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# Child self-reported motivations for weight loss: impact of personal vs. social/familial motives on family-based behavioral weight loss treatment outcomes

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## Abstract

**Purpose** Parent motivation is related to successful treatment outcome among children enrolled in obesity treatment. However, the impact of child weight loss motivation on treatment outcome has not been investigated. The current study evaluated weight loss motives among treatment-seeking, overweight children, and their relationship to treatment outcome.

**Methods** The current study is a secondary analysis of a primary study examining a parent-only and parent + child childhood obesity treatment. Study participants included 77 children (aged 8–12, 58 % female). Assessments were completed at baseline, post-treatment, and at 6-months post-treatment. Children completed standardized height and weight procedures. In addition, they completed a checklist of reasons children may be motivated to lose weight. Motives were divided into two scales reflecting personal and social/familial reasons to lose weight. Regression analyses were used to calculate associations between the number of weight loss motives endorsed and treatment completion, sessions attended, and child BMI.

**Results** A greater number of social/familial motives were significantly predictive of session attendance, treatment completion, and a lower child BMI at the post-treatment assessment.

**Conclusions** Children who are motivated to lose weight because of family/social influences may be more highly engaged in treatment and lose more weight, as compared to children who are less motivated by family and social reasons.

**Keywords** Child obesity · Family-based treatment · Motivation

## Introduction

Pediatric obesity is a serious public health concern. Rates of childhood obesity have grown substantially in the previous 30 years [1], reaching epidemic level proportions. Currently, 12.5 million children and adolescents in the United States are obese, representing almost 17 % of US children and adolescents [2]. Family-based treatment (FBT) characterized by active parent involvement, nutritional education, and behavior modification strategies represents the standard of care for overweight and obese children and adolescents [3]. However, longitudinal data revealed that approximately 60 % of children who completed FBT remained obese at 5 and 10 years after treatment [4]. Consequently, there is a need for an improved understanding of factors that may limit or enhance treatment success.

Patient motivation is a critical component of treatment process and outcome, a conclusion that has been replicated across various types of psychosocial interventions [5]. However, most of this literature refers adults samples; and,

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despite some evidence that adolescent motivation affects treatment outcomes [6, 7], there is a paucity of research examining how child motivation affects behavior change in clinical trials. In one sample of youth ages 10–17 with diabetes, youth motivation was significantly related to therapeutic alliance and indirectly associated with metabolic control [8]. In this study [8], both child and parent motivation were indirectly associated with improved diabetic control. Other studies have implemented motivational enhancement components to improve treatment outcomes with youth. For example, addition of motivational interviewing (MI) to a cognitive-behavioral therapy (CBT) program for youth ages 6–17 with obsessive-compulsive disorder was associated with a quicker reduction in symptoms, as compared to a CBT plus a psycho-educational program [9]. Moreover, an MI enhanced weight loss intervention for youth ages 10–18 was predictive of greater session attendance, as compared to the weight loss and social skills group [10]. Findings suggest that motivation in youth may be relevant to clinical trial outcomes, but the role of child motivation in FBT for pediatric obesity has not yet been examined.

In FBT programs, parents are active members of the treatment process. Highly motivated parents are more likely to complete family-based weight loss treatment as compared to less motivated parents [11]. Furthermore, children with highly motivated parents, as measured by parent self-reported confidence, are more likely to lose weight, as compared to children with less motivated parents, both in the early stages of FBT treatment and at post-treatment [12]. Even though parent motivation is a crucial factor influencing treatment outcomes, child motivation may also have an important effect on treatment outcomes. For example, if children are unmotivated, or only motivated by certain weight loss motives (e.g. feeling pressured from others to lose weight), they may resist attendance and engagement in treatment. In contrast, children who are intrinsically motivated for weight loss may be successful in treatment, even in families with less motivated parents. Thus, child weight loss motives may have a meaningful impact on the child's response to FBT.

