PARENTAL RESTRICTION AND ITS ASSOCIATION WITH CHANGES IN CHILD INTAKE OF CAKES AND SUGAR SWEETENED BEVERAGES

by

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Parent feeding practices, such as parental restriction, are thought to influence children’s eating habits. This study examined the association between parental restriction and changes in child intake of unhealthy foods, particularly cakes and sugar-sweetened beverages (SSBs). Participants (n=172) consisted of parent-child dyads from the My Parenting SOS study that had complete restriction and diet data at baseline and follow-up (eight months later). Parental restriction was measured using two subscales of the Comprehensive Feeding Style Questionnaire (CFPQ)—restriction for health and restriction for weight control. Tertiles of high, moderate, and low restriction were created and associations with child diet data evaluated for associations with changes in cakes and SSB intake. Results suggest no significant associations between different levels of restrictive feeding practices and child intake of cakes or SSBs (p-values ranging from 0.09 to 0.95). Future research should continue to explore the relationships between low, moderate, and high restriction and diet outcomes using larger numbers of participants and additional days of dietary data.
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CHAPTER ONE
INTRODUCTION

Childhood obesity is a major problem in the United States, as more than 1 in 4 children between the ages of 2 and 5 are overweight or obese [1]. In North Carolina alone, 16.2% of children between the ages of 2 and 5 are overweight and an additional 15.5% are obese [2]. Childhood obesity has been associated with many metabolic risk factors, such as large waist circumference, hypertension, high triglycerides, hyperglycemia, and low HDL [3]. Childhood obesity also has been associated with psychosocial issues, including depression, low self-esteem, and body dissatisfaction [4]. Children who are overweight or obese also tend to be less active than their normal-weight peers [5].

Childhood obesity is of particular concern because overweight children are at risk of becoming overweight adults [6]. Nearly 70% of adults in the United States are overweight or obese. More than one-third of adults in the United States have a BMI above 30, indicating obesity [7]. Obesity in adulthood has been associated with many poor health outcomes, including heart disease, diabetes mellitus, hypertension, sleep apnea, and kidney disease [8, 9]. Overweight and obese adults also are more likely to experience a poorer quality of life than their normal-weight counterparts [10].

Because childhood obesity has many potential negative short-term and long-term health effects, reducing the prevalence and incidence of childhood obesity is of the main goals of public health experts. Intervening in the early childhood years, particularly in the pre-school years, is one strategy for combating childhood obesity. The first few years of life are believed to be important for shaping feeding behaviors that last into childhood and adulthood [11]. Parents, as
the primary caregivers to their child, are responsible for molding their child’s eating habits and environment. Therefore, parents serve as desirable intervention targets.

One way in which parents can help shape their child’s eating habits and behaviors is through parent feeding practices. Parenting practices, as explained by Darling and Steinberg, are “the mechanism through which parents directly help their child attain their socialization goals” [12]. Parenting practices are specific and measurable. General parenting practices include encouraging a child through material rewards, invoking corporal punishment for child misconduct, and praising a child for following directions, among others [13].

General parenting practices have been adapted for the feeding environment, and are known as parent feeding practices. In the feeding domain, parent feeding practices are the specific actions that parents take to influence their children’s feeding habits. Examples of parent feeding practices include encouraging a child to eat his or her vegetables, using food as a reward, restricting a child from eating certain foods, and praising a child for eating all of the food on his or her plate, among many others [14, 15].

The current literature on parent feeding practices focuses heavily on parental restriction. Restrictive feeding practices are those in which a parent limits the amount or types of food a child eats [16]. Some examples of restrictive practices are when parents limit their child’s intake by refusing to buy a certain type of food or allow their child to eat only a specific quantity of a particular food. Restrictive feeding practices are most commonly measured using survey instruments.

