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Elementary school lunch categorisation and correlations with dietitian recommendations

Lara A Latimer,

Department of Kinesiology and Health Education, The University of Texas at Austin, Bellmont Hall 603 B, 2109 San Jacinto, D3700, Austin, TX 78712, USA

Keryn E Pasch, and

Department of Kinesiology and Health Education, The University of Texas at Austin, Austin, TX, USA

John B Bartholomew

Department of Kinesiology and Health Education, The University of Texas at Austin, Austin, TX, USA

Abstract

Aims—Numerous interventions have been designed to impact children’s diet in the elementary school setting. One popular strategy is to label foods in the elementary cafeteria as more or less healthy. An example is the Coordinated Approach To Child Health (CATCH) labels of ‘go’, ‘slow’, or ‘whoa’ foods. In many respects, this has been successful, as food purveyors have responded by offering more healthy versions of popular foods (e.g. hamburgers with a high soy content) in an effort to avoid the less healthy, ‘whoa’ label. While this provides an obvious benefit to children’s dietary choices and overall risk of obesity, it may have the unintended consequence of not setting up youth to make healthy choices in the environment outside of schools where these foods have not been altered. In response, the current study was designed to compare school labels and registered dietitian (RD) recommendations of common elementary lunch options.

Methods—In the spring of 2010, 28 RDs provided their recommendation of ‘generally healthy, choose often’; ‘generally less healthy, choose less often’; and ‘generally unhealthy, choose rarely’ for 48 common school lunch options. RDs were not told how schools categorised each selection. Kappa analyses were used to determine agreement between school labels and RD recommendations.

Results—Results indicate some disagreement between school labels and RD recommendations, with higher fat/calorie entrées showing greater discrepancies.

Conclusions—Given these inconsistencies, nutrition education in schools should be designed to help children and their parents understand how foods offered in school may differ from those outside the school environment.

Keywords

lunch menu; registered dietitian; schools

INTRODUCTION

Children spend a significant portion of the day at school and may consume as much as 50% of their daily caloric intake in this environment.¹ Nutrition education is taught in the majority of elementary schools,² and schools provide a setting in which students' food choices are potentially influenced.³ Therefore, it is beneficial that schools have made improvements in food offerings and nutrition education. A major public health achievement over the past 20 years is the adoption of coordinated child health programmes in schools, which include a nutrition education component. One example of this approach is the Coordinated Approach To Child Health (CATCH).⁴ CATCH⁴ promotes healthy food choices, increased activity, and aims to prevent tobacco use among preschool through eighth graders in thousands of schools throughout the United States and Canada. The Eat Smart component of this programme is designed to encourage food service workers to prepare, serve, and promote healthier foods in the cafeteria and to coordinate messages throughout the school environment to support healthy eating. The CATCH programme has been shown to effectively reduce fat content in elementary school lunches and positively affect student fat intake.⁵ In addition, longitudinal data indicate that students maintained dietary changes three years later.⁶

CATCH recommendations for healthy foods offered in the school cafeteria are organised as basic labels that serve as a proxy for detailed nutritional information. Healthy options are indicated with a denotation of green (healthiest), yellow (less healthy), or red (least healthy).⁷ These colours correspond with action words that help children determine how often they should choose items to maintain healthy eating habits (green indicates a GO food, yellow a SLOW food, and red a WHOA food). The general CATCH guidelines for labelling foods are as follows: fruits and vegetables are 'GO' foods, foods with added fat are 'SLOW' foods, and fried items are 'WHOA' foods. The labels represent a positive change to the food environment in schools, as they are beneficial for students to make lunch selections based on the relative healthiness of other options. A similar labelling system was associated with an increase in percentage of healthier options purchased in a worksite wellness initiative.⁸

One of the challenges for food service staff is that lunch entrées rarely fall into such neat categories. In response, the criteria of 30% or less calories from fat has been used to label a 'go' food, with 30%–35% labelled as 'slow' foods, and greater than 35% labelled as 'whoa' foods. This allows for categorisation of combination foods – that is, of entrées that include both higher and low fat items. For example, if a hamburger patty has 35% of calories from fat, it would be a 'whoa' food. But, when the low level of fat in the bun is considered, the percentage of calories from fat can drop below 35%, and the hamburger would be labelled a 'slow' food.

