



Promoting healthier children's meals at quick-service and full-service restaurants: Results from a pilot and feasibility study



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ABSTRACT

High-calorie restaurant foods contribute to childhood overweight. Increased consumer demand for healthier kids' meals may motivate the restaurant industry to provide additional healthy options. This study pilot-tested a combination of four strategies (toy incentive, placemats, server prompts, signage) designed to increase demand for healthier kids' meals, which were defined as those eligible for the National Restaurant Association's Kids LiveWell program. Relative sales of healthier kids' meals were examined before ($n = 3473$ total kids' meal orders) and during Month 1 ($n = 3546$ total kids' meal orders) and Month 2 of implementation ($n = 3645$ total kids' meal orders) of an 8-week intervention in two locations each of a quick-service (QSR) and full-service (FSR) restaurant chain. Convenience samples of children ($n = 27$) and their parents ($n = 28$) were surveyed regarding parent and child perceptions of intervention components. Findings regarding the effectiveness and feasibility of the intervention were mixed. At the FSRs, the relative percentage of monthly sales from healthier kids' meals increased from 5.0% of kids' meal orders at baseline to 8.3% during Month 1, ending at 6.4% during Month 2. At the QSRs, the relative percentage of monthly sales from healthier kids' entrees decreased from 27.5% at baseline to 25.2% during Month 1, ending at 25.9% during Month 2. Implementation quality tracking showed that consistent implementation of intervention components was a challenge; parent- and child-reported awareness of intervention components supported this finding. Future directions are discussed, aiming to build upon these findings and maximize the feasibility, effectiveness, and sustainability of efforts to promote healthier eating in restaurants.

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1. Introduction

Child obesity prevalence has increased over the past three decades (Ogden, Carroll, Fryar, & Flegal, 2015), alongside an increase in food purchased away from home (FAFH). Data indicate that American households now spend more than 40% of their total food budget on FAFH, up from 25% in 1970 (Food Expenditures, 2016).

Compared to meals prepared at home, FAFH often contains more calories, saturated fat, sodium and added sugars (Todd, Mancino, & Lin, 2010). Specifically, national data indicate that consumption of foods from quick-service restaurants (QSR) is associated with a 126 calorie net increase in US children's daily total energy intake; consuming full-service restaurant (FSR) food is associated with a net increase of 160 calories (Powell & Nguyen, 2013). Therefore, restaurants may be an important environment for reducing excess calorie consumption among children.

The extant literature highlights several potentially promising avenues for restaurant-based interventions. One technique to promote healthier meals to children is pairing food items with tangible rewards, such as toys. Although such incentives have

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traditionally promoted less-healthy foods in restaurants (e.g., a toy paired with a kids' meal containing an entrée, French fries, and soda), studies in laboratories, homes, and schools show that incentives also offer the potential to promote healthy choices (Cravener et al., 2015; McAlister & Cornwell, 2012; Morrill, Madden, Wengreen, Fargo, & Aguilar, 2015). A second approach is to target parents, given the role they play in children's meal ordering (Castro et al., 2016; Holmes, Serrano, Machin, Duetsch, & Davis, 2013). Prompting has increased sales of targeted items among adults (Ebster, Wagner, & Valis, 2006), with some evidence that verbal prompts, (Kleef, Broek, & Trijp, 2015; Schwartz, Riis, Elbel, & Ariely, 2012), signage (Nothwehr, Snetselaar, Dawson, & Schultz, 2013; Wagner & Winett, 1988), and healthy primes on menus (Stutts, Zank, Smith, & Williams, 2011) can promote healthier ordering patterns. However, these efforts also traditionally target nutritionally poor options (e.g., adding dessert to a meal). More research is needed to test these strategies as they apply to the promotion of healthier kids' meals within restaurants. Ecologically-valid studies will aid in understanding the effectiveness of these strategies among families as well as their synchrony with restaurant goals.

In this pilot study, a multi-component intervention (toy incentive, placemat, verbal prompts, signage) was designed to promote healthier kids' meals and was implemented in two locations each of one QSR and one FSR restaurant chain. The aims of the current study include 1) evaluating the effectiveness of an 8-week pilot intervention by examining sales of healthier kids' meals before and during the intervention's implementation, and 2) assessing the fidelity with which each of four individual intervention components was implemented during the pilot study. Examination of these aims can highlight intervention approaches with initial evidence of effectiveness and feasibility, which is important for the development of larger-scale restaurant-based research. We hypothesized that sales of healthier kids' meals would be higher during the intervention compared to baseline.