A recent review paper summarized quantitative and qualitative research examining children's attitudes about obesity and body size, and it was concluded that children are most concerned about the social impact of being overweight, and they place less emphasis on negative health outcomes [13]. Two studies have examined factors motivating children to participate in weight loss programs, with similar findings. Among obese children aged 8–14 attending a weight loss clinic, social exclusion and the desire to "fit in" socially were primary reasons for wanting to lose weight [14]. When asked about their goals and aspirations for attending weight loss camp, children and

adolescents reported being motivated by the opportunity to escape bullying and to create positive social connections [15]. Thus, it appears that weight loss motives in youth are typically related to social pressures and expectations. However, none of these prior studies specifically examined the relationship between child weight loss motives and treatment participation or outcome. Additional research is warranted to further investigate reasons treatment-seeking children are motivated to lose weight and whether this affects treatment outcomes.

Self-determination theory [16, 17] is a theory of human motivation that may help to explain the potential importance and impact of weight loss motives on treatment outcome. Self-determination theory distinguishes between autonomous as opposed to controlled behaviors; and according to the theory, the type or quality of motivation has more influence on behavior than the level of motivation [18]. Autonomous behaviors are those that are experienced as intrinsically motivated, or involving a sense of choice or willingness to engage in the behavior [18]. In contrast, controlled behaviors are those that are experienced as pressured or coerced by interpersonal or intrapsychic forces [18].

Self-determination theory may be particularly relevant to understanding child weight loss motives, because children enrolled in weight loss treatment are frequently motivated by controlled reasons (e.g. the child's parents encouraged treatment, or the child believes he/she "should" lose weight to obtain social approval). It may be less common for children to willingly choose to engage in weight loss treatment for purely autonomous reasons (e.g. wanting to improve health, the child believes weight loss to be a personally meaningful goal). However, it is possible that children who have developed some autonomous reasons for wanting to lose weight may be more successful in weight loss treatment. Autonomously motivated children may exhibit greater adherence to treatment related behaviors, a more positive attitude toward treatment, and better understanding of treatment rationale and components. Self-determination theory has not been directly applied to pediatric obesity treatment; however, it has been used to predict physical activity behavior in adolescent samples. Autonomous motivation for physical activity is related to significantly higher levels of physical activity [19–21], which suggests the possible positive impact of autonomous motivation on body weight. In addition, self-determination theory has been applied to psychotherapy, and it has been argued that patients who are less autonomously motivated have reduced engagement in therapy and poorer treatment outcomes, as compared to autonomously motivated patients [18]. Principles of self-determination theory suggest that among treatment-seeking children, weight loss motives characterized by autonomous, or personal reasons may be linked with treatment engagement, resulting in a

positive treatment outcome. In contrast, weight loss motives reflecting social pressures to lose weight may predict a poor treatment response.

Although parent motivation in FBT is viewed as critical, little is known about the reasons children are motivated to lose weight and the impact of child weight loss motives on treatment outcome. The primary focus of the present study is to identify reasons children are motivated to lose weight prior to the onset of FBT. It is hypothesized that children will more frequently report social/familial pressures (i.e. “parents said I should,” “family teases me about my weight,” and “I saw a friend or family member lose weight,”) as factors motivating their desire for weight loss, as opposed to personal reasons (i.e. “wanting to have better health”). Additional study aims include examining the relationship between type of motive (i.e. personal or social/familial) and session attendance, treatment completion, and treatment outcome in children initiating behavioral weight loss treatment. It is hypothesized that endorsement of social/familial weight loss motives will be significantly, negatively related to session attendance, treatment completion, and weight loss. In contrast, it is hypothesized that endorsement of personal weight loss motives will be significantly, positively related to session attendance, treatment completion, and weight loss.

## Methods

### Study design

The current study is a secondary analysis of a primary study examining a parent-only and a parent + child treatment for childhood obesity [22]. The intervention included 16 weekly 1-h group therapy sessions, in addition to a 10 min individual session with a behavioral coach focusing on goal-setting and problem-solving. In the parent + child arm, groups were conducted separately for parents and children, in order to tailor information to the developmentally appropriate level of the children. In the parent-only arm, groups were conducted only with the parents. Assessments were completed at baseline, post-treatment, and at a 6-month post-treatment visit. Study participants included 80 parent–child pairs recruited from physician referrals, direct mailings, advertisements, and media announcements from Minneapolis and San Diego. The Institutional Review Boards at the University of Minnesota and the University of California, San Diego approved the study.

