaviors, relative to the control group, when affiliate stigma or WBI was low. These findings indicate that parents may react to health messages differently based on their feelings of self-stigma. Parents who have internalized negative beliefs about their own body weight, or their role and responsibility regarding their child's body weight, may feel less inclined to adopt health behaviors when encouraged to do so, regardless of whether the encouragement references body weight or not. These findings align with prior research indicating that self-stigma and self-shame are not effective motivators for health behaviors, and that those with higher levels of internalized weight bias may instead be less likely to engage in health-promoting behaviors (and more likely to engage in unhealthy behaviors) than those with lower levels of internalization (Pearl & Puhl, 2018). However, our study is the first to show that weight-based self-stigma among *parents* may be a barrier to implementing healthy behaviors on behalf of their *children*. Of note, regardless of how the advice was framed, the health advice in our messages (e.g., eat meals as a family, drink water, serve vegetables, etc.) is culturally tied to "healthy weight" discourse, and may have inadvertently perpetuated notions that health behaviors, and ultimately weight, is within an individual's control (Rodgers, 2016). Parents who already feel

blamed and shamed for their child's weight may be sensitive to messages that imply that these health behaviors are easy to do and it is possible that the health messages made them feel as though they are not doing enough for their child. Further, parents with negative self-beliefs about their own weight may have also been triggered by the health advice (e.g., one of the health behaviors emphasized being a healthy role model), perhaps reminding them of their own struggles and perpetuating a stressful cycle leading to the avoidance of healthful behaviors (Tomiyama, 2014, 2019). Future research should examine how parents interpret such health advice, and explore whether presenting parents with health advice that implies that health behaviors are straightforward and within one's control may inadvertently demotivate someone with weight-based self-stigma, regardless of whether the advice is framed within the context of controlling weight.

Of note, the self-stigma variables did not moderate the relationships between message frame and parental intentions to engage in weight-focused conversations. This suggests that regardless of parents' level of self-stigma (for their own weight or their child's weight), exposure to weight-framed messages may prompt parents to engage in weight-focused conversations with their child. Societal pressures to be a certain weight, and the parent blame that accompanies undesirable outcomes in children, may be so ingrained in parents that any implication that they should do something about their child's weight may compel them to intervene even if they have not internalized these beliefs.

Health professionals working with families should be mindful not to assume that parents are immune to the influence of weight-focused messaging, and emphasize health behaviors that parents can promote at home without focusing on their child's body weight. More broadly, health advocates should carefully consider the appropriateness and language of weight-focused health messages targeting parents.

Limitations and strengths

It is important to acknowledge the limitations of this study. Due to the short timeframe in which the experiment occurred, it was not feasible to collect pretest data, so comparisons could only be made to the control group. Therefore, it is unknown if the three groups varied on their baseline scores of intentions to engage in weight talk or the recommended health behaviors. Moreover, the outcome measures assessed behavioral intentions, not actual behaviors, so although some parents indicated that they intended to engage in weight talk or to implement the health advice, it is unknown whether they will. Additionally, the participants across all three conditions rated their intentions to engage in the recommended health behaviors very highly (an average of about six out of seven), indicating a ceiling effect. The responses to the health behavior intentions measure may have been influenced by social desirability bias, or the health advice was so reasonable that many parents felt that they could endorse it. To address social desirability bias, future research could use indirect questioning approaches and include a social desirability questionnaire to assess this response pattern in participants and potentially exclude

those with high scores. Another potential limitation of this study is that participants were presented with the weight stigma measures after participating in the experiment. This order was intended to avoid priming parents to think about weight stigma before participating in the experiment, but it is possible that the experiment itself may have influenced how parents responded to the stigma measures. Moreover, the study's intervention of having participants read a short news article was minimally invasive and may not have been substantial enough to elicit actual or sustained behavioral changes among the participants. Therefore, future research should examine the influence of more widespread weight-focused health messages on parental engagement in weight communication and health behavior changes compared to non-weight framed messages. Finally, data for this study were collected in summer 2020, so the COVID-19 pandemic may have influenced parental perspectives on health issues in unanticipated ways during this time period.

