

The role of weight stigma in parental weight talk

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Summary

Background: Many parents engage in “weight talk” with their child, such as encouraging their child to lose weight or making comments about their own weight or others’ weight. What parents say to their children about weight can affect children’s well-being, yet little is known about parental characteristics that may be at play regarding this common practice.

Objectives: This study examined the role of weight stigma in parental weight talk, and whether internalized weight bias mediates the relationship between parents’ experiences of weight stigma and weight-based conversations and comments.

Methods: A sample of 453 parents ($M_{age} = 35.07$) with children 2 to 17 years old ($M_{age} = 8.76$) completed surveys measuring parental experiences with weight stigma, weight bias internalization, and frequency of different types of parental weight talk. Mediations were tested via the PROCESS macro.

Results: Independent of controls (parent BMI, child BMI percentile, parent and child sex, parent and child age, race, income, and education), experienced weight stigma was indirectly associated with greater frequency of weight-based conversations ($\beta = .08$) and comments about oneself ($\beta = .08$) and others ($\beta = .04$) via parents’ internalized weight bias.

Conclusions: These findings offer novel insights for understanding parental weight talk and can inform pediatric providers working with families on weight-related issues.

KEYWORDS

communication, obesity, parent, weight bias, weight stigma, weight talk

1 | INTRODUCTION

Body weight is an emotionally charged issue for many children and adolescents,¹ especially during periods of physical growth when societal values of physical appearance become more salient. What parents say to their children about body weight can play an important role in children’s body esteem and physical well-being.^{2–4} “Parental weight talk” is a general term that has been used to describe weight-related communication by parents with their children, such as parental encouragement of their child to lose or maintain weight (child-centred weight conversations), encouragement to exercise/eat healthy

without reference to weight (child-centred health conversations), impersonal/indirect weight comments about oneself or others (parental weight comments), and weight criticism/teasing of their children.⁵

Data from a national sample of adolescents in the United States suggest that approximately one-third of parents engage in conversations about weight with their child.⁶ Weight conversations are most common amongst parent/child dyads of the same sex, of adolescents categorized as overweight, and of adolescents of Hispanic/Latino and Asian/Hmong descent.⁶ Evidence further suggests that parental weight comments may also occur frequently, especially from mothers; one study found that 27% of mothers reported “often or very often”

commenting on their own weight, while 13% of mothers reported often commenting on others' weight.³ Weight-focused conversations and comments from parents can occur in families regardless of the weight status of the child, but children and adolescents categorized as overweight or with obesity tend to report more negative emotional reactions in response to words parents use to describe their weight, compared with those classified at a normal weight.⁷ Children and adolescents with higher body weight also have increased vulnerability to stigma, bullying, and victimization because of their weight,^{8,9} not just at school from peers,¹⁰ but also at home from family members.¹¹ Thus, parental comments about weight could potentially exacerbate negative implications for the emotional well-being of these children who may already feel stigmatized and distressed because of their weight.

Furthermore, weight conversations and comments have important implications for both physical and mental health. Previous work demonstrates child-centred weight conversations, such as encouraging a child to change their behaviours for the purpose of managing their weight, are associated with body dissatisfaction amongst college-aged women, particularly when the encouragement comes from the girl's mother.¹² Amongst adolescent girls, both maternal and paternal weight conversations are associated with the use of unhealthy weight control behaviours (eg, skipping meals, vomiting) and binge eating when the encouragement comes from the mother.² Greater frequency of mothers commenting on their own weight or the weight of others is associated with feelings of low self-worth and depressive symptoms amongst their daughters.³ Frequency of parental comments about their own weight is associated with adolescent use of extreme weight control behaviours.² In contrast, parental conversations with children that focus on healthy eating or being physically active, without talking about body weight, have no evidence for associations with negative health ramifications and may instead help prevent disordered eating behaviours.^{4,5}

Although this emerging evidence suggests that parental weight talk is prevalent and that weight-focused comments and conversations from parents are potentially harmful for children's mental and physical health, little is known about why some parents engage in this practice more than others. In one qualitative study, parental engagement in weight-focused conversations or teasing stemmed from several motivations, including a health professional's opinion about their child's health, the parent's own concern for their child's health, and parental attempts to protect their child from being teased about their weight by others.¹³ Parents who avoided weight conversations/teasing with their children emphasized their own negative past experiences with weight conversations/teasing (and not wanting to repeat these experiences for their child) and wanting their child to be respectful of others' body sizes.¹³ This qualitative evidence highlights a potential role of parental weight-based stigma in influencing child-centred weight conversations and the need for further research to examine the relationship between parental experiences of weight stigma and weight talk.