### Participants

Eligibility requirements included an overweight or obese child (BMI >85 percentile) aged 8–12 years old and a

parent or guardian willing to participate. Exclusion criteria included the presence of a psychiatric or physical condition that would interfere with treatment, use of medications that may alter weight or appetite, and current psychological or weight loss treatment by the parent or child. Informed consent and assent was obtained by the parents and children, respectively.

### Measures

#### *Demographics*

Demographic information was collected for each parent–child dyad participating in the study. Gender, ethnicity, and income information were recorded in the self-report questionnaires completed by both children and their parents.

#### *Weight status*

Children’s height and weight were measured at each time point with the use of standardized measurement procedures. Numbers were converted into Body Mass Index (BMI), based on the child’s gender and age, using the Center for Disease Control growth charts [23]. All study analyses measured adiposity with child BMI which is recommended for use in treatment studies examining child overweight [24].

#### *Motivations for weight loss*

During the baseline assessment, children were asked to complete a self-report questionnaire assessing a variety of reasons they may be motivated to lose weight. The motivation questionnaire was developed by two licensed clinical psychologists with extensive experience providing pediatric obesity treatment. A motivation questionnaire was created in order to examine specific reasons why children are motivated to lose weight. The approach was loosely modeled after Ryan and Connell [25] who used self-determination theory to guide their investigation of reasons why children engage in achievement-related and prosocial behaviors. For the present study, the psychologists generated a list of common reasons children appear motivated to lose weight, based on their clinical observations of overweight children. Next, self-determination theory was used to classify items as either autonomous (i.e. personal) or controlled (i.e. social/familial). The items were then evaluated by an independent rater who was familiar with self-determination theory. The independent rater was asked to categorize items as autonomous or controlled, and only those items with 100 % agreement remained in the final measure. The final questionnaire included two continuous scales consisting of seven

**Table 1** Characteristics of 77 parent–child dyads enrolled in family-based treatment

Child	
Age (years)	10.03 ± 1.28
Gender (% female)	58.44
Race (% white)	79.22
BMI	29.34 ± 5.58
BMI percentile	97.92 ± 2.15
Parent	
Age (years)	43.03 ± 5.10
Gender (% female)	87.01
Race (% white)	81.82
Marital status (% married)	77.92
Household yearly income (% above \$60,000)	63.64
BMI	31.77 ± 7.94

personal weight loss motives and three social/familial weight loss motives.

The questionnaire asked “What makes you want to lose weight?” followed by a list of possible weight loss motives (see Table 1). Instructions were to endorse as many as apply by checking the box next to each item. “Parent(s) said I should lose weight,” “I saw a friend or family member lose weight,” and “my family teases me about my weight,” were classified as social/familial weight loss motives. “I want to do better at sports,” “I am tired of my weight,” “I feel bad about myself,” “I want to look better,” “I want to fit into different clothes,” “it was too difficult for me to get around or feel comfortable,” and “I want to have better health” were classified as personal weight loss motives.

#### Statistical analyses

The current study included a sample of 77 children, as 3 were missing data on the primary study measure. Study analyses comprised descriptive statistics, binary logistic regression analyses, and multiple regression analyses. Correlations were calculated between endorsement of weight loss motives and child age, child gender, child BMI at baseline, parent BMI at baseline, and treatment group. Logistic regression was used to calculate associations between the number of social/familial and personal weight loss motives endorsed and treatment completion (yes vs. no). Treatment completion was defined as completion of the post-treatment assessment. Hierarchical multiple regression was used to calculate associations between the number of social/familial and personal weight loss motives endorsed and the number of treatment sessions attended. Group membership (parent + child vs. parent only) and child BMI at baseline were used as covariates to control for

any influence of these factors on sessions attended and treatment completion. Hierarchical multiple regression was used to calculate the relationship between the number of weight loss motives endorsed (i.e. social/familial and personal) and BMI post-treatment and BMI at the 6-month post-treatment visit. This association was calculated using both an intention-to-treat analysis and the sample of completers only. Group membership (parent + child vs. parent only) and child age, gender, and baseline BMI were used as covariates. Regressions were also calculated to examine the association between total motives endorsed and measure of treatment engagement and outcome (i.e. session attendance, treatment completion, child BMI at post-treatment, and child BMI at the 6-month post-treatment visit). All calculations were performed using SPSS 20.0 (<http://www.spss.com>).