This study also has several key strengths. This is the first study to experimentally test the effect of health-related message framing on parental weight talk, and the results have important practical implications for health communication targeting parents. In addition, this study provides novel insights about the influence of parental weight-based self-stigma on their reactions to parent-targeted health messages, which has not been examined in previous research. Finally, this study employed a large and diverse sample, making the findings more generalizable to the broader population of parents in the U.S.

Conclusions

Our study found that message framing did not affect parental intentions to engage in health behaviors recommended in the experimental conditions, but did show that weight-focused health messages targeting parents may play a role in parental weight talk with their children. Parents are more likely to report intentions to engage in weight-focused conversations with their child after being exposed to health advice framed within the context of controlling their child's body weight than when the same health advice does not mention weight, and this finding remained consistent regardless of parental self-stigma. Further, our findings suggest that parents who have internalized negative beliefs about their own body weight, or their role regarding their child's body weight, may feel disinclined to adopt health behaviors when encouraged to do so, regardless if the encouragement references body weight or not. Taken together, these findings indicate the importance of carefully considering the emphasis of child body weight in health communication targeting parents, and suggest that childhood obesity does not need to be mentioned in health messages to increase parental intentions to promote weight-related health behaviors for their child.

Our findings indicate directions for future research that can advance this area of study. It would be useful to have longitudinal studies comparing weight-focused health messages to those that do not feature weight on parental weight talk and child-focused health behaviors in order to examine actual parenting practices, rather than intended behaviors. Future

research should also qualitatively investigate how parents interpret and respond to weight-focused messages in order to identify the underlying mechanisms leading to increased weight talk, as well as identify other potential consequences.

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References

- Barry, C. L., Brescoll, V. L., & Gollust, S. E. (2013). Framing childhood obesity: How individualizing the problem affects public support for prevention. *Political Psychology*, 34(3), 327–349. <https://doi.org/10.1111/pops.12018>
- Barry, C. L., Gollust, S. E., McGinty, E. E., & Niederdeppe, J. (2014). Effects of messages from a media campaign to increase public awareness of childhood obesity. *Obesity*, 22(2), 466–473. <https://doi.org/10.1002/oby.20570>
- Berge, J. M., Hanson-Bradley, C., Tate, A., & Neumark-Sztainer, D. (2016). Do parents or siblings engage in more negative weight-based talk with children and what does it sound like? A mixed-methods study. *Body Image*, 18, 27–33. <https://doi.org/10.1016/j.bodyim.2016.04.008>
- Berge, J. M., MacLehose, R. F., Loth, K. A., Eisenberg, M. E., Fulkerson, J. A., & Neumark-Sztainer, D. (2015). Parent-adolescent conversations about eating, physical activity and weight: Prevalence across sociodemographic characteristics and associations with adolescent weight and weight-related behaviors. *Journal of Behavioral Medicine*, 38(1), 122–135. <https://doi.org/10.1007/s10865-014-9584-3>
- Busam, B., & Solomon-Moore, E. (2023). Public understanding of childhood obesity: Qualitative analysis of news articles and comments on facebook. *Health Communication*, 38(5), 967–980. <https://doi.org/10.1080/10410236.2021.1985859>
- Centers for Disease Control and Prevention. (2018). *Children's BMI tool for schools*. <https://www.cdc.gov/healthyweight/bmi/calculator.html>
- Cho, H., & Salmon, C. T. (2007). Unintended effects of health communication campaigns. *Journal of Communication*, 57(2), 293–317. <https://doi.org/10.1111/j.1460-2466.2007.00344.x>
- Chong, D., & Druckman, J. N. (2007). Framing theory. *Annual Review of Political Science*, 10(1), 103–126. <https://doi.org/10.1146/annurev.polisci.10.072805.103054>
- Corrigan, P. W., & Miller, F. E. (2004). Shame, blame, and contamination: A review of the impact of mental illness stigma on family members. *Journal of Mental Health*, 13(6), 537–548. <https://doi.org/10.1080/09638230400017004>
- Davis, J. L., Goar, C., Manago, B., & Reidinger, B. (2018). Distribution and disavowal: Managing the parental stigma of children's weight and weight loss. *Social Science & Medicine*, 219, 61–69. <https://doi.org/10.1016/j.socscimed.2018.10.015>
- Davis, J. L., & Manago, B. (2016). Motherhood and associative moral stigma: The moral double bind. *Stigma and Health*, 1(2), 72–86. <https://doi.org/10.1037/sah0000019>
- Dawson, J. F. (2020). *Interpreting interaction effects*. <http://www.jeremydawson.co.uk/slopes.htm>
- de Boer, M. R., Waterlander, W. E., Kuijper, L. D. J., Steenhuis, I. H. M., & Twisk, J. W. R. (2015). Testing for baseline differences in randomized

