Introduction

- In 2016, approximately 40% of adults and 18.5% of children (aged 2-19) had an obese weight status.
- Child and parent obesity are highly correlated, with parental obesity being the strongest predictor of childhood obesity.
- Children are not meeting current daily recommendations for physical activity, further increasing their risk for obesity.
- Older children are at greater risk of not meeting physical activity recommendations, as rates of physical activity decrease with each increase in academic grade.
- For instance, only 33% of adolescents receive 60 minutes of physical activity per day.
- Interventions that target physical activity at the family level may support parental and child engagement in higher rates of physical activity and less sedentary activity.
- Family-based weight management is the standard of care in pediatric weight management, in which parental and child dietary and physical activity (PA) behaviors are equally targeted; few studies have focused on the effects of parental engagement in adult weight management programs (WMPs) on the behaviors and weight status of children living in the home.
- The purpose of this study was to explore associations between child demographics, family exercise participation, family rewards and punishment for exercise, and child physical and sedentary activities to identify specific areas of family-based physical activity intervention for children with parents engaged in WMPs.

Method

Sample

Parents (N=300) of children 2-18 years old were recruited from to complete a one-time survey. Parents were participating in medical weight management or weight loss surgery WMPs at The Ohio State University or Wake Forest University from May to November 2017 (IRB# 2017B0210).

Inclusion/Exclusion criteria

- English speaking and reading, parent age ≥ 18 years old, parent live in the home ≥ 4 days per week with their child and a romantic partner (≥ 18 years old), and no known parental medical conditions or terminal illnesses that would prevent them from participation in the WMP.

Measures:

1. Demographics questionnaire
   - Parent age, gender, height (feet, inches), weight (pounds), educational attainment, ethnicity, race, and number of children in the household
   - Child age, gender, weight, height, ethnicity, and race
2. Perceived child weight status (underweight, healthy weight, overweight, obese)
3. Perception of weight status is likely more accurate than having parents accurately self-report their child’s weight and height since the child was not available for measurement.
4. Social Support and Exercise Survey
5. Family Exercise Participation (10 items; α = .933)
6. Rewards and Punishment for Exercise (3 items; α = .727)
7. Project EAT Questionnaire
   - Children’s Physical Activity (3 items; α = .706.)
8. Children’s Sedentary Activity (14 items)
   - Separate weekday (α = .708) and weekend responses (α = .680)

Analyses

Bivariate (correlations, independent samples t-test) and multivariate analyses (ANOVA) tested associations between child demographics, family exercise participation, rewards and punishment for exercise, and children’s physical and sedentary activities (IBM SPSS+, Version 25.0, Chicago, IL). Missing data were handled using listwise deletion.

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Results

Table 2. Mean differences for child physical activity scales based on child demographics

<table>
<thead>
<tr>
<th>Sedentary activity</th>
<th>Strenuous physical activity</th>
<th>Family participation in exercise</th>
<th>Family rewards and punishment for exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>n</td>
<td>M</td>
<td>T</td>
<td>p</td>
</tr>
<tr>
<td>Child race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>180</td>
<td>3.09</td>
<td>1.23</td>
</tr>
<tr>
<td>Minority</td>
<td>90</td>
<td>3.54</td>
<td>1.27</td>
</tr>
<tr>
<td>Child gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>147</td>
<td>3.47</td>
<td>1.40</td>
</tr>
<tr>
<td>Female</td>
<td>127</td>
<td>3.00</td>
<td>1.03</td>
</tr>
<tr>
<td>Child weight status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy weight</td>
<td>220</td>
<td>3.24</td>
<td>1.30</td>
</tr>
<tr>
<td>Overweight/Obease</td>
<td>56</td>
<td>3.11</td>
<td>1.06</td>
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<tr>
<td>Child age</td>
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<td></td>
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<tr>
<td>School age or younger</td>
<td>185</td>
<td>3.05</td>
<td>1.20</td>
</tr>
<tr>
<td>Adolescent</td>
<td>94</td>
<td>3.65</td>
<td>1.30</td>
</tr>
</tbody>
</table>

1.* denotes statistical significance p<.05

Key Findings

- Parents who reported higher family exercise participation also reported that children had higher rates of mild physical activity and engaged in more electronic exercise games.
- Children who engaged in mild physical activity had less mobile/tablet use.
- Parents of children in the current study who identified as a racial/ethnic minorities reported higher family exercise participation and higher rates of exercise video game use.
- Parents reported that male children, children perceived to be a healthy weight status, and younger children engaged in more strenuous physical activity.
- Sedentary activity was higher for children who identified as male and racial/ethnic minorities.

Discussion

- Family-based physical activity interventions in adult WMPs may have the potential to aid parents with their own behavior change and weight loss, ensure that healthy physical activity habits are established for children, and potentially enhance family and parent-child relationships by engaging in fun and active time together.
- Family exercise participation and rewards and support were significantly associated with physical activity and healthier sedentary activities like exercise video game use.
- Parents reported that family exercise participation was significantly higher for children in racial/ethnic minority families.
- Racial/ethnic minority families, specifically, Black/African American families may benefit from interventions to enhance their existing family supports for physical activity engagement.
- Despite the novelty of the current study, it is not without limitations.
- This was a cross sectional study design, where parents self-selected in WMPs.
- Although child variables were assessed, they were assessed from the parent’s perspective, not through dyadic data collection involving the child.
- Future work should determine methods to engage children and their parents participating in WMPs in physical activity together, to ensure that the changes parents are making in WMPs are sustainable and to potentially prevent the onset of obesity in a high-risk group of children.

* References available by request