

“It’s huge in First Nation culture for us, as a school, to be a role model”: Facilitators and Barriers Affecting School Nutrition Policy Implementation in Alexander First Nation

Abstract

This mixed-methods community-based participatory research generated knowledge of school staff perceptions of the facilitators of and barriers to implementation of a Canadian First Nation school’s healthy nutrition policy. Themes derived from seven qualitative staff interviews were integrated with quantitative data derived from 28 staff surveys. The Medicine Wheel was used to describe results, as it provided a non-hierarchical and relational way to categorize all components and stakeholders of nutrition policy implementation. Factors that facilitated policy implementation were associated with the school environment, including the nutritional quality of foods sold or offered at school, administrative support, and foundational health programming prior to policy development. Staff identified the school as a role model for community members and as a key facilitator of policy implementation (for example, in leading health initiatives, providing a place for nutritious food and physical activity opportunities, and acting as a health resource for all community members). Barriers included inconsistency between staff members in policy implementation, uncertainty about staff members’ role in policy implementation, and lack of school communication with parents regarding the policy. One of the informative barriers from a First Nation perspective was the perceived misalignment of traditional foods, such as bannock or wild game, served at First Nation cultural events with federally derived nutrition standards that emphasize a low-fat diet. Results suggest strengthening school nutrition policy implementation by increasing staff nutrition education and certainty of their roles as policy facilitators, advocates, and enforcers; improving communication with families; having supportive school health programming; and ensuring the school, community, and home environment all reinforce healthy eating.

Keywords

First Nations, Aboriginal, Indigenous, public health, schools, nutrition policy, health behaviour, evaluation, community-based participatory research, culture

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Introduction

As children spend the majority of their waking hours at school, schools are important settings for implementing health behaviour change interventions. School nutrition policies are an important pillar in comprehensive school health that seek to guide and create a healthy learning environment for students (Joint Consortium for School Health, 2008). School nutrition policies can change the food environment of a school through actions such as removing or reducing the availability of unhealthy foods, incorporating nutrition concepts into the school curriculum, and creating partnerships with health professionals in the school’s community (Joint Consortium for School Health, 2008). Healthy school policies set a standard for the school and provide guidelines for the operation of a health-focused environment.

There is an urgent need for school nutrition programs in Indigenous communities in Canada to enable a healthy environment for learning and to ensure children are able to attain optimal health; yet there has been little assessment of health program and policy implementation in Indigenous schools (Browne, Hayes, & Gleeson, 2014) apart from an intensive evaluation of a few community schools (Kakekagumick et al., 2013) and a decade-old environmental scan of nutrition programs and policies in First Nation schools (Assembly of First Nations, 2008). The scan found that half of schools with a nutrition program saw a need to improve or expand upon it

and that lack of funding, staffing concerns, and infrastructure costs were the main barriers to implementing a nutrition program (Assembly of First Nations, 2008).

Further attention is required to the sharing and exchange of knowledge in the area of school nutrition programs and policies in Indigenous settings. The barriers and facilitators (that is, enablers) of nutrition policy implementation in an Indigenous school setting may be unique (Tagalik, 2010). It is important to evaluate Indigenous school health initiatives so that their approaches can be adjusted, if necessary, to ensure their success. Knowledge gained from such efforts can also be used to support other Indigenous communities’ efforts to implement or improve their own school health policies (Assembly of First Nations, 2008).

