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Original qualitative research

Children's perceptions of a Centrally Procured School Food Program in southwestern Ontario, Canada

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Abstract

Introduction: This qualitative study investigates children's perceptions of the influences of a Centrally Procured School Food Program on their dietary behaviours and their recommendations on how to improve the program.

Methods: The observations of 208 students aged 9 to 14 years (Grades 5–8) at 21 elementary schools were collected through focus groups in 2017/18. The larger intervention consisted of a 10-week program offering daily snacks (i.e. fruit, vegetables, whole grains, dairy, meat alternatives) for elementary school children in southwestern Ontario, Canada.

Results: The participants' overall impressions of the program were positive. They noted reduced hunger, increased energy and improved nutrition. Many children felt that the program changed their dietary patterns at home as well as at school, particularly in terms of eating more fruit and vegetables. The snack program also enabled children to try healthy foods.

Conclusion: Most participants considered the program to be beneficial in promoting healthy eating. Participants recommended adding educational activities, expanding the variety of foods and increasing child involvement in selecting and preparing foods.

Keywords: *nutrition, child health, food program, dietary behaviour, elementary school*

Highlights

- A Centrally Procured School Food Program with daily snacks (i.e. fruit, vegetables, whole grains, dairy, meat alternatives) offers a promising way of improving child nutrition.
- Elementary school children participating in this program in southwestern Ontario, Canada, described eating more fruit and vegetables, being willing to try new foods, improving their eating habits at school and at home, and generally having feelings of health and well-being.
- Child participants offered useful insights into improving this school food program, such as integrating educational initiatives and providing a greater variety/frequency of healthy foods.

Introduction

Public health professionals have become increasingly concerned about the quality of children's diets.¹ A meagre 10% of Canadian children aged between 6 and 12 years eat five or more servings of fruit and vegetables daily.² Regular—and excess—consumption of foods that lack essential nutrients is associated with adverse health consequences.³ Rates of obesity have reached epidemic proportions, with nearly one-third of Canadian children overweight or obese.⁴ Obesity can lead to a lifetime of health complications including type 2 diabetes, cardiovascular disease and psychosocial problems.⁵ These trends reflect an

important health issue that warrants immediate attention, given that childhood dietary patterns of low-nutritional quality often persist into adulthood.⁶

School nutrition programs have been identified as an effective way to promote healthy eating.^{7,8} A recent systematic review found that multicomponent food-provision interventions in Canadian elementary schools positively influenced children's intake of nutrient-dense foods.⁹ Elementary schools may be more successful than secondary schools for school nutrition programming as there are typically no or fewer foods for sale and stiffer restrictions around eating outside of school.

While school nutrition programming may yield positive health benefits, experimental studies evaluating elementary school food programming in Canada are limited.⁹ To our knowledge, there has only been one qualitative study investigating children's perceptions of and experiences with elementary school food programs nationally.¹⁰ This presents a critical and timely opportunity to solicit the views and opinions of children receiving these initiatives.

The purpose of this qualitative research study was to investigate children's perceptions of the Ontario Student Nutrition Program's (OSNP) novel Centrally Procured

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School Food Program (CPSFP). The CPSFP was piloted in 30 elementary schools in southwestern Ontario in 2017/2018. This qualitative study is part of a larger evaluation of the program.

The OSNP offers a network of funding and support for elementary schools across the province to provide nutritious breakfasts, snacks or meals for students. Program funding is funnelled through the Government of Ontario Ministry of Children and Youth Services and allocated to 15 lead agencies across the province. The lead agency for the OSNP, Southwest Region is the Victorian Order of Nurses.

The Victorian Order of Nurses implemented the CPSFP in southwestern Ontario to improve the nutritional quality of food being offered through existing school food programs and to establish local food procurement strategies. After the pilot evaluation in 2017/2018, the CPSFP has become one of the largest free school food programs in Canada, supplying primarily locally sourced food.

