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What are grade 5 and 6 children buying from school canteens and what do parents and teachers think about it?

Verity Cleland, Anthony Worsley and David Crawford

Abstract

Objective: The foods sold in school canteens have a significant role to play in ensuring children consume a healthy balance of nutritious foods. However, no research to date has described the foods that Australian children are purchasing at school canteens, or the perceptions held about school canteens by students, parents and teachers.

Design: An exploratory cross-sectional survey was used to obtain information from students, parents and teachers through self-completion questionnaires.

Subjects: There were 384 children aged nine to 12 years, 404 parents and 41 teachers involved.

Setting: The study was conducted in 12 primary schools in Victoria, Australia.

Main outcome measures: Types of foods purchased at school canteens, school canteen usage, parents’ and teachers’ perceptions of the role of the school and canteen in influencing children’s eating habits.

Results: More than 50% of the children surveyed used the school canteen at least once per week. Children identified preference for unhealthy alternatives and availability as key barriers to choosing healthy foods at the canteen and suggested increased availability, advertisements and cost reductions as aids to purchasing healthy foods. Teachers placed more importance on the role of the canteen than parents did.

Statistical analyses: Frequencies, cross-tabulation analyses and chi-square tests were undertaken using the SPSS 11 computer program.

Conclusion: These Victorian primary school children and their teachers, and to a lesser extent parents, had a clear understanding of healthy foods. Children and teachers identified barriers that prevent school canteens from providing healthy foods. There is likely to be strong support from these stakeholders for novel health promoting policies.

Key words: canteen, primary schools, students, parents, teachers, food, nutrition, purchasing behaviour

Introduction

A number of studies have shown that Australian children’s dietary intakes are less than ideal, particularly for fruit and vegetable intake. The 1995 Australian National Nutrition Survey revealed that among two- to 18-year-olds, one quarter did not eat fruit on the day of the survey and one fifth did not eat vegetables (1). Less than 50% of all participants had an adequate fruit intake, and only one third of children and adolescents met the vegetable intake recommendations (2,3).

This mismatch with current dietary recommendations may be due to a number of factors that influence food selection among children. These include taste and cost, along with environmental factors such as availability and accessibility. Hearn et al. for example, demonstrated that children ate more fruits and vegetables for lunch at schools that offered more fruit and vegetables (4). Children’s consumption of fruits and vegetables was also related to their availability and accessibility at home (4).

Although empirical data is lacking, it is likely that more children purchase lunch, recess and afternoon snacks from the school canteen because of busy lifestyles and the competing demands on parents’ time. A recent Victorian survey suggests that around one third of primary and secondary schools now provide breakfast (5). The foods sold in school canteens therefore have an increas-
ingly significant role to play in ensuring children consume a healthy balance of nutritious foods.

Intervention research suggests it is possible to increase children’s consumption of fruits and vegetables by improving availability and accessibility. For example, the British ‘Food Dudes’ program uses taste exposure, modelling and non-food rewards as its main techniques to increase children’s fruit and vegetable consumption to 100% and 83% of recommended consumption levels, respectively. In this whole-school intervention, follow-up measures four months later showed children still eating significantly more fruit and vegetables than at baseline (6).

Similarly, an American intervention study that involved a lower fat and sodium school lunch program resulted in school canteen lunches with significantly less sodium and fat and more fibre at post-intervention (7).

While it is clear that school interventions to promote healthy eating can be effective, their success is likely to depend on the extent to which they meet the needs, experiences and views of primary school children, parents and teachers. The aim of this exploratory study was to survey children, parents and teachers to ascertain:

1. the usual food and beverage purchases of children from school canteens;
2. children’s and parents’ knowledge of healthy and less healthy foods;
3. perceptions of school canteens and their roles in promoting healthful diets; and
4. the perceived barriers and aids which influence the purchase of healthy foods in school canteens and strategies for overcoming the barriers.

Method

Participants

Fourteen primary schools in Victoria were approached and invited to participate in this study to which 12 agreed. Seven of these schools were involved in a school-based healthy eating intervention and the other five schools were matched for socioeconomic status, school type (private or public) and approximate enrolment as control schools. All data reported here were collected at baseline prior to the intervention.

The participants involved in this study were students, their parents and teachers from the 12 participating schools. Of the 1038 grade 5 and 6 students approached, 416 agreed to participate, representing a response rate of 40.1%. Of these, 214 females and 170 males with a mean age of 11.3 years completed the survey. Grade 5 and 6 children were targeted as research suggests that children below this age cannot reliably complete self-administered questionnaires (8,9). Of the 1038 parents approached, 404 agreed to participate (54 males and 349 females) and 41 of the 49 teachers approached agreed to participate (13 males and 26 females). This represented a parental response rate of 38.9% and a teacher response rate of 83.7%.