There are many self-report instruments that have been developed to measure parent feeding practices, including parental restriction. One of the most widely used instruments is the Child Feeding Questionnaire (CFQ), which was developed by Leann Birch and colleagues. The
CFQ measures general parent restriction and historically has been the most frequently used instrument for measuring parental restriction [17]. One drawback of the CFQ, however, is that it was developed using data from a small sample of predominantly white, upper-class mother-daughter dyads in Pennsylvania. Another drawback of the CFQ is that the only parent feeding practices it measures are the practices of monitoring, restriction, and pressure; it fails to explore other feeding practices that may be related to child dietary outcomes or child BMI.

In response to the limitation of the CFQ for measuring a diverse array of parent feeding practices, Musher-Eizenman and colleagues developed the Comprehensive Feeding Practices Questionnaire (CFPQ) [18]. The CFPQ incorporates measures of child control, child involvement, parent modeling of healthy eating, parental restriction, parental pressure to eat, parent modeling of healthy eating, parental monitoring of intake, and parental encouragement of eating balanced meals. The CFPQ has been validated in a large, diverse sample and is a more desirable tool than the CFQ for measuring a large number of parent feeding practices [19].

The CFPQ is a particularly useful instrument for measuring parental restriction because it includes subscales that identify the motivation behind the use of restrictive feeding practices, providing a more comprehensive picture of restrictive practices. The two restriction subscales of the CFPQ are restriction for health and restriction for weight control. The restriction for health subscale was created to acknowledge that parents may use restrictive feeding practices in hopes of improving a child’s overall health, such as reducing disease burden or improving overall wellness. Parents who have high nutritional knowledge may use restriction for health to encourage fruit and vegetable consumption and discourage the intake of unhealthy foods [20, 21].
The second restriction subscale of the CFPQ is restriction for weight control. This subscale measures restrictive feeding practices that are motivated by parental concern about their child’s weight. Parents may use restriction for weight control if they fear that their child may become overweight, or as a strategy to promote weight loss or maintenance in their child [16, 22]. Interestingly, parental use of restriction for weight control is highly correlated to the parent’s own weight status. In other words, overweight or obese parents are more likely to use restriction for weight control, even if their child is not overweight, than normal-weight parents [23, 24]. The CFPQ’s ability to measure different subscales of restriction makes it a more desirable instrument for evaluating restrictive feeding practices than the CFQ, which does not include different subscales of restriction.

The relationship between parental restriction and child BMI has been researched extensively. The vast majority of the literature on parental restriction uses a cross-sectional design to explore this relationship. Most studies examine restriction as a discrete variable, using median splits of responses to code restriction as “high restriction” or “low restriction”. Many studies have found that high parental restriction is associated with high child BMI [25-30]. However, other studies have found a negative association between high parental restriction and child BMI [31], or no association between parental restriction and child BMI [32, 33]. While most of the cross-sectional literature points to a positive association between parental restriction and child BMI, longitudinal studies paint a more complex picture.

Several longitudinal studies examining the relationship between parental restriction and child BMI have controlled for previous child weight status [34, 35]. Some of these studies have found no association or a negative association between restriction and child BMI [34, 35]. For example, Rifas-Shiman found that parental restriction was positively correlated to child BMI
before, but not after, adjusting for weight-for-length at age one [34]. However, other longitudinal studies have found that parental restriction is still associated with child BMI even after controlling for previous child weight status [27, 33, 36]. A review of the literature on parental restriction suggests that the effect of parental restriction on child BMI is unclear.

Unfortunately, there is a gap in the research exploring the association between parental restriction and child dietary intake. Some studies have shown that children are more likely to over-consume unhealthy foods if they were previously restricted [25, 37]. A study by Brown and colleagues found that parental restriction was associated with greater intake of both healthy and unhealthy snack foods [38]. Studies examining parental restriction and sugar-sweetened beverage (SSB) intake have found that high parental restriction is associated with lower SSB consumption [39, 40]. Parental restriction and its influence on child intake certainly presents a gap in the literature, and the current study serves to address this gap while considering the longitudinal effects that baseline restriction may have on child intake.