Participating schools receive weekly deliveries of fresh fruit, vegetables, dairy products, whole grains and meat alternatives to nourish thousands of elementary school children daily. By offering a dietitian-approved menu, the CPSFP provides high-nutrient snacks that follow the nutritional guidelines proposed by the Ministry of Children and Youth Services.¹¹ This school-based initiative also incorporates centralized food procurement strategies to source a higher proportion of program food (at least 20%) from local farmers.

This study contributes to existing Canadian school nutrition literature by evaluating children's perceptions of and suggestions for the CPSFP. The research objectives were to investigate: (1) children's perceptions of the influences of the CPSFP on their diet and eating behaviours; and (2) factors contributing to or detracting from program success, including future program development recommendations.

Methods

This study used a child-centred research design guided by an epistemological stance that research is *with* children, rather than *on* children.¹² The research approach used qualitative methods that value children's voices and experiences, rather than assuming

that adult program administrators can speak for all children.¹³ The data collection and analysis processes were supported by the moderator's educational training and experience in engaging with children to facilitate an open, respectful conversation. We facilitated focus groups to create a receptive and constructive dialogue among child participants to gather perceptions of and suggestions for the nutrition program.

This study incorporated focus groups at participating elementary schools involved with the CPSFP as a 10-week intervention. Ethics approval was granted by the Non-Medical Research Ethics Board of Western University (NMREB #: 108549). The two publicly funded, English-speaking school boards in the region and the principals of 30 elementary schools approved the study.

Although the CPSFP was offered to all children from kindergarten to Grade 8, this evaluation study targeted those in Grades 5 to 8 only. Research of surveys and focus groups has shown that by this age children can effectively express their perspectives on and recommendations for improving their situation in and around school.^{14,15} The research team facilitated classroom presentations in each school for children in Grades 5 to 8 to explain the research process and to answer any questions. Following these presentations, a letter of information and parental/guardian consent and child assent forms were sent home (the school had already informed parents/guardians about the CPSFP). Signed parental/guardian consent and child assent were required to participate in the larger study, which included parent/guardian surveys, pre- and post-program surveys of children, direct observations during snack times and focus groups with children, school staff, program coordinators and food providers.

In this paper, we examine data from the focus groups with children. Parental/guardian consent and child assent included permission to audio record and transcribe verbatim all focus group material. Participants were told that anonymized direct quotations may be used for the purpose of this research.

We used a cluster randomized sampling strategy to invite the 30 schools engaged in the 10-week CPSFP research evaluation to participate in the focus groups. Out of

the 30 schools, 21 agreed to participate in the follow-up focus groups. All children in Grades 5 to 8 (aged 9–14 years) were invited to participate ($n = 3432$) and 647 of the invited children had parental/guardian consent. From a list of students who had received parental/guardian consent, school principals selected 4 to 12 children in each school through a randomized numbered approach, yielding a sample of 208 children who assented and participated in the focus groups. We conducted 38 focus groups, each made up of four to six children, across 21 schools during the 2017/18 school years.

Sociodemographic characteristics of the focus group participants for this qualitative study were obtained from youth and parent/guardian surveys as part of the larger evaluation of the CPSFP.

A trained doctoral research candidate moderated each focus group, and each included a research assistant who took notes and audio recorded the discussions. Several members of an interdisciplinary team comprising child health researchers and educators developed a semi-structured interview guide (available from the authors on request).

The questions posed by the moderator during the focus groups facilitated the children's discussions about their perceptions of the CPSFP, specifically any observed impacts on their diets. Each focus group lasted between 20 and 60 minutes, with most 30 minutes long. The focus groups were held in each school's resource room, library, classroom or gym. All the focus groups were conducted in English, audio recorded, transcribed verbatim and double-checked for accuracy.

We used thematic analysis to identify patterns within the data. An inductive approach to coding was used to analyze specific participant responses and form broader conclusions. Independent coders followed Braun and Clarke's systematic process for thematic analysis, which involved familiarizing oneself with the data, generating initial codes, searching for, mapping and defining themes, and producing a final analysis.¹⁶ We used NVivo qualitative software version 12 (QSR International Pty Ltd., Melbourne, Australia) to organize and review the transcripts from each school.