Weight stigma has been neglected in research on parental weight talk with children, which is surprising given the substantial

literature documenting weight stigma as a prevalent problem with associated health consequences. Approximately 40% of adults report experiencing weight stigma, such as weight-based teasing, unfair treatment, or discrimination.^{14,15} These experiences are associated with maladaptive eating behaviours, decreased physical activity, depression, low self-esteem, and body dissatisfaction.^{16,17} Furthermore, weight stigma can also be internalized, which involves applying negative weight-based stereotypes to themselves and blaming themselves for their own weight status—a construct known as weight bias internalization.^{18–21} Thus, while experienced weight stigma refers to weight-based prejudice, stereotyping, and unfair treatment that people confront in extrinsic situations (such as being stereotyped or treated unfairly in the workplace or by peers), weight bias internalization involves directing stigma inwardly on to oneself; an intrinsic process of self-stigma in that people apply negative weight-based stereotypes to themselves.^{18,21} Although these two constructs are highly correlated, weight bias internalization is uniquely associated with poor emotional and physical health outcomes,^{22,23} the effects of that can occur independent of experienced weight stigma.^{24–26} In some cases, internalizing weight bias may have more negative ramifications for health than experienced stigma alone.^{24–26} For example, recent research has found that weight bias internalization partially mediates the effect of experienced weight stigma on exercise behaviour,²⁶ and that feeling concerned about stigma mediates the relationship between body mass index (BMI) and self-reported health, even when controlling for perceived weight discrimination.²⁷

Given the prevalence and consequences of experienced weight stigma, internalized weight bias in adults, and recent qualitative evidence suggesting that parental experiences of weight-based stigma might influence child-centred weight conversations,¹³ examining the relationships between experienced weight stigma, internalized weight bias, and parental weight talk is warranted. It may be that parents who experience weight stigma, but do not internalize these experiences, avoid talking about weight with their child because of heightened concerns about the effects of weight talk on their child's well-being. Alternatively, parents who experience weight stigma, and internalize these experiences, might choose to engage in weight talk with their child to encourage their child to lose weight in order to avoid being the target of weight-based teasing. The direction of these relationships is unclear and has not been studied, but identifying whether, and to what extent, weight stigma plays a role in parental weight talk could offer important insights about strategies to improve parent-child communication on this issue. To begin to address these research gaps, the present exploratory study had the following aims: (a) examine the relationship between parental experiences of weight stigma and the frequency of their engagement in different forms of parental weight talk, (b) examine the relationship between weight bias internalization amongst parents and the frequency of their engagement in different forms of parental weight talk, and (c) assess the extent to that weight bias internalization mediates the relationship between parents' experienced weight stigma and the frequency of engagement in different forms of parental weight talk.

2 | METHODS

2.1 | Participants

A total sample of 597 adults (age 18 years or older) were surveyed to explore parental communication and comments around weight. Of the 597 participants who entered the survey, 37 did not meet the eligibility criteria of having at least one child between the ages of 2 and 17 years living with them. Participants were also excluded for missing demographic or anthropometric data (eg, sex, height, and weight; $n = 35$), skipping greater than 75% of the questions ($n = 32$), being pregnant ($n = 1$), or entering a biologically impossible height or weight for themselves or their child ($n = 39$), resulting in a final sample of 453 participants.

Sociodemographic characteristics of the sample are presented in Table 1. Study participants consisted of 184 men and 269 women (41% and 59%, respectively). The mean age of parents was 35.07 years ($SD = 8.19$, range 20-65), while the mean age of their children was 8.76 years ($SD = 4.98$, range 2-17). Seventy-eight percent of the sample was White, followed by 8% Black or African American, 6% Asian or Pacific Islander, 5% Latino/Hispanic, and 3% who indicated "Other" racial categories. The mean BMI of parents was 27.21 ($SD = 6.88$). Using guidelines of the Centers for Disease Control, 31% of parents were classified as overweight (almost identical to the US average of 31.8%) and 25% were classified as having obesity (lower than the US average of 39.8%).²⁸ Using BMI percentile guidelines from the Centers for Disease Control, 15% of the reported children were classified as overweight and 27% were classified as having obesity (higher than US rates of obesity of 18.5% for children ages 2-19 years).²⁸

2.2 | Procedures

Data were collected from March to April 2016 via an online survey that was advertised on Mechanical Turk (MTurk).²⁹ The survey was advertised as a "Parent Survey on Communication about Weight." Participants were compensated \$1.50, which is a rate typical of other MTurk studies of similar length.³⁰ In addition to being a parent of a child between the ages of 2 and 17 years living at home, parameters were restricted to participants living in the United States. Participants provided informed consent and participation was anonymous and voluntary. All procedures were approved by the University of Connecticut institutional review board.