One of the advantages of the labelling approach is that it provides a motivating force for food service to avoid foods with the red, 'whoa' label. For example, while many of the foods

listed on school lunch menus are traditional foods served in US homes and restaurants, such as pizza and chicken nuggets, these have been altered to decrease fat or calorie content so as to achieve no worse than a yellow, 'slow' label. Such modifications may entail decreasing fat or calories or incorporating more whole grains in entrées. There is a clear public health benefit to this outcome as it allows students to have healthier choices than in the past.

There is, however, a potential limitation to this approach. The green 'go' and yellow 'slow' labels are designed to encourage the selection and consumption of these foods. Should a pizza and hamburger be labelled in this manner – even with recipe modification? If so, this may make things more difficult for parents and children when determining appropriate choices outside of school, where these foods are offered in non-altered forms and thus are likely 'whoa' foods. For example, schools may provide a version of pizza that is sufficiently low in fat to be coded as a 'slow' food, in which children are encouraged to select this occasionally during the school week. However, the typical pizza outside of the school environment is not low in fat, and should be considered a 'whoa' food that children should avoid. In fact, it is likely that the specific, in-school CATCH coding information will differ from registered dietitian (RD) general recommendations for healthy eating.

As far as we are aware, no research has investigated the potential for discrepancies between RD and school labelling of cafeteria lunch entrées. A full assessment of this issue would begin with a comparison of RD and school labelling to determine the extent of the differences between the expert and school recommendations. Where large differences exist, research would then consider an assessment of how these differences are interpreted by children and their parents as well as child food selection and consumption both in and out of school. Finally, interventions could be designed to provide a more nuanced consideration of foods inside and out of the school environment. This study is the first step, which compares RD and school labelling to assess the extent of any difference in food recommendations. To achieve this aim, we asked RDs to provide their professional recommendations for generally healthy and unhealthy foods in order to assess correlations with school lunch recommendations of the same foods.

METHODS

Participants

Participants were recruited from central Texas through word of mouth and an Internet search. Inclusion criteria consisted of (1) 18 years of age or older and (2) RD status. Initial contact was made via email, and participants who expressed interest and met inclusion criteria were sent (via email or postal mail) the consent form to sign and return. Approximately 86 initial emails were sent, and 28 individuals consented to participate and completed all study documents in the spring of 2010. The project was approved by the University of Texas at Austin Institutional Review Board with an expedited review.

Instruments

A questionnaire on entrée recommendations was developed from a central Texas independent public school district elementary school menu that utilised the CATCH

labelling system. Thus, each entrée listed on the school menu is coded with a green (healthiest or ‘go’), yellow (less healthy or ‘slow’), or red (least healthy or ‘whoa’) dot. A total of 48 common entrées (e.g. baked chicken nuggets, pepperoni pizza, hamburger, fresh garden salad) were listed on the study survey without the corresponding CATCH label. Three categories were provided to correspond with the CATCH labels: ‘Generally healthy, choose often’; ‘Generally less healthy, choose less often’; and ‘Generally unhealthy, choose rarely’. Each dietitian was instructed to read the list of common lunch entrées served in an elementary school cafeteria and place a check mark in the column that corresponds with their general recommendation of each entrée, based upon knowledge, training, and experience regarding the general analysis of calorie and fat content for each. Dietitians were also given a demographic form to complete, which asked general questions about age, race, income, and education (with multiple choice responses), as well as current and previous work experience related to nutrition (free response option).

Procedure and analysis

After written consent was obtained, the entrée list and demographic form were given to participants. Study documents were completed by participants and submitted via email, postal mail, or fax. Participants’ information was de-identified, and each was assigned an identification number.

Two entrées did not have consistent school ratings. The cheese sandwich and chicken quesadilla each had different coloured dots on different days of the week on the school lunch calendar. One entrée, creamy tomato soup with half a toasted cheese sandwich, was often given two ratings by RDs due to the placement on the data collection document. Specifically, there was a page break after ‘creamy tomato soup’, and ‘half a toasted cheese sandwich’ was listed on the next page. While our intent was for the menu items to be rated as one (as it appears on a typical menu), the placement on the data collection sheet led to frequent ratings of each menu item individually. Therefore, these three entrées were deleted from analyses, and a total of 45 entrées were used (full list in Table 2).

Kappa analyses were conducted to determine the level of agreement between the school recommendation and each RD’s recommendation. In addition, frequencies of RD recommendations were generated to compare to the overall school recommendations. This allowed for a clearer picture of the entrées that showed the largest discrepancy between RD and school recommendations. All analyses were conducted in PASW Statistics 18 (SPSS Inc., Chicago, IL, 2009).