Materials and procedure

All students, parents and teachers completed a self-administered questionnaire. Information on whether the canteen was outsourced or run by the school was also collected. Data was collected over a two-month period during the autumn of 2002. Each student was offered a sports ball as compensation for his or her participation. Approval to conduct this study was provided by the Deakin University Ethics Committee, the Victorian Department of Education and the Catholic Education Office.

Student questionnaire

Students were asked how often in the last week they had used the canteen (every day, most days, sometimes, hardly ever, never) and how often they bought specific items from a list of 26 foods and drinks at the canteen (did not buy, bought it one to two times, bought it three to four times, bought it every day). The foods listed included a range of healthy and less healthy choices. They were also asked to list three foods and three drinks that the canteen would sell if it were selling healthy choices, and to identify the factors that would help them to choose healthy foods at the canteen and those factors that would stop them from choosing healthy foods at the canteen. For these questions, space was provided for children to write open-ended answers.

Parent and teacher questionnaires

A letter and information package was sent home with each child requesting one parent’s participation and parental consent for their child to participate. Each child had a questionnaire completed by the participating parent. Nearly all teachers of the classes involved completed a questionnaire, and the health or physical education coordinator was also asked to participate. Parents’ and teachers’ understanding of healthy foods was assessed by asking how often they believed children should consume a range of food and drinks. Both parents and teachers were asked how important they thought the role of the school canteen was in promoting healthy food and drink choices, in the overall development of children’s eating habits, in reinforcing the nutrition education children receive elsewhere, and in acting as a role model for healthy eating in the school (not at all important, somewhat important, very important). They were also asked whether their school encouraged healthy food and drink choices being sold at the canteen (yes, no, do not know), and parents were asked to identify barriers that prevent their child from having a healthy eating pattern.

In addition, teachers were asked whether they thought it was possible for the canteen to promote a range of healthy foods and drinks and still run as an effective business (yes, no, do not know), and whether there were barriers or problems in promoting and/or increasing the sale of healthy food and drink choices in the school (yes, no, do not know).

Data analysis

Simple descriptive analyses were performed (frequency counts and percentages). Differences between boys’ and girls’ responses were compared via cross-tabulations and the chi-square statistic. An alpha level of 0.05 was set to determine statistical significance, and all analyses were conducted using SPSS 11 (SPSS Inc, Chicago, SPSS for Windows, version 11 2001).
Ethics approval

The procedures for this study were approved by the University of Tasmania Human Subjects Subcommittee of the Institutional Research Risk Committee, which reviews all projects involving human subjects conducted by individuals affiliated with the university, to assure the protection of study participants’ rights, privacy, welfare, and civil liberties.

Results

Information about response rates, school types, socioeconomic status of schools and canteen facilities and are detailed in Table 1. Seven of the schools were government (or public) schools, and five were Catholic (or fee-paying private) schools. Two schools had canteens that were outsourced, two schools had canteens that ran on one day per week, one school had a canteen that provided lunch orders only and the remaining seven schools had fully operational school-run canteens.

Children

Nine percent of children surveyed reported they never used the school canteen, 3% ‘hardly ever’ used it, half used it ‘sometimes’, 6% used it on ‘most days’ and 2% used it ‘every day’. Slightly more boys than girls used the canteen on most days (9.5% versus 5.8%; P < 0.05).

In the week leading up to the survey, 43% of children had purchased pasties, pies or sausage rolls from the canteen on at least one occasion, 37.7% had bought confectionery at least once, 25.2% had bought potato crisps and 20.2% had purchased chocolate. Conversely, 12.5% of children had purchased fruit in the past week and 4.9% had purchased vegetables. Just over 60% of the children agreed that healthy food was available at their school canteen, approximately 10% disagreed and nearly 30% were unsure. Significantly more girls (66.8%) than boys (55%) felt that healthy food was available in their canteen (P < 0.05). Children were asked to identify foods that their canteen would sell if it were selling healthy foods. The foods most commonly listed by the children were fruit (mentioned by 34.6% of children), sandwiches/rolls/wraps (23.0%), vegetables (8.6%), yoghurt (5.4%) and salad (4.4%). The most common drinks listed were fruit juice/drink (39.4%), water (25.7%), milk (23.1%), cordial (3.2%) and soy milk (1.2%).