The purpose of this study is to determine if baseline restrictive feeding practices are associated with changes in total child energy intake, cakes intake, and SSB intake over an 8 month period. Thus, this study will examine the longitudinal association between restriction and child intake. To evaluate the association between restriction and child intake, three specific aims have been developed.

Aim 1: Evaluate the relationship between baseline parental restriction and changes in child total energy intake at 8 months follow-up. It is hypothesized that high and low restriction, but not moderate restriction, will be associated with positive changes in total child energy intake.
Aim 2: Evaluate the relationship between baseline parental restriction and changes in child intake of cakes at 8 months follow-up. It is hypothesized that high and low restriction, but not moderate restriction, will be associated with positive changes in cake intake.

Aim 3: Evaluate the relationship between baseline parental restriction and changes in child intake of SSBs at 8 months follow-up. It is hypothesized that high and low restriction, but not moderate restriction, will be associated with positive changes in SSB intake.
CHAPTER TWO

METHODS

The data for this study were collected as part of the My Parenting SOS study by Ward et al. [41]. The My Parenting SOS study was a 35-week intervention study whose goal was to promote healthy weight gain in pre-school aged children through a parent-centered intervention. The primary outcome of interest of My Parenting SOS was mean change in percent body fat between intervention and control groups at the conclusion of the 35-week program. Secondary outcomes included changes to the quality of dietary intake and changes in physical activity between intervention and control groups from baseline to the conclusion of the 35-week program.

Over the course of this study, parent-child dyads were recruited to participate in a 35-week intervention program. Inclusion criteria included having at least one child between the age of 2 and 5 years old, at least one parent with a BMI greater than 25, willingness to participate in intervention activities, and ability to speak and understand English. The intervention began with a kick-off event, during which time parent-child dyads were randomized. Parent and child anthropometrics were measured during the kick-off events by trained staff, and parents completed surveys relating to parent psychosocial measures.

Following the kick-off event, parents in the intervention group attended 12 in-person group sessions and received 11 tailored phone calls over the next 35 weeks. The in-person group sessions focused on parenting skills and how to apply these skills to promote healthy nutrition and physical activity behaviors in their pre-school aged children. The tailored phone calls were used to provide support to parents and discuss the success and challenges of implementing new
parenting strategies. Parents in the control group were enrolled in a book club and received eight books in the mail over the 35-week period. The books were not related to nutrition or physical activity.

Several measures were assessed at 3 time points in this study: baseline, post-intervention (at the conclusion of the 35-week program), and 6 months-post intervention (maintenance period). At all of these time points, parent-child dyads completed anthropometric measures and parent psychosocial measures. Parents also completed 3 unannounced dietary recalls over a 4-week period during baseline, post-intervention and maintenance. The dietary recalls captured parent and child intake over 2 weekdays and 1 weekend day in this period.

The data for the current study were collected during the 3 waves (cohorts) of the My Parenting SOS study. Parent-child dyads with complete parental restriction data and weekend dietary recall data at baseline and post-intervention (hereafter referred to as “follow-up”) were included in analysis. Parental restriction was measured using the restriction for health and restriction for weight control subscales of the Comprehensive Feeding Practices Questionnaire [42] (Appendix A). The CFPQ is scored based on parental responses to statements asking how likely they are to use restriction. Each response is ranked from 1-5 based on answers to a 5-point response scale, and the sum of responses across a subscale provides the total restriction score for that subscale.

In the present study, weekend dietary recall data were used to assess child intake when under the direct care of their parent. UNC Nutrition Epidemiology Core coded discrete foods served into food categories. This study looks at the intake of cakes and SSBs. Cakes, also known as “grain based desserts”, include cakes, pastries, cookies, danishes, and donuts. SSBs include soda, energy drinks, sports drinks, and non-100% fruit juice. This study analyzed
baseline and follow-up changes to: (1) total child energy intake, (2) servings of cakes per 100 kcal, and (3) servings of SSB per 100 kcal. The variable for servings of cakes and SSB indicates the number of servings of cakes/SSBs as a proportion of the child’s total caloric intake. For example, if a child consumed 1,000 kcals in a day and had 1 serving of SSB, his daily servings of SSBs would be 0.1 servings of SSB per 100 kcal. Cakes and SSBs are measured using this “servings of X per 100 kcal” variable, where X represents cakes or SSBs. Total child energy intake is measured as the total amount of kcals a child consumes over the course of the day.