2.3 | Measures

Participants completed self-report measures to assess demographic characteristics, anthropometrics for both parent and child, parental weight talk (conversations and comments), experienced weight stigma, and internalization of weight bias. These measures are described below.

TABLE 1 Sample characteristics

	N	Range	M	SD
Parent age (years)	453	20 65	35.07	8.19
Parent BMI	452	15 64	27.21	6.88
Child age (years)	453	2 17	8.76	4.98
Child BMI percentile	451	0 100	65.64	33.95
	N	%		
Parent sex				
Male	184	40.6		
Female	269	59.4		
Child sex				
Male	242	53.4		
Female	211	46.6		
Race/ethnicity				
White, non-Hispanic, non-Latino	352	77.7		
Black or African American	37	8.2		
Asian or Pacific Islander	28	6.2		
Latino, Hispanic, or Mexican-American	23	5.1		
Other	13	2.9		
Household income (US dollars, annually)				
Under \$25 000	64	14.1		
\$25 000-\$49 999	140	30.9		
\$50 000-\$74 499	112	24.7		
\$75 000-\$99 999	70	15.5		
\$100 000-\$124 999	31	6.8		
\$125 000 or more	36	7.9		
Education				
High school/GED, or less	58	12.8		
Some college or technical/vocation degree	203	34.6		
College graduate or higher	238	52.6		
Parent BMI category				
Underweight	12	2.6		
Normal weight	189	41.7		
Overweight	138	30.5		
Obese	113	24.9		
Child BMI percentile category				
Underweight	40	8.8		
Normal weight	218	48.1		
Overweight	69	15.2		
Obese	124	27.4		

Abbreviations: BMI, body mass index; GED, General Educational Development.

2.3.1 | Demographics

Participants answered questions regarding their age, sex, race, education, household income, and their child's sex and date of birth, from which we calculated the child's age.

2.3.2 | Anthropometrics

Participants reported height and weight for themselves and their child. Parental BMI was calculated from self-reported height and weight. While continuous BMI was used in regression analyses, BMI status was stratified into weight categories in accordance to guidelines from the Centers for Disease Control³¹ (see Table 1). Child BMI percentiles were calculated using the children's BMI group calculator from the Centers for Disease Control, which accounts for age and sex.³¹

2.3.3 | Child-centred weight and health conversations

Child-centred weight and health conversations were measured using a six-item scale.^{6,32} Two out of the six questions assessed frequency of child-centred health conversations by asking parents how often in the past year they had a conversation with their child(ren) about (a) healthy eating habits and (b) being physically active. The remaining four questions assessed frequency of child-centred weight conversations by asking parents how often in the past year they had a conversation with their child about his/her weight or size and told their child that he/she weighs too much, should eat differently, or exercise in order to lose weight or to keep from gaining weight. Participants responded using a five-point Likert scale ranging from "never or rarely" to "almost every day," where higher scores represent a greater frequency of conversations. Responses to the two health conversation questions were averaged, and the responses to the four weight conversation questions were averaged resulting in an overall score from 1 to 5 for each subscale (health conversations Cronbach's $\alpha = .89$; weight conversations Cronbach's $\alpha = .83$).

2.3.4 | Weight comments about oneself and others

Parental comments about their own weight and others' weight were measured with two items previously tested in samples of parents of children under the age of 18 years.^{3,33} Parents responded to the following questions: "Thinking about your child(ren) who you consider to be [underweight/about the right weight/overweight], how often do you talk about your own weight, shape, or size with your child(ren)?" and "... how often do you make comments about other people's weight, shape, or size with your child(ren)?" Participants responded using a five-point Likert scale ranging from "never" to "very often," where higher scores indicated a greater frequency of comments. Similar to previous research using these questions,³ a low frequency of parents in our sample reported using either form of weight commentary "very often." To align with prior research practices using

these items,³ the "very often" response category was combined with "often," resulting in a score ranging from 1 to 4 for both questions.

2.3.5 | Experienced weight stigma

Experienced weight stigma was measured with two (yes/no) questions in that participants answered whether they had ever been teased or treated unfairly because of their weight.³⁴ Participants were coded as having experienced weight stigma if they answered "yes" to either of these questions.

2.3.6 | Weight bias internalization

Internalized weight bias was assessed using the modified weight bias internalization scale (WBIS-M), which measures the extent to which people apply negative weight-based stereotypes to themselves and blame themselves for their weight status.¹⁹⁻²¹ The 10-item version of the WBIS-M was used, which is appropriate for individuals of diverse body weight categories and aligns with recent research recommending that the first item be dropped from the original 11-item scale.²⁰ Participants were asked to indicate their level of agreement with statements such as "I don't feel that I deserve to have a really fulfilling social life because of my weight." Participants responded using a seven-point Likert scale ranging from "strongly disagree" to "strongly agree," where higher scores indicate greater weight bias internalization. Responses to the 10 questions were averaged resulting in an overall score from 1 to 7 (Cronbach's $\alpha = .95$).