Children were asked what they perceived as barriers to choosing healthy foods at the canteen (Table 2). The most common response by far was that unhealthy alternatives at the canteen were considered tastier than healthy foods (34.3% of responses). Many children also reported that there were no or very few healthy foods available in their canteen (17.3%). Some children indicated that there were no barriers to choosing healthy foods at the canteen (12.3%) and others felt that the taste, look or smell of healthy food was undesirable (9.9%).

Children were also asked what would help them to choose healthy foods at their school canteen. The most common response was greater availability (20.6% of

<table>
<thead>
<tr>
<th>School type</th>
<th>SEIFA(a)</th>
<th>Canteen</th>
<th>Grade 5/6 students at school</th>
<th>Grade 5/6 students in study</th>
<th>Student response</th>
<th>Teachers invited to participate</th>
<th>Teachers in study</th>
<th>Teacher response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catholic</td>
<td>1089</td>
<td>Outsourced(b)</td>
<td>66 (n)</td>
<td>40 (n)</td>
<td>60.6 (%)</td>
<td>3 (n)</td>
<td>3 (n)</td>
<td>100.0 (%)</td>
</tr>
<tr>
<td>Catholic</td>
<td>1044</td>
<td>1/week(c)</td>
<td>26 (n)</td>
<td>12 (n)</td>
<td>46.2 (%)</td>
<td>1 (n)</td>
<td>1 (n)</td>
<td>100.0 (%)</td>
</tr>
<tr>
<td>Public</td>
<td>929</td>
<td>Lunch only(d)</td>
<td>130 (n)</td>
<td>39 (n)</td>
<td>30.0 (%)</td>
<td>6 (n)</td>
<td>4 (n)</td>
<td>66.7 (%)</td>
</tr>
<tr>
<td>Public</td>
<td>1044</td>
<td>School(e)</td>
<td>108 (n)</td>
<td>40 (n)</td>
<td>40.0 (%)</td>
<td>5 (n)</td>
<td>5 (n)</td>
<td>100.0 (%)</td>
</tr>
<tr>
<td>Public</td>
<td>1064</td>
<td>School</td>
<td>110 (n)</td>
<td>44 (n)</td>
<td>62.9 (%)</td>
<td>5 (n)</td>
<td>5 (n)</td>
<td>100.0 (%)</td>
</tr>
<tr>
<td>Catholic</td>
<td>945</td>
<td>1/week</td>
<td>35 (n)</td>
<td>22 (n)</td>
<td>65.7 (%)</td>
<td>3 (n)</td>
<td>2 (n)</td>
<td>66.7 (%)</td>
</tr>
<tr>
<td>Public</td>
<td>1003</td>
<td>School</td>
<td>107 (n)</td>
<td>32 (n)</td>
<td>29.9 (%)</td>
<td>5 (n)</td>
<td>3 (n)</td>
<td>60.0 (%)</td>
</tr>
<tr>
<td>Catholic</td>
<td>1101</td>
<td>School</td>
<td>66 (n)</td>
<td>27 (n)</td>
<td>40.9 (%)</td>
<td>3 (n)</td>
<td>2 (n)</td>
<td>66.7 (%)</td>
</tr>
<tr>
<td>Public</td>
<td>1050</td>
<td>School</td>
<td>118 (n)</td>
<td>34 (n)</td>
<td>28.8 (%)</td>
<td>5 (n)</td>
<td>5 (n)</td>
<td>100.0 (%)</td>
</tr>
<tr>
<td>Catholic</td>
<td>1006</td>
<td>Outsourced</td>
<td>54 (n)</td>
<td>16 (n)</td>
<td>29.6 (%)</td>
<td>3 (n)</td>
<td>3 (n)</td>
<td>100.0 (%)</td>
</tr>
<tr>
<td>Public</td>
<td>1078</td>
<td>School</td>
<td>112 (n)</td>
<td>18 (n)</td>
<td>16.1 (%)</td>
<td>5 (n)</td>
<td>3 (n)</td>
<td>60.0 (%)</td>
</tr>
<tr>
<td>Public</td>
<td>1003</td>
<td>School</td>
<td>106 (n)</td>
<td>60 (n)</td>
<td>56.7 (%)</td>
<td>5 (n)</td>
<td>5 (n)</td>
<td>100.0 (%)</td>
</tr>
<tr>
<td>Total</td>
<td>1038</td>
<td></td>
<td>384 (n)</td>
<td>49 (n)</td>
<td>37.0 (%)</td>
<td>49 (n)</td>
<td>41 (n)</td>
<td>83.7 (%)</td>
</tr>
</tbody>
</table>

(a) SEIFA is the Australian Bureau of Statistics’ Socio-economic Index for Areas (index of relative socio-economic disadvantage). In Victoria, the average SEIFA is 1020; values less than this represent greater levels of disadvantage and values higher than this represent lower levels of disadvantage (17).