Statistical analysis for this study was performed using SPSS version 21 (SPSS IBM, New York, U.S.A.). To begin analysis, skewness and kurtosis of all relevant variables (restriction for health, restriction for weight control, and diet outcomes) were assessed to determine normality. All skewness values were below 2.0 and all kurtosis values were below 4.0, so transformations weren’t needed.

In order to analyze the restriction for health and restriction for weight control subscales, tertiles of low, moderate, and high restriction were created for each subscale. Tertiles were created based on the $33^{rd}$ and $66^{th}$ percentiles of scores for each subscale. For example, the “low” restriction groups consisted of data from parent-child dyads in which parent scores fell below the $33^{rd}$ percentile of scores. The “moderate” restriction group included data from parent-child dyads whose restriction scores fell between the $33^{rd}$ and $66^{th}$ percentile. The “high” restriction group included parent-child dyads whose restriction scores fell above the $66^{th}$ percentile. Restriction for health and restriction for weight control tertiles were created independently of one another. After creating these groupings, tertiles were probed for non-linear effects. No significant associations were found upon probing.
Before examining associations between restriction and dietary intake, a correlation matrix was created to evaluate restriction for health and restriction for weight control covariates (Appendix B). Restriction for weight control was significantly correlated with child BMI (p<0.01) and parent BMI (p<0.05). Restriction for health was not significantly correlated with any variables. Final models controlled for randomization group because data came from an intervention study. The final model of restriction for health controlled for randomization group only. The final model of restriction for weight control controlled for child BMI, parent BMI, and randomization group. Once models of restriction and its covariates were created, these models were run against changes in total energy intake, servings of cakes per 100 kcal, and servings of SSB per 100 kcal from baseline to follow-up using a mixed repeated measures ANOVA. Significant associations were probed to examine interaction effects between restriction tertiles using an independent sample t-test of change score between tertiles.
CHAPTER THREE
RESULTS

Among participants in the My Parenting SOS study, 172 parent-child dyads had complete restriction and weekend dietary recall data. Table 1 shows the demographic characteristics of the parent-child dyads at baseline. The mean child age at baseline was 3.43 ± 0.84 years. The mean child BMI was 16.39 ± 1.47 and the mean parent BMI was 29.16 ± 6.80. The majority of dyads had a household income greater than $50,000 and the majority of parents were college graduates or held masters or doctoral degrees. There were 85 male and 87 female pre-schoolers in the sample. Demographic trends, restriction data, and diet data did not differ significantly between male and female pre-schoolers (p-values between 0.09 and 0.93). Of the 172 parent-child dyads, 82 were part of the intervention group and 90 were part of the control group.

Table 1: Demographic characteristics of parent-child dyads at baseline

<table>
<thead>
<tr>
<th></th>
<th>Baseline (n=172)(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child age (y)(^2)</td>
<td>3.43 ± 0.84</td>
</tr>
<tr>
<td>Sex (% male)</td>
<td>49.4</td>
</tr>
<tr>
<td>Child BMI(^2)</td>
<td>16.39 ± 1.47</td>
</tr>
<tr>
<td>Parent BMI(^2)</td>
<td>29.16 ± 6.80</td>
</tr>
<tr>
<td>Parent weight status(^3) (%)</td>
<td></td>
</tr>
<tr>
<td>Normal weight</td>
<td>32.0</td>
</tr>
<tr>
<td>Overweight</td>
<td>31.4</td>
</tr>
<tr>
<td>Obese</td>
<td>36.6</td>
</tr>
<tr>
<td>Household income (%)</td>
<td></td>
</tr>
<tr>
<td>Less than $25,0000</td>
<td>7.8</td>
</tr>
<tr>
<td>$25,000-$49,999</td>
<td>20.4</td>
</tr>
<tr>
<td>$50,000 or higher</td>
<td>71.8</td>
</tr>
<tr>
<td>Parent education (%)</td>
<td></td>
</tr>
<tr>
<td>High school grad or GED</td>
<td>1.2</td>
</tr>
<tr>
<td>Some college or tech school</td>
<td>11.1</td>
</tr>
<tr>
<td>College graduate</td>
<td>48.0</td>
</tr>
<tr>
<td>Masters/Doctoral degree</td>
<td>39.7</td>
</tr>
</tbody>
</table>