2.4 | Statistical analysis

All analyses were performed using SPSS Statistics version 25. To establish baseline relationships, we calculated bivariate Pearson correlations amongst the following variables: weight bias internalization, experienced weight stigma, the four parental weight talk measures, parental BMI, and child BMI percentile. To examine the first and second aim of the study, we conducted four linear regression models that assessed experienced weight stigma and weight bias internalization as separate predictors of the four forms of parental weight talk, while controlling for parental BMI, child BMI percentile, parent and child sex, parent and child age, race, household income, and education. To address the third aim of the study, the regression models that were significant at the 0.05 level were further tested for mediation using the PROCESS macro for SPSS.³⁵ We ran three separate mediation models to examine whether weight bias internalization mediated the relationship between experienced weight stigma and child-centred weight conversations, parental comments about oneself, and parental comments about others. Using the PROCESS macro, we conducted a mediation analysis using bootstrap sampling with 5,000 replications, which constructs a 95% confidence interval (CI) for the indirect effect of the independent variable (experienced weight stigma) on the dependent variables (the various forms of weight talk) via weight bias internalization. The presence of an indirect effect was determined if the results of the CI did not contain zero.³⁵ As with

the regression models, we adjusted the mediation models for parental BMI, child BMI percentile, parent and child sex, parent and child age, race, household income, and education.

3 | RESULTS

3.1 | Relationship between parental weight stigma and weight talk

Mean scores on the primary measures are shown in Table 2. The average score on the WBIS-M was 2.91 (SD = 1.59, range 1-7). Correlations between the main variables are shown in Table 3. Weight bias internalization was correlated with experienced stigma ($r(442) = .45, P < .001$) and both weight bias internalization and experienced stigma were correlated with parental BMI ($r(445) = .44, P < .001$; $r(442) = .37, P < .001$).

Parental experiences of weight stigma were not associated with child-centred weight conversations ($\beta = .02, P = .690$), child-centred health conversations ($\beta = .09, P = .102$), or parental weight comments about others ($\beta = .06, P = .248$), after adjusting for parental BMI, child BMI percentile, parent and child sex, parent and child age, race, household income, and education. Experienced weight stigma was associated with parental weight comments about oneself ($\beta = .15, P = .003$) after adjusting for the control variables.

Greater weight bias internalization amongst parents was associated with a greater frequency of child-centred weight conversations ($\beta = .24, P < .001$), parental weight comments about oneself ($\beta = .29, P < .001$), and parental weight comments about others ($\beta = .13, P = .017$) after adjusting for the control variables. Weight bias internalization was not associated with child-centred health conversations ($\beta = .06, P = .261$) after adjusting for the control variables.

3.2 | Mediation models assessing parental weight talk

As depicted in Table 4, the mediation models assessing child-centred weight conversations, parental weight comments about oneself, and parental weight comments about others explained a significant

TABLE 2 Primary measures

	N	M	SD	Range		Cronbach's Alpha
				Min	Max	
WBIS-M	445	2.91	1.59	1.00	7.00	.95
Child-centred weight conversations	442	1.70	0.83	1.00	4.75	.83
Child-centred health conversations	441	3.13	1.17	1.00	5.00	.89
Weight comments about oneself	440	2.26	1.01	1.00	4.00	
Weight comments about others	439	1.95	0.90	1.00	4.00	

Abbreviation: WBIS-M, modified weight bias internalization scale.

TABLE 3 Correlations between key study variables

	1	2	3	4	5	6	7
1. Weight bias internalization							
2. Experienced stigma ^a	.45***						
3. Child-centred weight conversations	.23***	.04					
4. Child-centred health conversations	.06	.10*	.38***				
5. Comments about self	.28***	.20***	.47***	.24***			
6. Comments about others	.10*	.05	.43***	.12*	.62***		
7. Parent BMI	.44***	.37***	.07	.05	.17***	.05	
8. Child BMI percentile	.11*	0.06	.17***	.04	.15***	.13**	.18***

Abbreviation: BMI, body mass index.

^aVariable is binary.

* $P < .05$.

