

## Original Research

# Emoticon use Increases Plain Milk and Vegetable Purchase in a School Cafeteria without Adversely Affecting Total Milk Purchase

Robert M. Siegel, MD<sup>1</sup>; Amy Anneken, MS<sup>2</sup>; Christopher Duffy<sup>1</sup>; Kenya Simmons, MBA<sup>2</sup>; Michelle Hudgens<sup>1</sup>; Mary Kate Lockhart<sup>1</sup>; and Jessica Shelly, MBA, RS<sup>3</sup>

<sup>1</sup>Center for Better Health and Nutrition of the Heart Institute, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio; <sup>2</sup>James M. Anderson Center for Clinical Systems Excellence, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio; and <sup>3</sup>Cincinnati Public Schools, Cincinnati, Ohio

### ABSTRACT

**Purpose:** Choosing poor-quality foods in school cafeterias is a risk factor for childhood obesity. Given the option, children often select chocolate milk over plain white milk. Efforts to increase plain white milk selection, such as banning chocolate milk in school cafeterias, increases plain white fat-free milk (PWFFM) purchase but decreases the overall milk purchase. The purpose of this study was to determine whether emoticon placement next to healthful foods would increase healthful purchases, particularly PWFFM.

**Methods:** In an inner city elementary school with 297 children, "Green Smiley Face" emoticons were placed to encourage the purchase of healthful foods including an entrée with whole grains, fruits, vegetables, and PWFFM. Purchase data were obtained from cash register receipts. Differences were analyzed by  $\chi^2$  Care and Statistical Process Control (SPC) and Graphical Methods.

**Results:** Only 7.4% of students selected white milk at baseline compared with 17.9% after the emoticons were placed ( $P < 0.0001$ ). There was a decrease in chocolate milk purchase from 86.5% to 77.1% with the addition of the emoticons ( $P < 0.001$ ). There was no significant difference in total milk purchase: 93.4% before the emoticons compared with 94.9% after.

There was no significant change in the purchase of entrée or fruits. However, there was, a significant increase in vegetable purchase from 0.70 vegetables purchased per student per day to 0.90 by SPC ( $>8$  points above the mean).

**Implications:** The addition of emoticons increases the purchase of PWFFM and vegetables in a school cafeteria setting without adversely affecting total milk sales. Emoticons offer a practical, low-cost means to improve food selection by children. (*Clin Ther.* 2015;37:1938–1943) © 2015 Elsevier HS Journals, Inc. All rights reserved.

**Key words:** cafeteria, childhood obesity, emoticons, school.

### INTRODUCTION

Childhood obesity is a major pediatric health issue with more than one third of American children overweight or obese.<sup>1</sup> Risk factors for childhood obesity include inadequate fruit, vegetable, and milk consumption and excess consumption of sugary drinks. This has led the American Academy of Pediatrics to recommend lifestyle changes to correct these factors.<sup>2</sup> Poor choices in the school cafeteria are a risk factor for obesity as well.<sup>3</sup> Although there is



Scan the QR Code with your phone to obtain FREE ACCESS to the articles featured in the Clinical Therapeutics topical updates or text GS2C65 to 64842. To scan QR Codes your phone must have a QR Code reader installed.

Accepted for publication July 16, 2015.

<http://dx.doi.org/10.1016/j.clinthera.2015.07.016>

0149-2918/\$ - see front matter

© 2015 Elsevier HS Journals, Inc. All rights reserved.

variability in quality of what children choose with the school lunch program, such as selecting flavored milk over plain low-fat milk, packed lunches from home are often significantly poorer in nutritional quality overall. Therefore, efforts to increase school lunch program participation and selection of more healthful components would improve the quality of students' diets.<sup>4</sup> Additionally, the school setting is an attractive place to intervene with obesity prevention programs because a larger number of children can be reached in a relatively uniform and consistent manner.<sup>5</sup>

Given the option, children often select chocolate milk over plain milk in school cafeterias. Efforts to increase plain white milk selection, such as banning chocolate milk in school cafeterias, increases plain white fat-free milk (PWFFM) purchase, but decreases overall milk purchase.<sup>6</sup> In experimental settings, emoticons have been used to help school-age children make better food choices.<sup>7</sup> The purpose of this study was to determine whether emoticon placement next to healthful foods would increase healthful purchase, particularly PWFFM.

## METHODS

In October 2013, an Emoticon intervention was implemented at the Frederick Douglass Elementary School (FD) of Cincinnati Public Schools. FD is an inner city elementary school of 297 children, grades kindergarten through 6, with a demographic breakdown of 92.7% African American, 49.2% male, 50.85% female, and 98.1% free lunch-eligible children.<sup>8</sup> The school participates in the U.S. Department of Agriculture National School Lunch Program for free or reduced-cost lunches, where students may

select an entrée with whole grains, low-fat plain or chocolate milk, and up to 2 fruit or vegetable servings. Competitive foods such as whole-grain cupcakes and cookies are sold as well. Children self-serve and are required to take 3 meal components and may select as many as 5.

Signs with "Green Smiley Face" emoticons (Figure 1) were placed next to PWFFM, fruits, vegetables (including a salad bar), and the main entrée to encourage the purchase of healthful foods. A cafeteria staff worker explained the intervention to students on the first day of the intervention and intermittently throughout the study period. Purchase data were obtained from cash register receipts supplied by the Food Services Department of Cincinnati Public Schools. Differences were analyzed by a  $\chi^2$  test using SAS version 9.3 (SAS Institute, Cary, North Carolina) when children were limited to the purchase of 1 item (entrée, PWFFM, chocolate milk). For fruits and vegetables, students could purchase more than 1 item in that category and Statistical Process Control (SPC) and Graphical Methods were used. Run charts were constructed for food items, and 8 consecutive data points above an established mean were considered statistically significant. This project was reviewed by the Cincinnati Children's Hospital Medical Center Review Board and determined not to be a Human Subjects Research project and thus exempt.

## RESULTS

Cafeteria sales receipts were obtained for the 4-month study period from October 1, 2013 through January 31, 2014. From October 1, 2013 through December 3, 2013, no signs were placed to collect baseline data. The emoticon signs were placed from December 4, 2013 through January 31, 2014 adjacent to the preferred healthful foods of PWFFM, vegetables including the salad bar, fruits, and entrées with whole grains. Figure 2 shows PWFFM sales versus time. Only 7.4% of students selected white milk at baseline compared with 17.9% after the emoticons were placed ( $P < 0.0001$ ). This represents a 141% increase in PWFFM purchase. Figure 3 shows low-fat chocolate milk sales with time. There was a decrease in chocolate milk purchase from 86.5% at baseline to 77.1% with the addition of the emoticons ( $P < 0.001$ ), an 11% decrease. There was no significant difference in total milk purchase, with 93.4% selecting either plain or chocolate milk before the emoticons compared with 94.8% after the



Figure 1. Sign with emoticon.

Download English Version:

<https://daneshyari.com/en/article/5825145>

Download Persian Version:

<https://daneshyari.com/article/5825145>

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