Yumbox: Bringing MyPlate to Preschoolers’ Lunches

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Abstract

The lunch contents of two preschools’ students (study school and control school) were evaluated to understand if the Yumbox lunchbox had any impact on the types of foods that caretakers packed for children’s lunches. Results indicate that Yumbox lunches included more fruits and vegetables and a bigger variety of MyPlate meal components, compared to a control group.

Teachers in a local preschool reported that their students’ lunches tended to lack nutritious components such as vegetables and fruits. Additionally, they reported that many students bring highly processed foods with added sugars, sodium and fat on a regular basis. This pilot program tested whether the Yumbox lunchbox, which contains labeled sections for all MyPlate meal components (vegetable, fruit, dairy, grain, protein), would have any effect on what types of foods these preschoolers brought for lunch.

Each child enrolled in this local preschool was given a Yumbox lunchbox. Parents were given a brief orientation on how to use the Yumbox, as well as suggestions for foods that would fit into each section. A similar, control preschool was selected for comparison of the content of students’ lunches. Contents of the lunches of students in both preschools were then analyzed over a 3-day period to determine which components of USDA MyPlate were present.

Background

- Americans eat less than the recommended amounts of fruits, vegetables, whole grains, and dairy products.
- In fact, only 1 in 10 American adults eat the recommended amounts of fruits and vegetables.
- Empty calories from added sugars and solid fats contribute 40% of total daily calories for 1-18 year-olds.
- These trends have likely contributed to the current high rates of obesity among all age groups, including, notably, among children.
- These trends are often cited as major contributor to childhood obesity and related health issues.
- 10% of American children ages 2-5 are categorized as obese.
- Compounding this issue is the fact that nutrition education is lacking in public schools, with most students receiving little to no nutrition education throughout their school career. Thus, parents often lack basic nutrition knowledge, such as the components of a complete, nutritious meal.
- This study aimed to understand if the Yumbox helped parents to pack a better variety of nutritious foods for lunch for their preschool children and if the Yumbox helped parents to gain a better understanding of the components of a complete meal.

References


Methods and Materials

- Every day for 3 days, a member of the research team visited the intervention preschool (School A) during lunch time and photographed each participating child’s lunch (n=56). Presence or absence of each component of lunches (vegetable, fruit, dairy, grain, protein) were recorded in a spreadsheet for evaluation, to determine how many students brought each component.
- Components of each lunch (vegetable, fruit, dairy, grain, protein) was then be recorded in a spreadsheet for evaluation, to determine how many students brought each lunch component.
- An online survey was distributed to the staff (n = 7) of School A to determine if they believe that Yumbox helped to improve the nutritional quality of children’s lunches and/or if their students ate more fruits and vegetables after they started using Yumbox.
- An online survey was distributed to the caretakers (n=21) of Intervention School students to obtain their opinions on if and how Yumbox helped them to pack more nutritious lunches for their children and if they enjoyed any other benefits from using the Yumbox.

Table 1: Number and percentage of total lunches that contained specified number of food components over 3-day period

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<thead>
<tr>
<th></th>
<th>0 components (%)</th>
<th>1 component (%)</th>
<th>2 components (%)</th>
<th>3 components (%)</th>
<th>4 components (%)</th>
<th>5 components (%)</th>
<th>Total (%)</th>
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<tbody>
<tr>
<td>School</td>
<td>Intervention</td>
<td>Control</td>
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<td>(0.0%)</td>
<td>(0.05%)</td>
<td>(3.45%)</td>
<td>(14.3%)</td>
<td>(4.75%)</td>
<td>(4.75%)</td>
<td>(64.90%)</td>
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<td></td>
<td>(21.8%)</td>
<td>(15.5%)</td>
<td>(26.2%)</td>
<td>(23.6%)</td>
<td>(7.64%)</td>
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<td>(26.2%)</td>
<td>(28.2%)</td>
<td>(23.0%)</td>
<td>(20.9%)</td>
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<tr>
<td>Totals</td>
<td>(21.8%)</td>
<td>(15.5%)</td>
<td>(26.2%)</td>
<td>(23.6%)</td>
<td>(7.64%)</td>
<td>(4.75%)</td>
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<td>Number of lunches in the 3-day period that contained these numbers of components</td>
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Results

- Approximately 44.5% of the lunches in the intervention group had at least 3 food components; only 10.0% of the control group had the same number of food components.
- Intervention group had a statistically significant higher number of components (3.78 ± 0.95) compared to the control group (1.93 ± 0.93).
- 68% of lunches in Intervention School and 17% in Control School contained a vegetable each day.
- 80% of lunches in Intervention School an 22% in Control School contained a fruit each day.
- 76% of caretakers said that using Yumbox helped them feel more comfortable preparing a complete meal for their child(ren).
- 100% of staff said that Yumbox made it easier to talk to students about nutrition/healthy eating.
- 75% of staff said they observed students talking about healthy eating more frequently since using Yumbox.

NUTRITION EDUCATOR COMPETENCIES

- 8.2: Determine the behavior change goals of the program.
- 8.6: Design or select theory-based behavior change strategies or techniques that would be effective in achieving the objectives and are appropriate for diverse audiences.

Future Directions

- Intervention School has indicated that they may want to make Yumbox the “official” lunchbox of the school.
- Control School wants to continue this study with pre/post data.
- Study is easily replicable and may be done in any school where children bring their own lunches.
- Classrooms where Yumbox is used may incorporate MyPlate curricula more readily if more students have the 5 meal components regularly.

Conclusions

This study reinforces findings from previous studies and the effectiveness of the behavioral economics principle that visual cues may help to ensure the presence of a full complement of meal. Yumbox may be an effective tool to reinforce positive eating behaviors by facilitating an opportunity for parents and caretakers to consistently create well-balanced meals for their children. Yumbox may be used in any setting where children bring their meals from home, including schools, camps, clubs, and after-school activities. Yumbox provides the change in built environment (visual cues) that allows caretakers to consistently pack complete lunches for children. Furthermore, when caretakers use Yumbox every day, it has the potential to create a habit of making complete meals on a regular basis that may extend to meals outside school lunches, such as family dinners.