** $P < .01$.

*** $P < .001$.

amount of variance in each dependent variable (all P 's $< .001$). The model assessing child-centred health conversations did not account for a significant amount of variance in child-centred health conversations, so coefficients were not interpreted. Across the three significant mediation models, experienced weight stigma was indirectly associated with greater frequency of child-centred weight conversations (Bootstrapped CI: 0.07, 0.22), as well as parental weight comments about oneself (Bootstrapped CI: 0.10, 0.27), and others (Bootstrapped CI: 0.01, 0.15) through weight bias internalization (Figure 1). Parents' experienced weight stigma was significantly associated with greater weight bias internalization in all three models ($\beta = 0.32, P < .001$). Additionally, weight bias internalization was associated with an increased frequency of child-centred weight conversations ($\beta = .26, P < .001$), parental weight comments about oneself ($\beta = .26, P < .001$), and parental weight comments about others ($\beta = .12, P = .034$).

Several consistent relationships emerged between parental weight talk variables and control variables (see Table 4). Across all three models, child age was positively associated with child-centred weight conversations ($\beta = .28, P < .001$), parental weight comments about themselves ($\beta = .24, P < .001$), and parental weight comments about others ($\beta = .25, P < .001$). Fathers, in this sample, had more child-centred weight conversations ($\beta = .11, P = .024$) and made more frequent comments about others ($\beta = .11, P = .023$), relative to mothers. No effect of parent sex emerged for conversations about parent's own weight. Child BMI percentile had a small but significant positive relationship with child-centred weight conversations ($\beta = .13, P = .005$), comments about parent's own body weight ($\beta = .10, P = .026$), and comments about others ($\beta = .11, P = .026$).

TABLE 4 Predictors of parental weight talk

	R^2	df	F	P	B	SE	β	t	P	Bootstrapped 95% CI	
Weight conversations	0.16	11, 425	7.28	<.001							
Weight bias internalization					0.13	0.03	0.26	4.80	<.001	0.08	0.19
Experienced stigma					-0.10	0.09	-0.06	-1.19	.233	-0.27	0.07
Parent BMI					-0.01	0.01	-0.07	-1.26	.208	-0.02	0.00
Child BMI %ile					0.00	0.00	0.13	2.80	.005	0.00	0.01
Parent male (ref. female)					0.18	0.08	0.11	2.27	0.024	0.02	0.33
Child male (ref. female)					0.05	0.08	0.03	0.64	0.523	-0.10	0.20
Parent age					0.00	0.01	-0.04	-0.62	.533	-0.02	0.01
Child age					0.05	0.01	0.28	5.03	<.001	0.03	0.07
White (ref. non-White)					-0.16	0.09	-0.08	-1.82	.070	-0.34	0.01
Income					-0.05	0.03	-0.08	-1.68	.094	-0.11	0.01
Education					-0.06	0.04	-0.08	-1.69	.091	-0.13	0.01
Indirect effect of experienced stigma					.14*	0.04	.08*			0.08	0.22
Health conversations	0.04	11, 424	1.68	.080							
Weight bias internalization					0.03	0.04	0.04	0.61	.542	0.10	0.23
Experienced stigma					0.17	0.13	0.07	1.27	.206	-0.06	0.35
Parent BMI					0.00	0.01	-0.01	-0.16	.870	-0.01	0.02
Child BMI %ile					0.00	0.00	0.06	1.16	.246	0.00	0.01
Parent male (ref. female)					-0.11	0.12	-0.05	-0.94	.348	-0.27	0.34
Child male (ref. female)					0.14	0.12	0.06	1.24	.216	-0.07	0.28
Parent age					0.01	0.01	0.08	1.20	.230	-0.01	0.02
Child age					0.02	0.01	0.10	1.61	.109	0.03	0.07
White (ref. non-White)					-0.16	0.14	-0.06	-1.18	.238	-0.48	-0.06
Income					0.01	0.04	0.01	0.25	.802	-0.15	-0.01
Education					-0.01	0.05	-0.01	-0.13	.896	-0.12	0.05
Indirect effect of experienced stigma					0.02	0.04	0.01			-0.06	0.12
Comments about oneself	0.19	11, 423	8.90	<.001							
Weight bias internalization					0.16	0.03	0.26	4.92	<.001	0.10	0.23
Experienced stigma					0.14	0.11	0.07	1.36	.176	-0.06	0.35
Parent BMI					0.00	0.01	0.01	0.10	.920	-0.01	0.02
Child BMI %ile					0.00	0.00	0.10	2.24	.026	0.00	0.01
Parent male (ref. female)					0.16	0.09	0.08	1.68	.094	-0.03	0.34
Child male (ref. female)					0.11	0.09	0.05	1.16	.245	-0.07	0.28
Parent age					0.00	0.01	0.01	0.18	.855	-0.01	0.02
Child age					0.05	0.01	0.24	4.30	<.001	0.03	0.07
White (ref. non-White)					-0.27	0.11	-0.11	-2.55	.011	-0.48	-0.06
Income					-0.08	0.04	-0.11	-2.26	.024	-0.15	-0.01
Education					-0.03	0.04	-0.04	-0.80	.426	-0.12	0.05
Indirect effect of experienced stigma					.17*	0.04	.08*			0.10	0.27
Comments about others	0.09	11, 433	3.62	<.001							
Weight bias internalization					0.07	0.03	0.12	2.11	.036	0.00	0.13
Experienced stigma					0.04	0.10	0.02	0.43	.671	-0.15	0.24
Parent BMI					-0.01	0.01	-0.04	-0.64	.523	-0.02	0.01
Child BMI %ile					0.00	0.00	0.11	2.23	.026	0.00	0.01