\(^1\) variables did not differ between boys and girls (p=0.09-0.93)
\(^2\) mean ± SD
\(^3\) Weight status based on BMI as follows: BMI normal weight (18.5–24.9), overweight (25.0–29.9), or obese (≥ 30.0)
Table 2 illustrates the mean and standard deviation of the three diet outcomes of interest at baseline and follow-up. This table does not account for different levels of parental restriction among parent-child dyads. Total energy intake and servings of cakes per 100kcal increased slightly from baseline to follow-up, while servings of SSBs per 100kcal dropped slightly from baseline to follow-up.

### Table 2: Child dietary intake at baseline and follow-up

<table>
<thead>
<tr>
<th></th>
<th>Baseline (n=172)</th>
<th>Follow-up (n=172)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Kcals</td>
<td>1165± 433</td>
<td>1229 ± 492</td>
</tr>
<tr>
<td>Servings of Cakes per 100 Kcal</td>
<td>0.02906 ± 0.04824</td>
<td>0.03000 ± 0.04900</td>
</tr>
<tr>
<td>Servings of SSB per 100 Kcal</td>
<td>0.03340 ± 0.06488</td>
<td>0.03189 ± 0.04534</td>
</tr>
</tbody>
</table>

1 variables did not differ between boys and girls (p=0.09-0.93)

Figures 1-3 illustrate the trends between each restriction for health tertile and the three diet outcomes of interest. The interaction between levels of restriction for health and diet outcomes was non-significant. The association between baseline restriction for health and change in total energy intake had a p-value of p=0.232. The association between baseline restriction for health and change in servings of cakes per 100 kcal had a p-value of p=0.843. The association between restriction for health and changes in servings of SSB servings per 100 kcal had a p-value of p=0.869.
Figures 4-6 illustrate the trends between each restriction for weight control tertile and the three diet outcomes of interest. All associations were non-significant. The association between baseline restriction for weight control and change in total energy intake had a p-value of
p=0.897. The association between baseline restriction for weight control and change in servings of cakes per 100 kcal had a p-value of p=0.954. The association between restriction for weight control and change in servings of SSB per 100 kcal had a p-value of p=0.093.

Figure 4: Change in total energy intake by restriction for weight control tertile

Figure 5: Change in servings of cakes per 100 kcal by restriction for weight control tertile

Figure 6: Change in servings of SSB per 100 kcal by restriction for weight control tertile
Although all associations were non-significant, the relationship between restriction for weight control and change in servings of SSB per 100 kcal had the lowest p-value (p=0.093). This interaction was probed for pairwise effects. It must be stressed that to probe for interaction effects, a significant interaction (p<0.05) generally is required. The association between restriction for weight control and SSB intake was probed to illustrate how significant results could have been probed to analyze interactions and trends. Figure 6 illustrates that the low and medium tertiles of restriction are trending in opposite directions. Pairwise comparisons between the low and medium tertiles were probed to create an interaction plot (Figure 7).