(b) Outsourced: outsourced canteen.
(c) 1/week: school canteen operational one day per week.
(d) Lunch only: lunch orders only.
(e) School: school-run canteen.

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responses), followed by an advertisement or menu identifying healthy foods (11.1%). Reducing the cost of foods (9.3%) and external influences such as parents, teachers or friends (8.4%) were also common responses.

Parents

Most parents felt that the school canteen had a very important role to play in promoting healthy food and drink choices (Table 3). Less than half of the parents felt that the school canteen’s role in the overall development of children’s eating habits and in reinforcing the nutrition education children receive elsewhere was very important. Just over half of parents felt that the school canteen had a very important role in acting as a role model for healthy eating, while approximately 40% felt that this role was only somewhat important.

Just over half of parents (53%) indicated that their school encouraged healthy food and drink choices being sold at the canteen. A little over one quarter (26.8%) felt that their school did not encourage healthy food and drink choices at the canteen, and 20.6% were unsure.

Teachers

Most teachers believed that schools and canteens have a very important role to play in promoting healthy food and drink choices among children, in educating children about nutrition and in acting as a role model for healthy eating in the school (Table 4). However, most teachers believed that school canteens have only a somewhat important role in the overall development of children’s eating patterns.

Only 32.5% of teachers thought that their school encouraged the sale of healthy food and drink choices from the canteen. Over half the teachers (52.5%) felt that their school did not encourage healthy food and drink choices, and 12.5% were unsure. There were 72% of teachers who felt that it was possible for the canteen to promote a range of healthy food and drinks and still run as an effective business. However, 12.5% disagreed, and 15% were unsure.

Also, 70% of teachers felt that there were barriers or problems in promoting and/or increasing the sale of healthy food and drink choices in the school. Five per cent felt there were no barriers or problems, and 20% were unsure. The key barriers or problems identified by the teachers were: that the canteen was outsourced and they therefore had little or no decision in foods and drinks made available to children (14.6%); the emphasis placed on the canteen as a fundraising/profit-making venture (14.6%); a lack of parental education and the strong voice parents have on school committees (14.6%); and students’ dislike of healthy foods (14.6%).

Discussion

The findings from this study suggest that these children use school canteens regularly, most commonly to purchase less healthy foods like hot chips, pies and pastries. Both parents and teachers believed that the canteen had an influence over children’s food and beverage consumption, although they, and the children, felt there were a number of barriers preventing children from purchasing healthy food at the school canteen. Compared to parents, more teachers viewed the foods sold in the canteen as being relatively unhealthy, although they believed it was feasible for the canteen to sell healthy foods and still run effectively. While this sample was not large or representative and the response rates were less than ideal, the findings provide a useful indication of canteen usage and students', teachers' and parents' perceptions of canteens.

The children were able to identify healthy foods and many of them believed their canteen stocked healthy choices. While they possessed the knowledge to make healthy food choices, they chose unhealthy options from

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Table 2. Most common barriers and enablers identified by children to choosing healthy food and drink at the canteen (n = 384)

<table>
<thead>
<tr>
<th>Barriers</th>
<th>%</th>
<th>Enablers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unhealthy alternatives preferable</td>
<td>34.3</td>
<td>Increased availability</td>
<td>20.6</td>
</tr>
<tr>
<td>Availability</td>
<td>17.3</td>
<td>Advertisement/menu</td>
<td>11.1</td>
</tr>
<tr>
<td>No barrier</td>
<td>12.3</td>
<td>Cost reduction</td>
<td>9.3</td>
</tr>
<tr>
<td>Taste/look/smell</td>
<td>12.3</td>
<td>External influences</td>
<td>8.4</td>
</tr>
</tbody>
</table>

Table 3. Importance parents place on various roles of the school canteen

<table>
<thead>
<tr>
<th>School canteen's role</th>
<th>Not at all important (%)</th>
<th>Somewhat important (%)</th>
<th>Very important (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promoting healthy food &amp; drink choices (n = 403)</td>
<td>1.0</td>
<td>29.7</td>
<td>68.1</td>
</tr>
<tr>
<td>Developing eating patterns (n = 402)</td>
<td>5.9</td>
<td>51.5</td>
<td>40.9</td>
</tr>
<tr>
<td>Reinforcing nutrition education (n = 403)</td>
<td>7.1</td>
<td>45.6</td>
<td>46.1</td>
</tr>
<tr>
<td>Acting as a role model (n = 399)</td>
<td>3.7</td>
<td>39.0</td>
<td>55.1</td>
</tr>
</tbody>
</table>