(Continues)

TABLE 4 (Continued)

	R^2	df	F	P	B	SE	β	t	P	Bootstrapped 95% CI	
Parent male (ref. female)					0.21	0.09	0.11	2.29	.023	0.03	0.38
Child male (ref. female)					0.11	0.09	0.06	1.22	.222	-0.06	0.28
Parent age					-0.01	0.01	-0.07	-1.15	.252	-0.02	0.01
Child age					0.05	0.01	0.25	4.21	<.001	0.02	0.07
White (ref. non-White)					-0.16	0.10	-0.07	-1.52	.128	-0.36	0.05
Income					-0.03	0.03	-0.04	-0.74	.461	-0.09	0.04
Education					0.01	0.04	0.02	0.31	.761	-0.07	0.09
Indirect effect of experienced stigma					.07*	0.04	.04*			0.01	0.15

Note. All models adjust for BMI, child BMI percentile, parent and child sex, parent and child age, race, income, and education. $P < .001$ is displayed where P could not be exactly expressed within three decimal points. B = unstandardized regression coefficient, β = standardized regression coefficient. The standard errors for each indirect effect are bootstrapped.

Abbreviations: BMI, body mass index; CI, confidence interval; SE, standard error.

*Significance is based on the bootstrapped CI not containing zero.

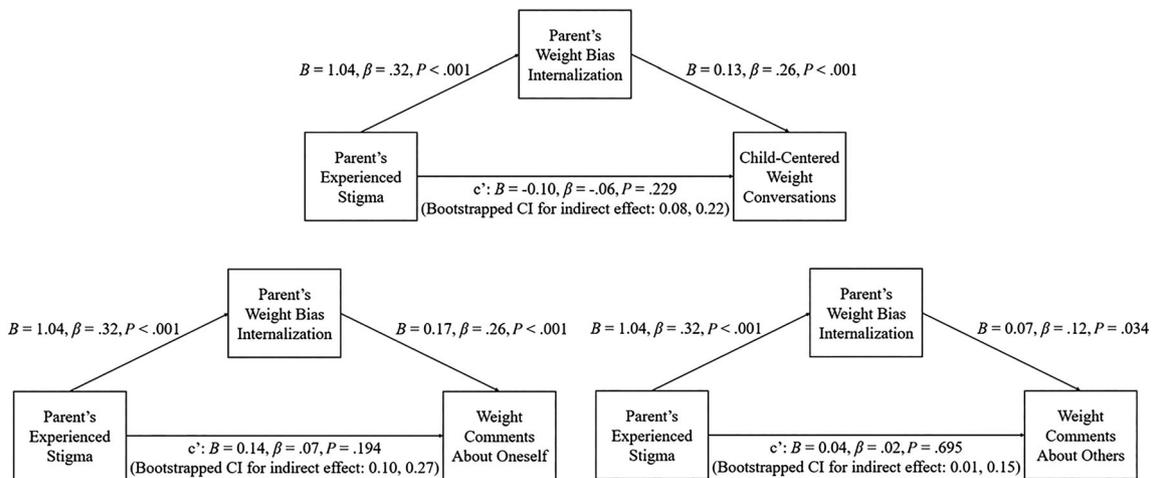


FIGURE 1 Mediator models for parental weight talk

4 | DISCUSSION

This study is the first to examine the role of parental weight stigma (experienced weight stigma and internalized weight bias) in parental comments and communication about weight. Findings suggest that parents' experienced weight stigma was indirectly associated with child-centred weight conversations and parental weight comments via parents' internalized weight bias.