#### Results

Preliminary analyses calculated demographic frequencies for the study participants (see Table 1). Approximately half (58.44 %) the children in the sample were female and most were accompanied by their mother (87.01 %). The majority of children (79.22 %) and parents (81.82 %) in the sample identified themselves as white. Mean child BMI at baseline, post-treatment, and 6-month post-treatment were 29.34, 28.39, and 29.17, respectively. Number of treatment sessions attended ranged from 0 to 16, and the mean number of sessions attended was 8.62. Among the treatment completers, the median number of sessions attended was 13 out of 16 total sessions.

Preliminary analyses also evaluated the mean number of motives endorsed, percentage of respondents who endorsed each weight loss motive, and the relationship between weight loss motives and demographics (Table 2). The mean number of weight loss motives endorsed by the children was 6.28. Children most frequently reported being motivated to lose weight to improve their appearance and health. The least frequently endorsed weight loss motives were “I saw a friend or family member loses weight” and “my family teases me about my weight.” Correlations were calculated between motives items and child age, child gender, child BMI, parent BMI, and treatment group. Among children, older age was significantly related to endorsement of “Want to have better health” as a weight loss motive ( $r = 0.25$ ,  $p = 0.03$ ). Male gender was significantly associated with endorsement of “Want to do better at sports” ( $r = -0.29$ ,  $p = 0.02$ ) and female gender was significantly associated with “I saw a family member or friend lose weight” ( $r = 0.25$ ,  $p = 0.03$ ). A higher child BMI was significantly associated with endorsement of “Want to have better health” ( $r = 0.23$ ,  $p = 0.05$ ), “I’m

**Table 2** Weight loss motives endorsed by 77 children enrolled in family-based treatment

What makes you want to lose weight?	Frequency endorsed
<b>Personal weight loss motives</b>	
I want to look better	65 (84.4 %)
Want to have better health	63 (81.8 %)
Want to do better at sports	60 (79.9 %)
I want to fit into different clothes	58 (75.3 %)
I am tired of my weight	58 (75.3 %)
I feel bad about myself	39 (50.6 %)
It was too difficult for me to get around or feel comfortable	23 (29.9 %)
<b>Social/familial weight loss motives</b>	
Parent(s) said I should lose weight	42 (54.5 %)
I saw a friend or family member lose weight	25 (32.5 %)
Family teases me about my weight	15 (19.5 %)

**Table 3** Associations between child weight loss motives and number of sessions attended ( $n = 77$ )

Motive	<i>B</i> (95 % CI)	<i>p</i>
Personal	-0.12 (-1.21, 0.44)	0.36
Family	0.27 (0.13, 2.94)	0.03

From a hierarchical regression model with number of sessions attended entered as the dependent variable and group membership and child BMI entered as covariates

tired of my weight” ( $r = 0.26$ ,  $p = 0.02$ ), and “I want to fit into different clothes” ( $r = 0.28$ ,  $p = 0.01$ ). A higher parent BMI was significantly associated with endorsement of “Want to have better health” ( $r = 0.23$ ,  $p = 0.04$ ) and “I’m tired of my weight” ( $r = 0.33$ ,  $p < 0.01$ ). Endorsement of “Family teases me about my weight” was significantly associated with randomization into the parent–child treatment group ( $r = -0.31$ ,  $p = 0.01$ ). No other significant relationships were observed.

Table 3 describes the association between endorsement of personal and social/familial weight loss motives and session attendance after controlling for group membership (parent + child vs. parent only) and child BMI. Endorsement of a greater number of social/familial weight loss motives was significantly related to a greater number of sessions attended during FBT ( $p = 0.03$ ).