Several protocols were integrated to maintain rigour in the analysis. The focus group moderator created the initial codes to make sure significant content was represented accurately in conjunction with what was observed and heard within the focus groups. A secondary coder, an external research assistant who was neither involved in the development nor present in the focus groups, conducted an independent review of the secondary code of the data to mitigate any internal bias.

The two researchers, working independently, identified a high degree of similarity between the general codes. Any missing or contradictory codes were resolved by discussion with the principal investigator until consensus was reached. Critical reflexivity was integrated into the analysis by considering the ways in which personal assumptions, values and actions may have influenced interpretation of the data. An aim of the study was to align with child-centred principles and actively present the analysis using the voices and ideologies of children.

Results

A total of 208 students participated in focus groups, resulting in sufficient data to reach saturation. The mean age (SD) of the participants was 11.2 (1.2) years, with 64.4% self-identifying as female. Most participants resided in small towns or rural settings (75%). The median household income was between \$80 000 and \$89 999. Themes that emerged during the data analysis process were organized into two key domains: children’s perceptions of the influences of the CPSFP on their dietary behaviours, and recommendations to improve the CPSFP (see Table 1).

Perceived influences of the Centrally Procured School Food Program on children’s dietary behaviours

The overall CPSFP program was well-received by most children. Their impressions of the program and its influence on their nutrition were largely positive:

“I think it gives an opportunity for a lot of students to not be hungry.” Female, Grade 7

“It fuels the rest of our day, the snack program, because they have all the stuff that gets our energy going.” Male, Grade 6

“This [program]... keeps kids’ nutrition up.” Male, Grade 6

Many participants described how the program reduced hunger, promoted energy and encouraged proper nutrition during the school day.

Children frequently reported that they were hungry in the morning prior to receiving the CPSFP. Hunger was often attributed to not having eaten breakfast before the start of the school day.

“Some people, like, don’t have time to eat breakfast in the morning, so it’s good to get to school and then like have something there that you [...] eat.” Female, Grade 8

Nearly all of the participants wanted the snacks from the program multiple times throughout the day to curb hunger.

“I would have [the snack program] during the whole day so I wouldn’t be hungry.” Female, Grade 7

Participants noted that the snacks were quickly eaten, with few or no items remaining. The amount of the food eaten often depended on the item, preferences for select foods and general hunger levels.

“There’s barely any [food] left.” Male, Grade 8

“Sometimes they put, like, all the favourite foods, and then it’s all gone really quick.” Male, Grade 5

Most participants indicated that they wanted more snacks, in particular the foods they liked.

Many children felt that the program had positively influenced their eating patterns at school and at home. Participants described eating more fruit and vegetables, and reducing their intake of unhealthy snacks, since participating in the program.

“I started packing my lunch a lot differently. A lot of the times I have no junk food in my lunch and more fruit and vegetables.” Male, Grade 5

A few participants, however, indicated that the program did not change their eating patterns, as they thought they already had a healthy diet.

Many children described how the program encouraged them to try various foods that they had not eaten before.

“There’s a lot of different food that I’ve never had before in the snack program, so that kind of encouraged me to eat different foods.” Female, Grade 6

“If I try something at school and then I really like it, then I’ll go home and want it, so then my parents buy it for me and I’ll eat that.” Female, Grade 8

The children noticed that access and exposure to healthy food items may have influenced their willingness to try and consume diverse foods. They also noticed how they influenced their parents/guardians’ purchasing patterns since participating in the program.