RESULTS

Data for one participant were removed from the analyses because of low variability in her responses; therefore, the total sample size was 27. All participants were female. Table 1 contains additional sample demographic characteristics.

A Kappa statistic of .61–.80 is needed for a substantial agreement to be established.⁹ Kappa analyses revealed that overall RD recommendations did not reach substantial agreement with school recommendations, and ranged from .02 to .56. Thus, there appears to be discordance

between the RD and school labels. To better understand this discordance, frequencies of RD recommendations revealed especially large discrepancies in RD and school recommendations on several items, including hot dog, cheese pizza, family meat loaf, and chicken fried rice. Items that showed more than half of RDs differing in recommendation when compared to the school are noted in Table 2.

DISCUSSION

This study was designed to assess the correspondence between the CATCH labelling system for elementary lunch entrées and general recommendations from RDs. Results indicated that in the case of several common lunch entrées, RDs' recommendations were not in line with CATCH labelling and school recommendations. As anticipated, traditionally unhealthy entrées (e.g. cheese pizza, family meat loaf) showed the most consistent discrepancy. While these discrepancies reveal the efforts of food service personnel to modify recipes to achieve a healthier rating, they also illuminate possible limitations to current changes in the school food environment. School recommendations that are based on healthy recipe modifications may align with recommendations based on general nutrition guidelines; however, typical versions of many of these foods may not, which may create a challenge to nutrition education.

The fact that many of the traditionally, unhealthier menu options (i.e. higher caloric or fat content) were those that resulted in the largest differences in RD and school ratings is both unsurprising and potentially problematic. It is not surprising as these are the items most likely to receive a red, 'whoa' label, which may be likely to create motivation for students to make a different choice. It may be most problematic because school lunch menus are a main component of nutrition education in schools, and, as a result, these discrepancies with general recommendations may hinder students' food-related decision-making outside the school environment. When pizza is rated a 'go' or 'slow' food, the school is, in effect, encouraging its selection. In response, it may be that students will choose this and similarly labelled options outside of school, leading to the possible overconsumption of calories or fat. Furthermore, because children form food-related habits that can extend into adulthood,¹⁰ early nutrition education and experiences may affect lifelong behaviours. Future research should aim to assess whether children and parents are aware of the possible differences in foods offered in different environments and whether they consider this when deciding what to eat.

Additionally, while not examined in this study, the promotion of certain school lunch entrées may conflict with similar, competitive food options available in schools that do not fall under the CATCH ratings. For instance, the majority of the dietitians in the current study labelled cheese pizza as a 'whoa' food, while the school markets it as a 'slow' food because of healthy recipe modifications. If pizza is considered a 'slow' food in the school lunch line and pizza is available at a commercial pizza outlet (e.g. Pizza Hut) in the a la carte line, students will need to be educated so as to make an appropriate distinction between these items. Commercial products available in schools are often indistinguishable from the same products offered outside of the school environment because of similar marketing techniques, packaging, and logos. Thus, students may not be able to easily determine which foods are

healthy choices in some environments, but unhealthy in others. Again, this represents an important topic for future research.

Schools are appropriate locations to provide nutritional knowledge¹¹ that has the potential to influence the food selection of children and parents, and many accomplishments have been made in this area.^{5,6} The positive strides that have been made with regards to school meals and nutrition education should not be understated. Although additional research is needed, the current study provides insight into a possible unforeseen consequence of aspects of the positive school changes. Future studies that incorporate student and parent information, including their use of menu categorisations, views on if the menu information is useful in other environments, and understanding of recipe modifications in schools, may provide more insight.

Limitations

This study is unique in that it highlights some inconsistencies between school and RD food categorisations that, to our knowledge, have not yet been investigated. However, limitations exist. The current study included lunch menu selections from only one district, but it is likely that these types of discrepancies are present in other districts. A high prevalence in other districts may prove problematic, as it represents the potential wide-range undermining of RD recommendations. Additionally, because participants in the current study have been trained on the general school nutrition guidelines, they may have been biased in their categorisations. In other words, given that RDs are trained on National School Lunch Program guidelines, they likely know that entrées do not exceed a certain calorie and fat content when they are provided in schools. As such, this study may actually underreport the discrepancies between general RD and school recommendations, especially on entrées higher in calories or fat. On the other hand, it is possible that human error is responsible for some of the discrepancies, as research shows that even RDs may have difficulty in the accurate estimation of calories in some meals.¹²