Table 4 describes the impact of endorsement of personal and social/familial weight loss motives on treatment completion after controlling for group membership (parent + child vs. parent only) and child BMI. Personal and social/familial weight loss motives were entered into a multivariate logistic regression model predicting treatment completion (yes vs. no). Results indicated that children

**Table 4** Longitudinal associations between child weight loss motives and treatment completion ( $n = 77$ )

Motive	OR (95 % CI) <sup>a</sup>	<i>p</i>
Personal	0.72 (0.50, 1.03)	0.08
Family	2.26 (1.21, 4.23)	0.01

<sup>a</sup> From a logistic regression model with treatment completion (yes vs. no) entered as the dependent variable and group membership and child BMI entered as covariates

who endorsed a greater number of social/familial weight loss motives were 2.26 times more likely to complete treatment than those children who endorsed fewer social/familial weight loss motives.

Table 5 describes the association between personal and social/familial weight loss motives and child Body Mass Index (BMI) at post-treatment and at the 6-month post-treatment visit, after controlling for group membership (parent + child vs. parent only) and child age, gender, and BMI. The regression was calculated using the entire sample of 77 children, with the last BMI value carried forward. Endorsement of a greater number of social/familial weight loss motives was significantly related to a lower child BMI at post-treatment ( $p = 0.02$ ). Endorsement of social/familial weight loss motives was associated with lower child BMI at the 6-month post-treatment visit, although this relationship only approached significance ( $p = 0.08$ ).

An analysis was also conducted to examine the association between personal and social/familial weight loss motives and child BMI among the 49 families who completed treatment. Results of these analyses showed that endorsement of a greater number of social/familial weight loss motives was significantly related to a lower child BMI at the 6-month post-treatment visit ( $p = 0.04$ ). Endorsement of social/familial weight loss motives was associated with lower child BMI at post-treatment, although this relationship only approached significance ( $p = 0.07$ ).

Four final regression analyses were calculated to examine the associations between total number of motives endorsed by overweight children and number of sessions attended, treatment completion, and child BMI at post-treatment at the 6-month follow-up visit. The total number of weight loss motives was not significantly associated with any of the dependent variables.

## Discussion

Although family-based treatment (FBT) is considered the optimal behavioral treatment for childhood obesity, there are no prior studies evaluating the weight loss motives of children enrolled in FBT and the potential influence of these motives on treatment outcomes. The current study



**Table 5** Longitudinal associations between child weight loss motives and BMI at post-treatment and at 6-month post-treatment using intent-to-treat analyses ( $n = 77$ )

Motive	BMI post-treatment		BMI at 6 month post-treatment	
	<i>B</i> (95 % CI)	<i>p</i>	<i>B</i> (95 % CI)	<i>p</i>
Personal	0.04 (−0.03, 0.31)	0.11	0.02 (−0.15, 0.30)	0.50
Family	−0.06 (−0.65, −0.05)	0.02	−0.06 (−0.72, 0.05)	0.08

Assessed with hierarchical regression models with child gender, age, baseline BMI, and group membership entered as covariates

adds to the literature by examining weight loss motives among 77 children enrolled in FBT for childhood obesity. In addition, the present study examined the impact of personal and social/familial motives on treatment-related variables (i.e. number of sessions attended, treatment dropout, child BMI post-treatment, and BMI 6-months post-treatment). Contrary to the hypothesis, social/familial motives (i.e. “parents said I should,” “family teases me about my weight,” and “I saw a friend or family member lose weight,”) were the not most frequent motives for weight loss endorsed by children in the sample. Also contrary to the hypotheses, a greater number of personal weight loss motives were not significantly related to a greater number of sessions attended, higher rates of treatment completion, or lower BMI post-treatment among children in our sample. Furthermore, endorsement of social/familial weight loss motives was not predictive of low session attendance, treatment dropout, or poorer treatment outcomes. Instead, findings suggest the opposite, highlighting the crucial role of the family in the treatment of child obesity. In the present study, endorsement of social/familial weight loss motives was significantly associated with a greater number of sessions attended during FBT. In addition, children who endorsed a greater number of social/familial weight loss motives were 2.26 times more likely to complete treatment as compared to children who endorsed fewer social/familial weight loss motives. Likewise, endorsement of social/familial weight loss motives was significantly related to a lower BMI in children at the post-treatment assessment. Among treatment completers, endorsement of social/familial weight loss motives was significantly related to lower child BMI at the 6-month post-treatment visit.