TABLE 1
Key domains and themes from the analysis of focus group data

Perceived influences of the CPSFP on children’s dietary behaviours	Recommendations to improve the CPSFP
<ul style="list-style-type: none"> • Encourages proper nutrition • Provides energy • Reduces hunger • Some positive impacts on eating patterns at school and home • Greater consumption of fruit and vegetables • Reduced intake of unhealthy snacks • Willingness to try different foods 	<ul style="list-style-type: none"> • Adding utensils and tools • Portioning food • Improving food safety and hygiene • Adding educational initiatives • Gathering student feedback on food preferences • Greater child involvement in food preparation • Adding a greater variety of foods

Abbreviation: CPSFP, Centrally Procured School Food Program.

Recommendations to improve the Centrally Procured School Food Program

A central theme emerged surrounding program implementation practices. Children recommended adding utensils to help eat foods provided, coolers or ice packs to keep items cold and containers to portion food. For example,

“They should [...] put the same, equal amount of grams in every cup.” Male, Grade 5

Portioning food into recommended serving sizes was frequently suggested.

Some participants expressed concerns about food safety and hygiene practices, or possible contamination by other children touching food products.

“Sometimes people don’t eat because, like, other people put their dirty hand[s] into it.” Female, Grade 6

A few participants suggested supplying hand sanitizer, gloves or food tongs or encouraging hand-washing practices among children.

Participants recommended more educational initiatives, such as healthy eating messaging and announcements, cooking classes, field trips, school gardening and games, to enhance their knowledge and motivation to maintain a healthy diet. For example,

“If school is to prepare you for life, then they should probably have a cooking class. Because you can’t just go to fast food restaurants or dining all your life.” Male, Grade 8

“We should take a trip to learn about agriculture.” Female, Grade 8

“I think we should do, like, [...] a 7-day challenge to see which class will eat the most vegetables.” Male, Grade 8

“We should have, like, a ‘Watermelon Wednesday.’” Male, Grade 8

Most participants enjoyed the foods offered in the CPSFP; however, some children said they wanted to be involved with selecting food items. For example, children recommended conducting a survey

in each school to gather children’s food preferences.

“I was thinking maybe we could do, like, a survey to see what kind of food people like.” Female, Grade 5

The children encouraged getting feedback on the food items provided and offering greater quantities of preferred foods, particularly to reduce any food waste. In addition, participants proposed adding novel food items (i.e. meat products, a salad bar, tropical or exotic fruit, dips to enhance flavour).

Weekly deliveries of food items were often prepared by school staff members, parent volunteers and, in some cases, children. Some participants wanted to be more involved with the preparation and delivery of snacks.

“They should, like, take five or six students down to help them prepare, like, what they should have for the next day.” Female, Grade 6

Many recognized the time and labour needed to maintain the snack program and participants wanted to help.

Discussion

This study used focus groups to explore children’s perceptions of the effect of the CPSFP on their dietary behaviours. Current research exploring elementary school nutrition programs in Canada is limited.^{8,9} One qualitative study recognized how potentially significant the Northern Fruit and Vegetable Program is in promoting fruit and vegetable consumption among economically disadvantaged children.¹⁰ The CPSFP evaluation had similar findings; however, participants from all schools described positive impacts on nutrition, independent of household socioeconomic status. The CPSFP was offered to all children in participating schools, to try to improve child nutrition across the region.

Findings from this qualitative analysis indicated that many children believed that the CPSFP positively influenced their eating patterns and reduced hunger. Several participants reported that they did not eat breakfast before school. A recent study found that, on average, 1 in 10 Canadian children do not eat breakfast every day.¹⁷

Eating a nutritious morning meal is critical to replenishing essential nutrients needed to maintain energy levels throughout the day.¹⁷ Participants believed that the morning snacks improved nutrition, reduced hunger and increased their energy levels. Previous research has indicated the benefits of school food programs as an effective way to address hunger.¹⁸

