The Clean Plate Club
Multi-Generational Impact on Child and Adult BMI

Caty Velez, PhD Candidate, EGADE Business School – Instituto Tecnológico de Monterrey; Sudy Majd, PhD, University of Columbia; and Brian Wansink, PhD, Cornell University

Background

Finishing everything on one’s plate is strongly and positively correlated with Body Mass Index (BMI). This study explores the extent to which adults’ clean plate tendencies are inherited from their parents and passed onto their children and their relation to BMI of adults and children.

Methods

136 parents completed a written survey about current and past eating habits and self-reported height and weight. Heights and weights of children were measured by researchers. Correlation using SPSS 24 and mediation analyses using PROCESS model 6 were performed with children’s BMI as dependent variable and grandparents who asked their children to clean plates as independent variable. Parents’ BMI and parents asking their children to clean plates were used as the mediator variable (M1, M2, respectively).

H1: Cleaning plates tendencies are a multigenerational transmission process (grandparents-parents-children) that has a positive effect on children’s BMI

H2: Cleaning tendencies of the parents have a positive effect on children’s BMI through parents’ BMI

H3: Children’s gender (being female) positively moderates the relationship between a parent asking their children to clean their plates and the child doing it

Results

Positive correlation was found between parents who were told to clean their plates as children and their current BMI. Parents who recall their own parents insisting on clean plates did the same to their children. Mediation analysis results show a process, in which parents who were asked as children to clean their plates impacts their BMI as adults, which in turn has a positive relation with their own children’s BMI. In addition, a positive relationship was found between a parent being asked to clean their plate and a parent asking their children to clean their plates. However, there is no significant relationship detected between a child asked to clean their plate and a child’s BMI

Figure 3. Moderation result for green model 1: R² .1971, p<0.001**. Sobel p<0.05**

Note: Children BMI and Adult BMI were transformed (Ln) to better fit the assumptions

Table 1. Intergenerational Correlates of Plate Cleaning Behavior and BMI

<table>
<thead>
<tr>
<th>Results</th>
<th>BMI all adults</th>
<th>BMI all children</th>
<th>BMI girls</th>
<th>BMI boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>My parents usually insisted I clean my plate</td>
<td>(0.198^**)</td>
<td>(-0.002)</td>
<td>(0.288^**)</td>
<td>(0.095)</td>
</tr>
<tr>
<td>I usually clean my plate at dinner</td>
<td>(-0.101)</td>
<td>(-0.170^**)</td>
<td>(-0.130)</td>
<td>(-0.055)</td>
</tr>
<tr>
<td>I usually insist my child clean their plate</td>
<td>(-0.045)</td>
<td>(0.063)</td>
<td>(-0.114)</td>
<td>(0.027)</td>
</tr>
<tr>
<td>My child usually cleans their plate</td>
<td>(-0.172^*)</td>
<td>(0.022)</td>
<td>(-0.251^*)</td>
<td>(-0.073)</td>
</tr>
</tbody>
</table>

Note: Children BMI and Adult BMI were transformed (Ln) to better fit the assumptions

Conclusions

A vicious circle of parents having been asked as children to clean their plate can cause overweight and obesity to themselves and be transmitted to their children. Noteworthy, is the relationship of a child being asked to clean their plate and the child actually cleaning their plate, which is only significant for girls. More research is needed on plate cleaning as an adopted intergenerational trait and its relation to BMI. Nutrition education could focus on parent-child mealtime dialogue regarding eating behavior.

Supporting Literature