2. Methods

2.1. Overview

Four restaurant locations in Southern California participated in an 8-week pilot intervention promoting healthier kids' meals through four modifications to the restaurant environment. Two participating restaurants were from a national QSR chain and two were from a regional FSR chain. Comprehensive sales data were obtained from each restaurant before (February 2015) and throughout (March–April 2015) the intervention ($n = 10,664$ children's entrée orders in total). Convenience samples of families dining at the restaurants were surveyed at week 6 of the intervention in April 2015 to obtain perceptions of the intervention components. Research staff also tracked intervention component implementation.

Each study restaurant offered healthier kids' meal options, defined as those that met the nutritional criteria of the National Restaurant Association's *Kids LiveWell (KLW) program*. A KLW meal (entrée, side dish and beverage) must meet the following nutritional criteria: ≤ 600 total calories, $\leq 35\%$ calories from total fat, $\leq 10\%$ of calories from saturated fat, < 0.5 g of trans fat, $\leq 35\%$ of calories from total sugars, ≤ 770 mg of sodium; the meal must include two of the following food groups: fruit, vegetables, lean protein, whole grains, and lower-fat dairy. Kids' meals were pre-bundled (entrees plus side dishes) on the FSR menu; at the QSR, entrees and side items were listed separately because customers select these items individually. Two of 14 kids' meals available at the FSR were KLW meals. At the QSRs, two of seven kids' entrees were KLW eligible when ordered with KLW side items. Institutional

Review Board approval for all research methodology was obtained through Tufts University.

2.2. Sales data

All four restaurant locations provided the total quantity of each kids' meal item sold during the month prior to the intervention (February 2015, baseline), as well as during March and April 2015, referred to herein as Months 1 and 2 of the 8-week intervention. The organization of these data corresponded with the way kids' meals were offered on each restaurant's menu: for FSRs sales data were provided for bundled meals, while for QSRs individual kids' meal components (i.e., entrees and side dishes) were listed (and ordered) individually. Due to the format of sales data provided by the restaurants, bundled meals were analyzed for the FSRs and individual entrees were analyzed for the QSRs.

2.3. Intervention

Intervention components were based upon strategies from other contexts (McAlister & Cornwell, 2010, 2012) and the results of focus groups conducted with 18 children at two community centers in the Boston area. The four participating restaurants each hosted a training session for servers to implement the following intervention components:

- (1) Super Crew[®] character toys ("Andy" and "Kira") to be given to children ordering KLW meals;
- (2) Placemats featuring the Super Crew[®] characters, which included descriptions of the two KLW meals as well as fun activities, to be handed out to all children prior to placement of food orders;
- (3) Servers were trained to prompt families with children who appeared to be aged 12 or younger to try a KLW meal before taking their orders; and,
- (4) Signs (18" x 24") to be displayed in the restaurant, showing images of the Super Crew[®] and advertising the toy promotion with KLW meals.

The Super Crew[®] characters have been featured on 5000 school websites in 45 U.S. states and in a public health campaign promoted by the American Institute for Cancer Research (<http://www.aicr.org/healthykids/healthy-kids-today-prevent-cancer-tomorrow.html>). The characters have special "powers" due to their consumption of healthy foods.

2.4. Intervention measures

2.4.1. Implementation tracking

Implementation fidelity was tracked in two ways. First, implementation staff made weekly unannounced visits to each restaurant location throughout the intervention. Tracking methods included keeping a log of the number and location of signs installed in the restaurants, observing server interactions with customers to note recommendation of the KLW meals, and determining the number of placemats and toys available for the restaurant's customers. Second, evaluation staff recorded the extent to which intervention components were implemented throughout each data collection day described below.

2.4.2. Parent and child perception of intervention components

Data were collected from convenience samples of parents ($n = 28$) and their children ($n = 27$) during week 6 of the 8-week intervention. Families were approached by trained researchers after they were seated at a table. Eligibility for family participation

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