Children endorsed a range of weight loss motives in the current study, with the most commonly reported reasons being “I want to look better,” and “I want better health.” Social/familial weight loss motives were less frequently reported by the children in our sample. Endorsement for social/familial items ranged from 19 to 54 %, whereas most of the personal weight loss motives were endorsed by over 75 % of the children. These findings are in contrast with two prior investigations that examined weight loss motives in children [14, 15]. In

these studies [14, 15], children did not commonly report personal reasons for weight loss (e.g., health concerns); and, instead, they endorsed social reasons such as wanting to be accepted by peers. Contradictory findings may be explained by the use of different assessment methods. Although one of the social/familial items in the present study included “I saw a friend or family member lose weight,” the motivation measure was limited by not directly asking about being accepted by peers as a motive. Including additional social/familial motive items could have resulted in increased endorsement by children. In addition, in the prior studies, qualitative methods were employed, including individual interviews and focus group discussions designed for children to openly discuss their thoughts and feelings about overweight and weight loss treatment. Children in these focus groups may have felt comfortable sharing their honest feelings about the social experiences associated with being overweight. Furthermore, as compared to the present study, the above mentioned studies both included older children, with the ages of study participants ranging from 8 to 14 [14] and 11 to 17 [15]. Due to the development of abstract thinking and verbal skills, older children might be better able to recognize and verbalize social reasons for weight loss more than younger children.

In addition to examining frequency of motives endorsed by children in the sample, the present study examined the association between child BMI and endorsement of various weight loss motives. A greater child BMI at baseline was significantly associated with endorsement of “I want to have better health,” “I want to fit into different clothes,” and “I am tired of my weight.” As obesity increases, it is possible that children develop different reasons for wanting to lose weight, and it may benefit clinicians to be sensitive to these variations. Additional research may be helpful to further explore differences in child motivation based on BMI differences.

Regression results showed a positive effect of social/familial weight loss motives on session attendance, rates of treatment completion, and child BMI. Overweight children enrolled in FBT who report being motivated by social/familial reasons to lose weight may have higher rates of session attendance and treatment completion and better

weight loss, as compared to children who are less motivated by social/familial reasons to lose weight. It is possible that social/familial weight loss motives are more enduring and, consequently, more influential than children's personal reasons for weight loss, which may be fleeting. For example, children whose parents provide consistent reminders and encouragement to engage in healthy behaviors may be experiencing a more permanent reminder of the value of weight loss, as compared to children whose families are less involved in weight loss behaviors. Furthermore, although detrimental, teasing by family members may produce immediate negative consequences for children that persist over time, increasing motivation to change their weight. Interestingly, among treatment completers only, a stronger association was observed between social/familial weight loss motives and child BMI at 6-months post-treatment, as compared to directly after treatment. Family influence on child weight loss among families who complete FBT may be most critical in the months after treatment, when the immediate intervention effects become less potent.

In the present study, the impact of social/familial child weight loss motives on treatment outcomes was examined for a combined sample of families enrolled in both parent-only and parent-child FBT. Social/familial weight loss motives in children may impact treatment outcome in both treatment conditions. In the parent-child condition, children who are motivated by social/familial factors may demonstrate greater treatment engagement both within and between treatment sessions (e.g. by requesting to attend sessions, participating in session activities, completing self-monitoring of food intake, and increasing physical activity during the week). Child weight loss motives may still influence treatment outcome in the parent-only condition. Although these children are not attending treatment sessions, children who readily comply with treatment changes proposed by parents could positively influence parent engagement and treatment outcomes. In contrast, children who resist behavioral changes introduced by parents could ultimately affect parental engagement and treatment outcomes. For example, children who are non-compliant with treatment goals could raise frustration and reduce motivation in parents, potentially affecting session attendance and implementation of behavioral changes recommended in treatment. The present study did not allow for a comparison of the impact of child weight loss motivation in parent-child vs. parent-only FBT since analyses would be underpowered due to low sample size (i.e., parent-child group:  $n = 38$ ; parent-only:  $n = 39$ ). Even though it was not examined in the present study, comparing the influence of child weight loss motivation on treatment outcomes in parent-child vs. parent-only FBT is an interesting area of future research.