![Interaction plot](image)

**Figure 7: Interaction plot of restriction for weight control tertiles and change in servings of SSB per 100 kcal**

Figure 7 illustrates that low restriction for weight control trends towards increasing mean change in servings of SSB per 100 kcals over time (positive mean change), and moderate restriction trends towards decreasing mean change in servings of SSB per 100 kcals over time (negative mean change), although these results are not significant (p=0.065). Once again, using proper
data analysis methods, these interactions should not have been explored because the initial association between restriction for weight control and servings of SSB per 100kcal was not significant.
CHAPTER FOUR

DISCUSSION

The results of this study suggest there is no association between varying levels of parental restriction and changes to child intake of SSBs and cakes. Although no significant associations were found, this study adds to the literature by examining 3 levels of restriction, rather than only 2 levels. The advantage of analyzing low, moderate, and high levels of restriction is that this may help to identify a curvilinear (polynomial) relationship, if one does exist. Previous studies have focused primarily on median-splits of restriction data, creating levels of high and low restriction without considering a moderate level.

One notable finding was the trend between low and moderate parental restriction for weight control and changes in child intake of SSBs. Although it must be re-stated that this association was non-significant, there is a trending relationship in which low parental restriction is associated with increased SSB intake and moderate parental restriction is associated with decreased SSB intake, trending in the hypothesized direction. This implies that the level of restriction that is practiced may influence dietary intake. Musher-Eizenman also has proposed that restriction may be most effective when practiced in moderation, whereas low and high restriction may be linked to negative outcomes [43]. Future research should continue to explore the relationships between low, moderate, and high restriction and diet outcomes.

The results of this study also suggest that higher parental restriction is not associated with greater changes in child intake, especially when parents control their child’s dietary options. It is possible that children whose parents practice highly restrictive practices did not have access to the restricted foods, such as cakes and SSBs, but if given access to these foods would have
consumed more than children whose parents practiced low or moderate restriction. If this is the case, it may be that parental restriction is not associated with child intake when parents have complete control over the feeding environment; however, when children are able to make independent decisions about intake they choose to consume more of the restricted foods than children who do not view the food item as a restricted food.

Although neither restriction for health nor restriction for weight control was associated with dietary outcomes, it is important to address the significant correlation between restriction for weight control and parent and child BMI. The positive correlation between restriction for weight control and parent BMI has been noted in other studies [23, 24], and supports the idea that restriction exists across multiple subscales. The significant correlation between child BMI and parent BMI also has been documented in many studies, and suggests that gene-environment interactions affect weight status [44-46].

The positive correlation between child BMI and restriction for weight control also presents a notable discussion point. The association between child BMI and restriction for weight control is not well understood because the direction of causality is unknown. Parents may practice restriction because their child has a high BMI, and they are hoping that restriction for weight control will help manage their child’s weight. On the other hand, it is possible that restriction for weight control may be partially responsible for an increase in child BMI. The direction of this relationship is unclear, and future studies should examine this association prospectively.

Strengths of the current study include the use of a validated instrument for measuring two subscales of restrictive feeding practices and the use of tertiles to examine relative relationships between different levels of restriction and dietary intake. Differentiating restriction for health
and restriction for weight control allowed the restriction to be assessed based on two different motivating factors. Using tertiles of restriction, rather than simply “high” and “low” median splits, helped capture a “middle-ground” of moderate restriction. Most studies to date do not explore the influence of moderate levels of restriction.

Limitations of the current study include having only 1 day of dietary recall data and a relatively short follow-up period. For this analysis, only 1 full day of weekend dietary recall was collected at each timepoint and only partial days during the week (excluding the child care periods). It is possible that diet data collection may not be representative of an ordinary day, and thus this study would be strengthened if multiple days of diet data were available. Furthermore, the follow-up period was 8 months, which may not be long enough to assess the influence of baseline restrictive practices on child intake, especially considering the age of the children in this sample. Studies that have indicated disinhibited eating and greater intake of restrictive food have occurred in settings in which parents are unable to control their child’s access to these foods [27, 47]. These settings would include places like school and child care. Most children in this study were too young to have been enrolled in elementary school at follow-up, so it may be possible that no significant associations were seen because follow-up measures occurred too early to observe associations between baseline restriction and changes in SSB and cakes intake. Two further limitations of this study are that only a small number of participants were from low-income families, and parents in this sample generally were well educated. A sample with a greater range of household incomes and parent educations would be more indicative of the population at large.

