



Contents lists available at ScienceDirect

Physiology & Behavior

journal homepage: www.elsevier.com/locate/physbeh

Effects of a randomized intervention promoting healthy children's meals on children's ordering and dietary intake in a quick-service restaurant

Stephanie Anzman-Frasca^{a,*}, Abbey C. Braun^a, Sarah Ehrenberg^a, Leonard H. Epstein^a, April Gamp^b, Lucia A. Leone^c, Anita Singh^a, Sara Tauriello^a

^a Department of Pediatrics, Jacobs School of Medicine and Biomedical Sciences, University at Buffalo, G56 Farber Hall, South Campus, Buffalo 14214, NY, USA

^b Independent Health Foundation, 511 Farber Lakes Drive, Buffalo 14221, NY, USA

^c Department of Community Health and Health Behavior, School of Public Health and Health Professions, University at Buffalo, 333 Kimball Tower, South Campus, Buffalo 14214, NY, USA

ARTICLE INFO

Keywords:

Child
Restaurant
Menu
Nudging
Diet
Health
Abbreviations
QSR
quick-service restaurant
FSR
full-service restaurant

ABSTRACT

Background: Children's consumption of restaurant foods is associated with higher energy intake and lower nutritional quality compared to foods prepared at home. The aim of this pilot study was to test whether an in-restaurant intervention promoting healthy children's meals (i.e. two meals that met nutrition recommendations and were thus healthier than typical children's meal offerings across leading restaurants) affected children's meal selection and intake.

Methods: Families with 4-to-8-year-old children were recruited from one location of Anderson's Frozen Custard, a regional quick-service restaurant chain. Families were randomly assigned to return to the restaurant during an intervention or control period and were blinded to group assignment. All families received free meals. During the intervention period families also received placemats featuring two healthy "Kids' Meals of the Day" upon restaurant entry. After families finished dining, researchers recorded children's orders and collected leftovers for quantifying dietary intake via weighed plate waste. Poisson regression and chi-square tests were used to compare children's orders between study groups, and *t*-tests were used to test for differences in dietary intake among children ordering a promoted healthy entrée (main dish) versus those who did not.

Results: Fifty-eight families participated. Children who were exposed to the study placemats prior to ordering ordered a significantly greater number of healthy food components compared to controls ($p = 0.03$). Overall, in the intervention group, 21% of children ordered a healthy entrée or side dish, versus 7% of controls. Children who ordered one of the promoted healthy entrées consumed less saturated fat across the total meal compared to those who did not ($p = 0.04$).

Conclusions: Manipulating the prominence of healthy choices in restaurants may shift children's meal selections. Future research should build on these initial promising results, aiming to increase the potency of the intervention to achieve more widespread effects.

1. Introduction

On average, US children's diets are energy dense and of poor quality [1]. While children readily accept sweet and salty foods that tend to be low in nutrients and high in energy, research shows that their taste preferences are malleable, and regular exposure to healthy foods can promote their acceptance [2–4]. Yet exposure to healthy foods is not normative within many environments where children currently spend time [e.g., [5]].

Restaurants are normative eating contexts for many families and are

one setting in which environmental shifts could promote healthy eating among children. In this context, "healthy" is defined to refer to meal items that are healthier than typical restaurant offerings for children, which do not meet current nutrition recommendations [5]. It has been estimated that 33% of children eat food from quick-service restaurants (QSR; i.e. fast food) on a given day, with consumers in this age group obtaining 31% of their daily energy intake from QSR food [6]. Restaurant meals tend to be higher in energy content and lower in nutritional quality than those prepared at home [7], with a recent analysis of children's meals at leading QSR and full-service restaurant (FSR) chains

* Corresponding author.

E-mail addresses: safrasca@buffalo.edu (S. Anzman-Frasca), abbeybra@buffalo.edu (A.C. Braun), saraehr@buffalo.edu (S. Ehrenberg), lhenet@buffalo.edu (L.H. Epstein), april.gamp@independenthealth.com (A. Gamp), lucialeo@buffalo.edu (L.A. Leone), asingh11@buffalo.edu (A. Singh), sarataur@buffalo.edu (S. Tauriello).

<https://doi.org/10.1016/j.physbeh.2018.01.022>

Received 13 September 2017; Received in revised form 17 January 2018; Accepted 24 January 2018
0031-9384/ © 2018 Elsevier Inc. All rights reserved.

showing that less than one-third of available meal combinations met nutrition recommendations [5]. Correspondingly, consumption of restaurant food has been linked with increased daily energy intake and poorer diet quality among children when compared to dietary intake on days restaurants were not visited [7]. Targeting children's food selection in restaurants has the potential to improve diet quality, attenuate excess energy intake, and shape healthy habits. Research is needed to develop restaurant-based health promotion efforts that are effective and acceptable to restaurant personnel.