These findings show that experienced weight stigma was related to greater weight bias internalization amongst parents, and that greater internalization of weight bias in parents was in turn significantly associated with a higher frequency of child-centred weight conversations and parental weight comments about oneself and others. Accounting for weight bias internalization in the models eliminated the effect of experienced stigma, suggesting that experienced weight stigma influences child-centred weight conversations and parental comments indirectly via weight bias internalization. These findings

align with some previous research documenting differing outcomes when comparing external stigma with internal, self-stigma, such as with exercise behaviours and self-esteem.^{25,26} In order to gain a better understanding of how experienced and internalized weight stigma may differ in their implications for weight talk, it will be informative for future research to examine parental perceptions of whether their experiences of weight stigma and/or their internalization of stigma are related to their reasons for engaging in weight talk and to assess whether certain aspects of parental weight stigma, such as the time period of when stigmatization occurred, the source of their stigmatizing experiences, and the extent of distress and internalization in response to different types of weight stigma, play a role in their motivations for engaging in or avoiding weight talk with their child. Ideally, longitudinal research would be valuable to identify the relationships between experienced stigma, internalized weight bias, and engagement in weight talk over time. Of note, accounting for parental weight stigma did not explain a significant amount of the variance in child-

centred health conversations, suggesting that weight stigma may be particularly important in the context of child-centred conversations that focus on body weight rather than health. While pediatric providers may want to encourage all parents to promote healthy lifestyle behaviours in their children, parents who internalize weight bias may particularly benefit from encouragement to focus on their child's health behaviours rather than his/her weight, as our findings suggest that these parents may be especially likely to engage in weight-focused comments and conversations with their child.

There could be several reasons why greater internalized weight bias is related to parental engagement in conversations with their child about their child's weight and the practice of making weight comments about themselves or others. Parents who internalize weight bias may have heightened concerns that their child will be teased about weight and thus be more likely to intervene by talking to their child about his/her weight, eating behaviours, and/or physical activity in order to lose weight and avoid potential teasing. Additionally, parents who internalize weight bias may be more likely than those who do not internalize to be fixated on their own (or others') weight, and in turn be more likely to make weight-based comments. As it is unclear whether parents engage in these behaviours intending to influence their child or whether they are not cognizant of their intentions, future research should examine parental awareness and intentions of their child-centred communication and potential underlying mechanisms that can help clarify the ways in that experienced weight stigma versus internalized weight bias are related to parental weight talk. Furthermore, it will be informative to examine the role of other parental characteristics that might be at play in parental weight talk, such as disordered eating behaviours amongst parents and/or their child.

In line with a recent policy statement from the American Academy of Pediatrics (AAP) that aims to raise awareness amongst pediatric providers about weight stigma in children and adolescents who may be vulnerable to teasing and bullying because of their weight,³⁶ our findings suggest that it may be additionally useful for pediatric providers to raise awareness about the potential implications of weight stigma in parents, which could contribute to the nature and frequency of weight-focused communication with their children. Future research should also explore strategies to prevent and reduce weight bias internalization in parents.

It is important to note that mean WBIS-M score in this sample ($M = 2.91$) was lower than similar general population samples, which typically range from 3.27 to 3.95.^{18,19,21,24} Despite these lower levels of internalized weight bias in our sample, we found significant positive relationships between internalized weight bias and frequency of child-centred weight conversations and parental weight comments. Thus, it will be informative to examine patterns of weight talk amongst parents with higher levels of internalized weight bias as well as parents engaged in weight loss treatment, who may have heightened vulnerability to weight stigma.³⁷

Our study findings additionally identified consistent relationships between several control variables and parental weight talk variables. Specifically, we found child age to be a strong positive predictor in all three significant models of parental weight talk, suggesting a

greater frequency of weight-focused conversations and comments as children get older. Moreover, the association between child age and parental weight talk variables was equally as strong as weight bias internalization for child-centred weight conversations and for weight-focused comments that parents made about themselves. Additionally, the association between child age and parental weight comments about others was twice as strong as the relationship between parent weight comments about others and weight bias internalization. Most of the existing research on parental weight talk has focused on adolescents, rather than children of all ages, but a recent study of 2- to 17-year-old children found child-centred weight conversations to be more frequent with older children.³⁸ For children going through puberty, weight conversations may occur because parents are more aware of the change in their child's appearance and/or because children may make more comments about their own body during this developmental period, sparking conversations. Therefore, future research should examine patterns and potential motivations for weight talk at different stages in child development and whether parental weight talk affects children and adolescents differently depending on their age.

In addition, there was a positive relationship between child BMI percentile and frequency of child-centred weight conversations, parental weight comments about oneself, and parental weight comments about others. Even though child BMI was not as strong of a predictor as child age, our findings do suggest that frequency of child-centred weight conversations increase with child BMI. These findings align with recent evidence documenting a higher frequency of child-centred weight conversations in children with a higher BMI,^{6,39} highlighting the importance of ensuring that children with higher body weight (who are particularly vulnerable to weight stigma³⁶) are not further stigmatized in parent-child conversations about weight. A recent study found that some adolescents with higher body weight felt ashamed and embarrassed by parental weight talk and preferred that parents use neutral terminology when discussing their weight.⁴⁰ Providers can encourage parents to ask their children about words or phrases that they would like their parents to avoid. Given the current findings demonstrating associations between a child's body size and frequency of parental weight comments directed toward oneself, future research should clarify the effect of a child's weight on different types of parental weight talk.