The next steps in this research study would include analyzing baseline restriction and its association with maintenance (6 months post-intervention) dietary intake. It also may be helpful
to create age-adjusted BMI percentiles to measure sensitivity. Future research into parental restriction and changes in child dietary intake also should explore the mediating effect of parenting styles. Parent styles are the emotional climate or atmosphere a parent creates around their child’s eating environment. The classification of different feeding styles evolved from Diana Baumrind’s classification of broad parenting styles based on the dimensions of responsiveness and demandingness [48]. The effects of specific parent feeding practices, such as restriction, on child feeding habits and child BMI may be influenced by the parent feeding style under which the specific practice is undertaken [11, 23, 36]. Exploration of the relationship between feeding styles, feeding practices, and diet outcomes will help create a more comprehensive picture of the role that parents play in shaping child feeding behaviors.

In conclusion, this study has examined the effect of restrictive feeding practices on changes to child energy intake, SSB intake, and cakes intake. No significant associations were found between either restriction for health or restriction for weight control and changes in child dietary intake. However, this research suggests that trends between different levels of restrictive feeding practices are worthy of probing if significant associations are present. Trends may help clarify the effectiveness of different levels of restrictive feeding practices. Although this study suggests there is not a relationship between restrictive practices and future child intake of SSBs and cakes, further research must be conducted to evaluate longer-term effects of restriction on changes in child dietary intake.
Appendix A: CFPQ Survey Restriction Subscales

Restriction for Health Subscale

Statement 1: If I did not guide or regulate my child’s eating, (s)he would eat too much of his/her favorite foods.

Statement 2: If I did not guide or regulate my child’s eating, (s)he would eat too many junk foods.

Statement 3: I have to be sure that my child does not eat too much of his/her favorite foods.

Statement 4: I have to be sure that my child does not eat too many sweets (candy, ice cream, cake, or pastries.)

Restriction for Weight Control Subscale

Statement 1: I have to be sure that my child does not eat too many high-fat foods.

Statement 2: I encourage my child to eat less so (s)he won’t get fat.

Statement 3: I give my child small helpings at meals to control his/her weight.

Statement 4: If my child eats more than usual at one meal, I try to restrict his/her eating at the next meal.

Statement 5: I restrict the food my child eats that might make him/her fat.

Statement 6: There are certain foods my child shouldn’t eat because they will make him/her fat.

Statement 7: I don’t allow my child to eat between meals because I don’t want him/her to get fat.

Statement 8: I often put my child on a diet to control his/her weight.

Responses: All participants responded to each statement with “disagree”, “slightly disagree”, “neutral”, “slightly agree”, or “agree”.
### Appendix B: Correlation Matrix

#### Correlations

<table>
<thead>
<tr>
<th></th>
<th>Child Sex</th>
<th>Child BMI (baseline)</th>
<th>Child Age (baseline)</th>
<th>Parent Education</th>
<th>Household Income</th>
<th>Parent BMI (baseline)</th>
<th>Rand. Group</th>
<th>Restriction for Health (baseline)</th>
<th>Restriction for Weight Control (baseline)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child Sex</strong></td>
<td>1</td>
<td>-.129</td>
<td>-.021</td>
<td>.019</td>
<td>-.047</td>
<td>-.202**</td>
<td>.059</td>
<td>.118</td>
<td>.014</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.091</td>
<td>.783</td>
<td>.810</td>
<td>.543</td>
<td>.008</td>
<td>.441</td>
<td>.125</td>
<td>.855</td>
<td></td>
</tr>
<tr>
<td><strong>Child BMI</strong></td>
<td>-.129</td>
<td>1</td>
<td>-.172*</td>
<td>.008</td>
<td>.016</td>
<td>.228**</td>
<td>.051</td>
<td>.122</td>
<td>.296**</td>
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**. Correlation is significant at the 0.01 level (2-tailed).

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