CONCLUSION

Data from the present study indicate that the school labelling often contradicts general nutritional recommendations – especially for those foods that are most concerning to dietitians. The current study provides a solid place from which to build and provides practical knowledge for RDs to use when counselling families about nutrition recommendations. RDs who work in the school environment and with children may need to consider creating intervention materials that explain how school foods have been altered to be healthier and how these foods may then differ from these same foods outside of the school environment. While many school cafeteria recipes have been changed for the better, this is not explicitly stated in the promotion of these foods on the menu. Thus, schools are appropriate places to display information about entrée preparation, and how it may differ from similar entrées available outside of school. Specifically, parents and children may better utilise this information to make dietary decisions if it is displayed next to menu items.

Such an effort would likely provide students with more translatable nutrition education. School staff, such as teachers, coaches, nurses, and food service workers can serve as

valuable sources of nutrition information for students. It may be beneficial to educate school personnel on the nuances of the practical nutrition lessons and to provide them with information to supplement the current nutrition curriculum. While possible inconsistencies have yet to be investigated on a larger scale, results from the current study indicate that more resources should be allocated to examining disparate recommendations between schools and RDs and the potential consequences that may arise from the positive advances in school nutrition education.

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Table 1Demographic characteristics of registered dietitian participants ($n=27$)

	%
Age (in years) (n = 26) ^a	
18–24	4
25–34	46
35–44	8
45–54	23
55–64	15
56–74	4
Race	
White	93
Hispanic	4
Other	4
Education	
4-year college degree	37
Master's degree	44
Doctoral degree	19
Income (n=26) ^a	
US\$10,000–US\$29,999	4
US\$30,000–US\$49,999	8
US\$50,000–US\$69,999	27
US\$70,000–US\$89,999	8
US\$90,000–US\$99,999	4
US\$100,000–US\$149,000	35
>US\$150,000	15
Experience ^b	
Hospital/clinical	52
Worksite	19
School	7
Health Dept/Public Health	19
Correctional facility	4
College	56
Other	30

^aOne participant omitted the age and income items.^bParticipants were allowed to choose multiple options.

Table 2

Frequency of RD recommendations compared to school recommendation

Entrée	Percent of RDS recommending	RD ^a	School ^a
Baked chicken nuggets	74	2	2
Toasted cheese sandwich	56	2	2
Tony's pepperoni pizza	89	3	3
Yogurt and fresh fruit plate	100	1	1
Hammy ranch wrap ^b	70	2	1
Hot dog ^b	89	3	2
Ravioli ^b	56	2	1
Bean soft taco	70	1	1
Mozzy sticks w/dipping sauce ^b	56	3	2
Spaghetti and meat sauce	59	1	1
Fresh garden salad	100	1	1
Hamburger	63	2	2
Vegetable soup	100	1	1
Corn dog (turkey)	52	2	2
Lasagna	59	2	2
Bean and cheese chalupa	37	3	2
Tony's cheese pizza ^b	59	3	2
Deli sandwich on wheat	93	1	1
Baked steak fingers	56	2	2
Chili and cheese baked potato ^b	52	2	3
Chicken al a King	62	2	2
Country steak sandwich ^b	62	3	2
Turkey ranch wrap	48, 48	1, 2	1
Bean and cheese burrito	44	1	2
Chicken tamale pie	48	3	2
Chef salad w/chicken	85	1	1
Family meat loaf ^b	65	2	1
Cheesy quiche	56	2	2
Chicken fried rice ^b	52	3	2
Country fried steak ^b	89	3	2
Cheese nachos	85	3	3
Chicken pot pie	63	3	3
Chef salad w/turkey	92	1	1
Mac and cheese	48	2	3
Chicken rice soup	85	1	1

Entrée	Percent of RDS recommending	RD ^a	School ^a
Chef salad w/ham	52	1	1
Baked chicken dunkins	67	2	2
Crispy taco	59	2	2
Ham deli on wheat	82	1	1
Fish sticks	63	2	2
Potato chowder ^b	67	2	1
Cheeseburger ^b	52	2	3
BBQ chicken sandwich	56	1	1
Tortilla soup	74	1	1
Turkey sandwich	100	1	1

RD: registered dietitian.

^a1='GO'; 2='SLOW'; 3='WHOA'.

^bIndicates items in which 50% of RDS recommended something different than the school.

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