- controlled trials: An unhealthy research behavior that is hard to eradicate. *The International Journal of Behavioral Nutrition and Physical Activity*, 12(1). <https://doi.org/10.1186/s12966-015-0162-z>
- Dooley, J. A., Deshpande, S., & Adair, C. E. (2010). Comparing adolescent-focused obesity prevention and reduction messages. *Journal of Business Research*, 63(2), 154–160. <https://doi.org/10.1016/j.jbusres.2009.02.011>
- Durso, L. E., & Latner, J. D. (2008). Understanding self-directed stigma: Development of the weight bias internalization scale. *Obesity*, 16(S2). <https://doi.org/10.1038/oby.2008.448>
- Eaton, K., Ohan, J. L., Stritzke, W. G. K., & Corrigan, P. W. (2016). Failing to meet the good parent ideal: Self-stigma in parents of children with mental health disorders. *Journal of Child & Family Studies*, 25(10), 3109–3123. <https://doi.org/10.1007/s10826-016-0459-9>
- Eaton, K., Ohan, J. L., Stritzke, W. G. K., & Corrigan, P. W. (2019). The parents' self-stigma scale: Development, factor analysis, reliability, and validity. *Child Psychiatry and Human Development*, 50(1), 83–94. <https://doi.org/10.1007/s10578-018-0822-8>
- Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication*, 43(4), 51–58. <https://doi.org/10.1111/j.1460-2466.1993.tb01304.x>
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: A reasoned action approach*. Taylor & Francis Group.
- Francis, A. (2012). Stigma in an era of medicalisation and anxious parenting: How proximity and culpability shape middle-class parents' experiences of disgrace. *Sociology of Health & Illness*, 34(6), 927–942. <https://doi.org/10.1111/j.1467-9566.2011.01445.x>
- Friedman, M. (2015). Mother blame, fat shame, and moral panic: “Obesity” and child welfare. *Fat Studies*, 4(1), 14–27. <https://doi.org/10.1080/21604851.2014.927209>
- Gillison, F. B., Lorenc, A. B., Sleddens, E. F. C., Williams, S. L., & Atkinson, L. (2016). Can it be harmful for parents to talk to their child about their weight? A meta-analysis. *Preventive Medicine*, 93, 135–146. <https://doi.org/10.1016/j.ypmed.2016.10.010>
- Golden, N. H., Schneider, M., Wood, C., Daniels, S., Abrams, S., Corkins, M., de Ferranti, S., Magge, S. N., Schwarzenberg, S., Braverman, P. K., Adelman, W., Alderman, E. M., Breuner, C. C., Levine, D. A., Marcell, A. V., O'Brien, R., Pont, S., Bolling, C., Cook, S., ... Schwartz, R. (2016). Preventing obesity and eating disorders in adolescents. *Pediatrics*, 138(3), e20161649–e20161649. <https://doi.org/10.1542/peds.2016-1649>
- Gollust, S. E., Niederdeppe, J., & Barry, C. L. (2013). Framing the consequences of childhood obesity to increase public support for obesity prevention policy. *American Journal of Public Health*, 103(11), 96–102. <https://doi.org/10.2105/AJPH.2013.301271>