It is noteworthy that the present findings showed that fathers were more likely than mothers to engage in weight conversations and make comments about others, but there were no differences in mothers' versus fathers' weight comments about themselves. This finding is contrary to other studies that have documented similar rates of weight talk between mothers and fathers⁶ or higher rates of weight talk from mothers compared with fathers.^{41,42} While it is beyond the scope of our study to identify reasons for differences in weight talk between fathers and mothers, one potential explanation for this finding could be different perspectives of parents and children. Previous studies typically assess parental weight talk from the perspective of the child, as opposed to the parent,⁵ but studies that have compared reports of parents with those of their children have pointed to

potential differences in frequency of weight talk.^{2,3} Furthermore, it may be that parental sex affects not just the frequency of weight talk, but the topics of these conversations and the sex of the child they engage with. The limited evidence in this area has found that mothers tend to engage in food-related weight talk, while fathers tend to comment on specific body parts⁴¹; mothers engage in more weight talk with their daughters, and fathers with their sons⁶; and appearance teasing by fathers can be particularly damaging to their daughters.⁴³ Therefore, it will be informative for future work to assess weight talk from the perspective of both parents and their child(ren) to better understand how parental sex plays a role in weight-focused communication. Survey measures that can capture potential distinctions between mothers and fathers will be key in these efforts to accurately understand these family dynamics, which can in turn inform pediatric providers.

4.1 | Limitations

There are several limitations of this study. First, the cross-sectional nature of this study precludes causal inferences between parental weight stigma and their engagement in weight-based comments and/or conversations with their child. It will be informative for future research to assess this relationship longitudinally to help determine whether parental weight stigma influences parental weight talk over time and whether education about weight talk from pediatric providers affects the incidence of parental weight talk. Second, MTurk is not a national panel, and the sample of parents was predominately White and highly educated, limiting generalizability and indicating the need for future research to examine more ethnically and economically diverse samples. Third, measures were self-reported, including the height and weight of both parents and their children. Although objective measures of height and weight are ideal, studies show that online self-reported heights and weights are a valid alternative to measured height and weight.^{44,45} The survey questions we used to assess parental comments and conversations about weight have been used in studies with similar populations, but future studies should aim to develop more comprehensive, validated tools that measure different types of weight talk from the perspectives of both children and parents. For example, parents might not be fully aware of the extent that they talk about weight, and their self-report could be biased. In examining experienced stigma, we did not assess the frequency, recency, or distress arising from the stigmatizing experiences. While previous longitudinal research suggests that dichotomous questions (ie, yes/no questions) about the presence versus absence of weight labelling or stigmatizing experiences can inform long-term associations with maladaptive eating behaviours and poor weight-related health,⁴⁶⁻⁴⁸ it will be important for future research to include more comprehensive measures of stigmatizing experiences (ie, distress, recency, and frequency) to better understand the nature and extent of parental experiences with weight stigma. Finally, because of the few measures available in the literature to examine internalized weight bias, future studies should continue to assess the long-term stability and predictive validity of the WBIS-M.

Despite these limitations, our study offers several key strengths. This is the first study to assess the extent to that parental experiences of weight stigma and weight bias internalization are associated with parental weight talk. Additionally, the use of multiple measures of parental weight talk allowed for an informative description of different components of parental weight communication. Finally, the inclusion of parents with children ages 2 to 17 years in our sample improves upon previous studies on parental weight talk that typically target limited age groups of children.

4.2 | Conclusion

Our findings offer novel insights into the unexplored relationship between weight stigma and parental weight talk. This study suggests that parents' internalized weight bias mediates the relationship between their experienced weight stigma and the frequency of child-centred weight conversations and parental weight comments about oneself and others. Given that these forms of parental weight talk can have harmful effects on child health,^{3,4} this study offers important insights about parental factors that may increase these behaviours. The AAP recommends that pediatricians be aware of weight stigma and its adverse implications for children and adolescents³⁶ and to educate parents about the best practices regarding ways to communicate about weight-related health with children, such as discouraging dieting and focusing on healthy eating and physical activity instead of weight.⁴⁹ Our findings suggest that it may be additionally useful for pediatric providers to be aware of internalized weight bias amongst parents and its potential role in parental weight talk.

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CONFLICTS OF INTEREST

The other authors have indicated they have no financial relationships relevant to this article to disclose.

AUTHOR CONTRIBUTIONS

R.M.P. conceptualized the study. E.V.P. and M.S.H. carried out data analyses, and E.V.P. wrote the initial draft of the manuscript. All authors revised the manuscript, approved the final manuscript as submitted, and agreed to be accountable for all aspects of the work.

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