Present findings highlight the potential impact and benefit of incorporating family members in childhood obesity treatment. Given the prior literature highlighting the crucial role of parent involvement in psychosocial treatments for children [26], current findings are not surprising. A review article examining youth treatment studies concluded that parent willingness to participate in treatment and parent participation in treatment were positively related to youth outcomes [27]. Similarly, treatments for child obesity that are directly administered to parents seem to be just as effective as treatments that include both children and parents [22]. Although children may have their own reasons for wanting to lose weight, the decision to initiate treatment and subsequent healthy behavior changes is usually triggered by the child's mother or another adult figure [14]. Our study suggests that when children are aware of social/familial beliefs about body weight/weight loss, and feel motivated by this, they may be more likely to complete behavioral weight loss treatment and they may exhibit better weight loss outcomes, as compared to children who are not influenced by social/familial pressures.

In the present study, endorsement of personal weight loss motives in children was unrelated to treatment outcomes, including session attendance, treatment completion, and BMI. The lack of impact of personal weight loss motives on treatment outcomes may be unexpected, in light of self-determination theory which predicts that intrinsic motivation fosters treatment engagement and successful behavior change. Self-determination theory may not be applicable to children enrolled in FBT who are traditionally between the ages of 8 and 12. Previous research demonstrating the positive impact of autonomous motivation on physical activity behavior has been primarily conducted with adolescents [19–21]. Intrinsic motivation was largely unrelated to increased exercise in younger [28], more overweight [29], and underserved [29] groups of children. Intrinsic or autonomous reasons for weight loss do not appear to be necessary for successful pediatric obesity interventions. 8–12 year old children may not have the capacity for experiencing truly autonomous reasons for wanting to change their weight since abstract thinking skills have not yet fully developed in this age group.

The present study aimed to examine reasons children want to lose weight and their possible impact on treatment, an area that has never before been investigated among children in FBT. Study strengths include the use of a treatment-seeking sample and a study design that allowed for examination of the influence of weight loss motives on child BMI over time. Study limitations include the moderate sample size and absence of a parent measure of treatment motivation. Including a parent measure of motivation could have greatly strengthened the study by elucidating the differential impact of parent and child motivation on treatment outcome. It is possible that parent



motivation is more critical to success in FBT than child motivation, and we believe this is an important area for future research. The study is also limited by the use of a non-validated, self-report measure of weight loss motives. The measure may not have sufficiently assessed the range of weight loss motives important to children; and it did not allow for measurement of the relative importance of various motives. Specifically, peer factors that may influence children to lose weight were largely excluded from the motivation measure and should be included in subsequent versions of the questionnaire. Despite these limitations, results highlight the unique contribution of social/familial/motives on treatment outcomes suggesting the possible utility of examining this construct. Additional research is needed to examine the role of social/familial motives in child obesity treatment in a larger sample.

Future research should further evaluate motives for weight loss in clinical and non-clinical samples and among both children and adolescents to examine potential differences between various groups and age ranges. Studies examining the unique effects of autonomous and controlled reasons for weight loss on children and adolescent weight loss outcomes would be helpful to examine the relevance of self-determination theory at varying developmental stages. Research explaining the process through which children develop motivation for change, including a focus on family influences may be useful. Studies examining associations between child and parent motivations, their relationship over time, and their combined impact on treatment variables may also reveal important findings relevant to child obesity. Research findings could be used to inform providers recommending treatment to overweight children, parents who are concerned about an overweight child, and clinicians administering interventions. More specifically, if current findings are replicated, they may inform the development of a motivational enhancement intervention for children enrolled in behavioral weight loss treatment. In our sample, children reported an array of reasons for wanting to lose weight. However, findings highlight the fundamental role of families and parents of children in child obesity treatment.

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**Conflict of interest** None.

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