- Gorlick, J. C., Gorman, C. V., Weeks, H. M., Pearlman, A. T., Schvey, N. A., & Bauer, K. W. (2021). “I feel like less of a mom”: Experiences of weight stigma by association among mothers of children with overweight and obesity. *Childhood Obesity*, 17(1), 68–75. <https://doi.org/10.1089/chi.2020.0199>
- Guenther, L., Gaertner, M., & Zeitz, J. (2021). Framing as a concept for health communication: A systematic review. *Health Communication*, 36(7), 891–899. <https://doi.org/10.1080/10410236.2020.1723048>
- Hamlington, B., Ivey, L. E., Brenna, E., Biesecker, L. G., Biesecker, B. B., Sapp, J. C., & Hejtmancik, J. F. (2015). Characterization of courtesy stigma perceived by parents of overweight children with Bardet-Biedl syndrome. *PLOS ONE*, 10(10), 1–9. <https://doi.org/10.1371/journal.pone.0140705>
- Hayward, L. E., & Vartanian, L. R. (2019). Potential unintended consequences of graphic warning labels on sugary drinks: Do they promote obesity stigma? *Obesity Science & Practice*, 5(4), 333–341. <https://doi.org/10.1002/osp4.353>
- Jordan, A., Bleakley, A., Hennessy, M., Vaala, S., Glanz, K., & Strasser, A. A. (2015). Sugar-sweetened beverage-related public service advertisements and their influence on parents. *The American Behavioral Scientist*, 59(14), 1847–1865. <https://doi.org/10.1177/0002764215596556>
- Lee, K. M., Arriola-Sanchez, L., Lumeng, J. C., Gearhardt, A., & Tomiyama, A. J. (2022). Weight stigma by association among parents of children with obesity: A randomized trial. *Academic Pediatrics*, 22(5), 754–760. <https://doi.org/10.1016/j.acap.2021.09.019>
- Lee, M. S., & Dedrick, R. F. (2016). Weight bias internalization scale: Psychometric properties using alternative weight status classification approaches. *Body Image*, 17, 25–29. <https://doi.org/10.1016/j.bodyim.2016.01.008>
- Loth, K. A., Mohamed, N., Trofholz, A., Tate, A., & Berge, J. M. (2021). Associations between parental perception of- and concern about- child weight and use of specific food-related parenting practices. *Appetite*, 160(23), 105068. <https://doi.org/10.1016/j.appet.2020.105068>
- Lydecker, J. A., Lou, R., Rossa, E., Simpson, L., & Ozbardakci, E. (2024). How parents talk about weight: Qualitative content analysis using a randomized experiment study design. *Stigma and Health*. Advance online publication. <https://doi.org/10.1037/sah0000508>
- Lytle, L. A., Birnbaum, A., Boutelle, K., & Murray, D. M. (1999). Wellness and risk communication from parent to teen: The “Parental Energy Index”. *Health Education*, 99(5), 207–214. <https://doi.org/10.1108/09654289910294732>
- Mak, W. W. S., & Cheung, R. Y. M. (2008). Affiliate stigma among caregivers of people with intellectual disability or mental illness. *Journal of Applied Research in Intellectual Disabilities*, 21(6), 532–545. <https://doi.org/10.1111/j.1468-3148.2008.00426.x>