Table 4. Importance teachers place on various roles of the school canteen

<table>
<thead>
<tr>
<th>School canteen's role</th>
<th>Not at all important (%)</th>
<th>Somewhat important (%)</th>
<th>Very important (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promoting healthy food &amp; drink choices (n = 40)</td>
<td>0.0</td>
<td>22.5</td>
<td>77.5</td>
</tr>
<tr>
<td>Developing eating patterns (n = 39)</td>
<td>2.6</td>
<td>59.0</td>
<td>38.5</td>
</tr>
<tr>
<td>Reinforcing nutrition education (n = 40)</td>
<td>2.5</td>
<td>37.5</td>
<td>60.0</td>
</tr>
<tr>
<td>Acting as a role model (n = 40)</td>
<td>0.0</td>
<td>27.5</td>
<td>72.5</td>
</tr>
</tbody>
</table>
school canteens and their fruit and vegetable purchases were minimal. This may be explained by the commonly held perception that the school canteen is used as a 'treat' for children. However, many children were using the canteen more than once a week, suggesting that 'treats' are a regular occurrence in this population.

Barriers identified by the children such as lack of healthy food options and the widespread availability of unhealthy options may have persuaded many of them to purchase foods that they know are unhealthy. The children suggested that by increasing the availability and advertising of healthy foods and reducing their prices they would be more likely to make healthy choices in the canteen. Previous research has shown that such simple strategies have been successful in a range of different settings and intervention studies (10–13).

A smaller percentage of teachers than parents believed their school encouraged healthy food and drink choices being available and sold from the canteen, and approximately half the parents felt that the school canteen’s role in the overall development of children’s eating habits and in reinforcing the nutrition education children receive elsewhere was only either somewhat important or not at all important. Conversely, teachers placed greater importance on the role of the canteen in influencing children’s eating. These findings suggest teachers may be more aware of the poor state of school canteen food than parents are and they suggest that there is a need for awareness-raising initiatives among parents. It is also common for teachers to use canteen facilities for their own food purchases, which may partly explain their greater awareness of the canteen situation.

While teachers believed it was feasible for the canteen to promote healthy food and drink choices and still run as an effective business, outsourcing of canteens and the emphasis on canteens as profit-making ventures stand as major obstacles to providing children with healthy food and drink options. The availability of high-fat and high-energy foods sold in school canteens is at direct odds with school nutrition education and the Australian Dietary Guidelines (3). Lack of funding has resulted in schools placing increased pressure on canteens to act as fundraising ventures (14). It is worth noting that outsourcing can be compatible with the supply of healthy food so long as the school has developed clear food and nutrition policies, which constrain the range of foods promoted by the canteen. However, French et al. (14) reported that only 32% of schools in their American study had a nutrition policy.

Several recent research studies have shown that it is possible to improve the foods available in canteens and increase the sale of healthy items (4,5,7,10). Children have suggested measures to assist this, both in this study and in others (15) and teachers in this study believed it to be feasible. Schools, teachers, parents, children, canteen managers and government must work together to eliminate barriers that prevent children from eating nutritionally sound foods. Alternative fundraising activities need to be explored and health promoting pricing and marketing strategies can be implemented. Programs such as Food Dudes (16), while not addressing broader structural and policy issues, demonstrate a well-grounded method for increasing fruit and vegetable consumption among children and could be used as a model for future interventions.

Conclusion

While not providing representative data on primary-aged school children, this exploratory study suggests that children use canteens regularly and the foods they purchase are less than optimal. Parents and teachers believe the school and the school canteen has a role to play in the development of children’s eating habits. However, parents appear to be less aware of the nutritional deficiencies of canteen food than teachers. The children and their teachers, and to a lesser extent parents, appear to have a clear understanding of healthy foods and of the barriers that presently prevent school canteens from providing them.

A wide range of interventions are currently being implemented across Australia. However, little uniformity exists nationally and school canteen guidelines are limited. Exemplary food and canteen policies require development and dissemination. Changes in the operating environment of canteens are necessary, accompanied by a shift in the perception of the canteen from solely a money-making venture to an investment in children’s health. The findings from this study suggest there is likely to be strong support from all stakeholders for novel health promoting school canteens that use well-tested behaviour change strategies.

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References