In considering interventions to promote healthy eating in restaurants, an approach that is supported by behavioral economics research in other domains involves making healthy choices easier by increasing their automaticity and/or prominence [8–12]. Such approaches can nudge consumers toward a particular option without overt health messages or the removal of choice, avoiding potential issues with efficacy [13] and customer reactance [14] respectively. For example, research suggests that making healthy side dishes the default offering with children's meals can promote healthy meal selection in QSR [15–16] and FSR [16–18], and prompting customers to try an item using verbal prompts or signage has increased sales of targeted items among adults [19–23]. There is also evidence that modifying prominence by placing items at the top of menu columns or using descriptive labels can increase selection and consumption [24–25]. Overall, strategies that modify the prominence or default nature of healthy options show promise, but supporting evidence is primarily from adult studies or settings besides restaurants, such as school cafeterias. There is little research examining interventions intended to nudge children toward healthy meals in restaurants, and no study in this research area has used a randomized design and measured dietary intake. Examining dietary intake can elucidate whether healthy ordering patterns translate into healthy dietary intake across the total meal. For example, it is important to examine whether children ordering promoted healthy options show improved energy and nutrient intake or whether they compensate, such as by consuming more energy across the total meal when ordering a healthy entrée (main dish). The present study features a randomized design and objective measurement of dietary intake and addresses current gaps in the evidence base.

Specifically, the primary aim of this pilot study was to use a randomized design to determine whether a placemat intervention promoting healthy “Kids' Meals of the Day” would increase ordering of healthy children's meals. The design of the placemat was focused on increasing the prominence and default nature of healthy children's meal options, based on studies revealing promising strategies for promoting healthy eating in restaurants [12,17,26,27]. The approach was also informed by prior feasibility research suggesting that the most feasible restaurant interventions limit any extra duties for restaurant staff [28]. Secondary aims of this study were to: 1) examine whether trends in comprehensive sales data during the study period paralleled findings in the primary study sample; and 2) examine whether children who ordered promoted healthy entrées consumed less energy, saturated fat, sugar, and sodium across their total meal versus those who did not.

2. Methods

2.1. Participants

Of 134 screened families, 126 were eligible, and 120 initially indicated an interest in participating in this study, completing consent forms (see Fig. 1 for CONSORT diagram). Fifty-eight families participated, with one parent and one 4-to-8-year-old child participating from each. Study team members recruited families visiting one location of Anderson's Frozen Custard, a regional QSR chain, over a 7-week period in summer 2016, on Tuesdays through Saturdays between 4 and 8 pm. Families with children were approached after they had placed their order ($n = 297$) and received initial details about our study on 4-to-8-year-old children's eating in restaurants. Families who were interested

in hearing more details proceeded to screening. Eligibility criteria included whether: the parent was ≥ 18 years old, s/he had a child aged 4 to 8 years, s/he was the parent or legal guardian of this child, and this child ate at restaurants at least twice per month.

Recruited families completed informed consent for the parent and child's participation and received vouchers to return for a complimentary meal for up to five family members, including the participating adult and child. Prior to recruitment, vouchers were labeled with family IDs 1 through 200. Each ID number was randomly assigned to an intervention or control period by a team member not involved in recruitment or data collection. Vouchers were color coded and dated accordingly and were distributed in numerical order as families were recruited. Through this process, families were randomly assigned a specific two-week period to come back to the restaurant for their free meal and study participation during which an intervention would or would not be in place depending upon their group assignment. Families were blind to group assignment. They were told that the study focused on what children eat in restaurants, without any mention of placemats or health promotion. Families received a reminder call prior to their assigned two-week period. Of the 120 recruited families, 58 returned to participate in the study (48%). One family returned on a day that was not listed on their vouchers, so study staff were not present to collect their survey and intake data. However, restaurant staff retained this family's order data and provided it to the research team; thus, all 58 returning families have primary outcome data. Among the 57 families from whom additional data were collected directly, all have complete dietary intake and child survey data. For three parents, electronic surveys malfunctioned during data collection resulting in some lost parent survey data.

In addition to this primary data collection, we also examined sales data capturing all kids' menu items sold to patrons visiting the study restaurant throughout the intervention and control periods for a comprehensive examination of orders in the restaurant during the study. All human subjects research procedures were approved by the University at Buffalo Institutional Review Board.

2.2. Procedure

2.2.1. Overview

Trained study staff were present in the restaurant throughout the 8-week data collection period (September–November 2016). During recruitment, participants had been randomly assigned a two-week period during which they could return for their free meals and study participation on Wednesday–Saturday from 5 to 8 pm. Twenty-three participating families visited during the first two weeks (control period), 18 during the second (intervention), 10 during the third (intervention), and 7 during the fourth (control).

Participants were instructed during reminder phone calls to look for the study staff at a table near the restaurant's front door and to present their vouchers upon arrival. Then, a study staff member would explain the day's procedures to the adult participant, which included ordering their meals like they normally would, not throwing away any leftover food or trash, alerting the research staff upon finishing their meal, completing study procedures described below, and receiving their meal reimbursement.

During control periods, participants completed these steps with no additional interactions with study staff. During the intervention period, a study team member was positioned by the restaurant's front door with study placemats. S/he provided placemats to all patrons entering with children, explaining that there were free placemats and crayons in the restaurant and a feature of two special kids' meals of the day. Entering patrons who were also study participants were referred to the study team's table after receiving their placemats to hear more about the day's procedures, as described above. We examined parent survey responses to gauge whether any of the participants visiting during the final control period had been exposed to the intervention. Two indicated that

Download English Version:

<https://daneshyari.com/en/article/8650457>

Download Persian Version:

<https://daneshyari.com/article/8650457>

[Daneshyari.com](https://daneshyari.com)