- Mayer, J. M., Peev, P., & Mayer, A. (2022). Framing and word choice in childhood obesity reduction-focused advertising. *Journal of Managerial Issues*, 34(3), 264–284. <https://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=158989834&site=ehost-live>
- McGlynn, J., & McGlone, M. S. (2019). Desire or disease? Framing obesity to influence attributions of responsibility and policy support. *Health Communication*, 34(7), 689–701. <https://doi.org/10.1080/10410236.2018.1431025>
- Moore, L. C., Harris, C. V., & Bradlyn, A. S. (2012). Exploring the relationship between parental concern and the management of childhood obesity. *Maternal and Child Health Journal*, 16(4), 902–908. <https://doi.org/10.1007/s10995-011-0813-x>
- Neumark-Sztainer, D., Wall, M., Story, M., & Van Den Berg, P. (2008). Accurate parental classification of overweight adolescents' weight status: Does it matter? *Pediatrics*, 121(6), e1495–e1502. <https://doi.org/10.1542/peds.2007-2642>
- Pearl, R. L., & Puhl, R. M. (2014). Measuring internalized weight attitudes across body weight categories: Validation of the modified weight bias internalization scale. *Body Image*, 11(1), 89–92. <https://doi.org/10.1016/j.bodyim.2013.09.005>
- Pearl, R. L., & Puhl, R. M. (2018). Weight bias internalization and health: A systematic review. *Obesity Reviews*, 19(8), 1141–1163. <https://doi.org/10.1111/obr.12701>
- Petersen, A., Tanner, C., & Fraser, S. (2014). Practicing food anxiety: Making Australian mothers responsible for their families' dietary decisions. *Food & Foodways*, 22(3), 175–197. <https://doi.org/10.1080/07409710.2014.935671>
- Pudney, E. V., Himmelstein, M. S., & Puhl, R. M. (2019). The role of weight stigma in parental weight talk. *Pediatric Obesity*, 14(10), e12534. <https://doi.org/10.1111/ijpo.12534>
- Pudney, E. V., Puhl, R. M., Halgunseth, L. C., & Schwartz, M. B. (2023). Parental reasons for engaging in or avoiding weight talk with children. *Childhood Obesity*, 19(8), 575–580. <https://doi.org/10.1089/chi.2022.0173>
- Pudney, E. V., Puhl, R. M., Halgunseth, L. C., & Schwartz, M. B. (2024). An examination of parental weight stigma and weight talk among socioeconomically and racially/ethnically diverse parents. *Family & Community Health*, 47(1), 1–15. <https://doi.org/10.1097/FCH.0000000000000384>
- Puhl, R. M., Heuer, C. A., & Sarda, V. (2011). Framing messages about weight discrimination: Impact on public support for legislation. *International Journal of Obesity*, 35(6), 863–872. <https://doi.org/10.1038/ijo.2010.194>
- Puhl, R. M., Lessard, L. M., Foster, G. D., & Cardel, M. I. (2022). A comprehensive examination of the nature, frequency, and context of parental weight communication: Perspectives of parents and adolescents. *Nutrients*, 14(8), 1562. <https://doi.org/10.3390/nu14081562>