An important finding from the focus groups was that children believed the CPSFP changed their eating patterns at school and at home. The CPSFP helped children sample and eat more fruit and vegetables, and as a result, some children believed that they were eating fewer unhealthy snacks. Previous experimental studies involving school food programs also demonstrated increases in children’s intake of fruit and vegetables.^{19,20} These improved dietary patterns sometimes transcended into the home, with some children persuading their parents to purchase the healthy foods that they ate through the school food program. Recent experimental evaluations of school nutrition programs in Canada had similar findings.⁹ The school food programs increased children’s preference for high-nutrient foods such as fruit and vegetables,^{21,22} as well as their attitudes and willingness to try a variety of foods.^{8,23,24}

This qualitative study offers contextually rich data to further our understanding of the positive dietary impacts associated with school nutrition programs. Given the nutritional benefits evidenced by this evaluation, coupled with what is known about school nutrition programs,^{9,21} the CPSFP could be an exemplary model for a universal school food program in Canada.

The focus group findings highlighted several factors contributing to or detracting from program success, including future program development recommendations. Participants often presented challenges delivering the snack program. Some of these issues may be attributed to a lack of resources and support systems (e.g. financial, human) to effectively deliver the program. Process evaluation research on school nutrition programming has identified similar challenges²⁵⁻²⁷ and recommends establishing guidelines to effectively facilitate nutrition programming in schools.²⁷⁻²⁹ School nutrition policies may be one avenue to provide a comprehensive framework by which schools can plan and implement

nutrition practices, including the integration of food programs, that reflect current nutrition guidelines.³⁰

Study participants wanted to be more involved with selecting food items through the program. Increasing autonomy by selecting and preparing food has been shown to improve preferences and willingness to try foods.³⁰ Children suggested integrating educational initiatives, such as food-related themes, games and experiential learning into the program. Multi-component interventions partnering food provision with education have been shown to effectively enhance child nutrition.^{9,31} Programs with experiential learning (e.g. school garden, cooking and food preparation activities) have been identified as the most effective strategy to encourage fruit and vegetable intake and improve nutritional knowledge.³²

Strengths and limitations

Information shared among the focus group participants may have been influenced by peers. The focus groups were conducted by university student researchers in an elementary school setting, naturally creating a power imbalance between the children and moderator. This relational dynamic could have affected what participants chose to share; however, the moderator minimized any potential social desirability bias by avoiding leading questions.

Although selection of students for focus groups was randomized by school principals, it may still be that the group of students who assented to participate over-represented children who were more interested in the CPSFP. In addition, this study might be context-specific to geographical location and influenced by participants' sociodemographic characteristics. It may be beneficial to investigate these factors in relation to school nutrition programming in future research.

The target population for this study was elementary school children. Their ability to articulate pragmatic recommendations to improve the program might be limited. Nevertheless, children are the primary recipients of the program and key informants in providing feedback related to program impacts and opportunities for improvement.

Findings from this study provide valuable data that may be relevant, applicable and useful for various nutrition programs in Canada.

Conclusion

The CPSFP is a promising approach to improving nutrition in elementary schools. The program offers healthy, primarily locally-sourced snacks that were well-received by most participants. It increased participants' consumption of fruit and vegetables and willingness to try new foods, and improved eating habits and general feelings of health and well-being. The child participants provided useful insights into improving the program, such as incorporating educational initiatives and increasing the frequency with which snacks were provided and the variety of foods.

This qualitative evaluation offers rich, data-driven research to support the development and sustainability of nutrition programming regionally and beyond. Additional research on centralized food procurement practices in alternative contexts and regions of Canada will help to determine its success in reducing child hunger, increasing energy and improving nutrition. This research also helps in supporting the development of comprehensive nutrition policies that increase accessibility to centrally procured food-provision practices in elementary schools in Canada.

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Conflicts of interest

None.

Authors' contributions and statement

PC contributed to methodology and was responsible for investigation (focus groups), data curation, formal analysis and writing (original draft; revising and editing). JAS contributed to methodology, funding acquisition, supervision, and writing (review and editing). SW contributed to methodology, funding acquisition and writing (review and editing). LM contributed to writing (review and editing). JG was responsible for study conceptualization, methodology, funding acquisition, supervision, project administration, and writing (review and editing).

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