- Puhl, R. M., Peterson, J. L., & Luedicke, J. (2013). Fighting obesity or obese persons? Public perceptions of obesity-related health messages. *International Journal of Obesity*, 37(6), 774–782. <https://doi.org/10.1038/ijo.2012.156>
- Qualtrics. (2019). *28 questions to help buyers of online samples*. <https://www.iup.edu/arl/files/qualtrics/esomar.pdf>
- Rathbone, J. A., Cruwys, T., & Jetten, J. (2022). Non-stigmatising alternatives to anti-obesity public health messages: Consequences for health behaviour and well-being. *Journal of Health Psychology*, 27(7), 1601–1614. <https://doi.org/10.1177/1359105321999705>
- Rodgers, R. F. (2016). The role of the “healthy weight” discourse in body image and eating concerns: An extension of sociocultural theory. *Eating Behaviors*, 22, 194–198. <https://doi.org/10.1016/j.eatbeh.2016.06.004>
- Saguy, A. C. (2013). *What’s wrong with fat?*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199857081.001.0001>
- Saguy, A. C., & Gruys, K. (2010). Morality and health: News media constructions of overweight and eating disorders. *Social Problems*, 57(2), 231–250. <https://doi.org/10.1525/sp.2010.57.2.231>
- Scheufele, D. A. (1999). Framing as a theory of media effects. *Journal of Communication*, 49(1), 103–122. <https://doi.org/10.1111/j.1460-2466.1999.tb02784.x>
- Sun, Y., Krakow, M., John, K. K., Liu, M., & Weaver, J. (2016). Framing obesity: How news frames shape attributions and behavioral responses. *Journal of Health Communication*, 21(2), 139–147. <https://doi.org/10.1080/10810730.2015.1039676>
- Tanner, C., Maher, J., & Fraser, S. (2013). ‘I don’t want her to be overweight like I was as a girl’: Mother/child bodily connections in nutritional carework. *Australian Feminist Studies*, 28(76), 177–194. <https://doi.org/10.1080/08164649.2013.789583>
- Temmann, L. J., Wiedicke, A., Schaller, S., Scherr, S., & Reifegerste, D. (2021). A systematic review of responsibility frames and their effects in the health context. *Journal of Health Communication*, 26(12), 828–838. <https://doi.org/10.1080/10810730.2021.2020381>
- Thomas, S. L., Olds, T., Pettigrew, S., Yeatman, H., Hyde, J., & Dragovic, C. (2014). Parent and child interactions with two contrasting anti-obesity advertising campaigns: A qualitative analysis. *BMC Public Health*, 14(1), 151. <https://doi.org/10.1186/1471-2458-14-151>
- Tomiyama, A. J. (2014). Weight stigma is stressful. A review of evidence for the Cyclic Obesity/Weight-Based Stigma model. *Appetite*, 82, 8–15. <https://doi.org/10.1016/j.appet.2014.06.108>
- Tomiyama, A. J. (2019). Stress and obesity. *Annual Review of Psychology*, 70(1), 703–718. <https://doi.org/10.1146/annurev-psych-010418>
- U.S. News. (2020). *Health tip: Help your child safely lose weight*. <https://www.usnews.com/news/health-news/articles/2020-01-01/health-tip-help-your-child-safely-lose-weight>
- Winkler, M. R., Berge, J. M., Larson, N., Loth, K. A., Wall, M., & Neumark-Sztainer, D. (2018). Parent-Child health- and weight-focused conversations: Who is saying what and to whom? *Appetite*, 126, 114–120. <https://doi.org/10.1016/j.appet.2018.03.023>
- Wright, J., Maher, J., & Tanner, C. (2015). Social class, anxieties and mothers’ foodwork. *Sociology of Health & Illness*, 37(3), 422–436. <https://doi.org/10.1111/1467-9566.12202>
- Yourell, J. L., Doty, J. L., Beauplan, Y., & Cardel, M. I. (2021). Weight-talk between parents and adolescents: A systematic review of relationships with health-related and psychosocial outcomes. *Adolescent Research Review*, 6(4), 409–424. <https://doi.org/10.1007/s40894-021-00149-2>
- Zahid, A., & Reicks, M. (2018). Gain-Framed messages were related to higher motivation scores for sugar-sweetened beverage parenting practices than loss-framed messages. *Nutrients*, 10(5), 625. <https://doi.org/10.3390/nu10050625>
- Zenlea, I. S., Thompson, B., Fierheller, D., Green, J., Ulloa, C., Wills, A., & Mansfield, E. (2017). Walking in the shoes of caregivers of children with obesity: Supporting caregivers in paediatric weight management. *Clinical Obesity*, 7(5), 300–306. <https://doi.org/10.1111/cob.12202>