In March 2014, Kipohtakaw Education Centre, the kindergarten to Grade 12 community school in Alexander First Nation northwest of Edmonton, Alberta, adopted a healthy school nutrition policy that had been developed by the Nation’s Education Department. A tenet of the policy was that the school would promote nutrition education while also promoting and providing nutritious snacks and meals consistent with *Eating Well with Canada’s Food Guide: First Nations, Inuit and Métis*, which was created by Health Canada (2007) to reflect the values, traditions, and food choices of Canada’s Indigenous Peoples. All school staff were to ensure that strategies were in place to foster the knowledge, skills, and attitudes that promote healthy eating; Kipohtakaw Education Centre was to promote healthy, reasonably priced food choices when food was sold or otherwise offered; and Kipohtakaw Education Centre was to examine its nutrition practices and provide opportunities, support, and encouragement for staff and students to eat healthy foods. The school offered students both a breakfast and hot lunch at no charge. The policy was developed with the intention that it would ripple into the broader community and improve all community members’ health and well-being. The intent of this study was to explore staff-perceived facilitators and barriers that affected the implementation of this locally developed school nutrition policy.

Relationship

In 2006, a community-based participatory research (CBPR) partnership to prevent childhood obesity was conceptualized between academic researchers from the University of Alberta and the Director of Education of Alexander First Nation (Gokiert et al., 2017; Pigford et al., 2013). The present study was a continuation of this CBPR partnership to ensure the health and well-being of children in the community. The research was overseen by the research steering committee for the project, known as the Alexander Research Committee (ARC). The ARC helped to ensure that the research met the needs of the community’s Education Department while also being scientifically rigorous. At the time of the research, ARC membership included community co-researchers working at Kipohtakaw Education Centre (e.g., school principal) and at the community’s Education Department (e.g., director) alongside academic co-researchers from the University of Alberta and their graduate students from the various CBPR projects being governed by the ARC.

The ARC abides by a *Guiding Principles* document for research in the community that was first established in 2007. It outlines rules for data collection, storage, and use; ethical conduct in relation to research; and the community’s status first and foremost as the primary beneficiary of research (Gokiert et al., 2017; Pigford et al., 2013). As such, research that abides by the *Guiding Principles* honours principles of ownership, control, access, and possession (OCAP),¹ which are essential standards for conducting research with First Nations. Using these *Guiding Principles*, the ARC helped to create survey and interview questions, and reviewed the findings of the present research for credibility and dependability of interpretation (Israel, Eng, Schultz, & Parker, 2012). For instance, the ARC aligned thematic results with the Cree Medicine Wheel used in the community (discussed below). Consultation with the community members of the ARC occurred to ensure the appropriate representation of findings using the Medicine Wheel framework, as the colours and orientation of the Wheel are integral to its meaning. Community Elders were present to provide guidance about respectful cultural representation and research use of the Medicine Wheel.

Methods

In September 2014, community members of the ARC alongside University of Alberta researchers of the ARC began drafting the methodology for assessing the barriers and facilitators affecting implementation of Kipoptakaw Education Centre’s nutrition policy as it existed at the time (see Appendix).

In order to fill knowledge gaps in research on First Nation school nutrition policy implementation, this study drew on the strength of both qualitative and quantitative methods. A 23-item survey (20 closed-ended and 3 open-ended questions) completed in May 2015 generated the quantitative data, while semi-structured face-to-face interviews with 10 questions completed in May and June 2015 generated the qualitative data. The aim of the interview questions was to elicit a deeper understanding of responses to the staff survey. The inclusion criteria for participation required staff to have a school mailbox in which to place a consent form and the survey; therefore, teachers, education assistants, principal, vice-principal, school counsellor, and school hot lunch staff were included in the study, while Elders who worked at the school were not included. Identifying information such as subject taught and Indigenous identity was not asked of participants to help ensure anonymity of data.

Quantitative survey data were analyzed using SPSS (Version 22.0) for response frequencies and chi-square and Fisher’s exact tests. A graduate student who had completed a course in qualitative research transcribed the interviews verbatim and analyzed them using conventional content analysis (Krippendorff, 1989) under the supervision of academics with expertise in qualitative research methods. Open coding was used to develop descriptive labels that were assigned to transcript excerpts, and a second coder reviewed the labels to verify

¹ OCAP® is a registered trademark of the First Nations Information Governance Centre (FNIGC; www.FNIGC.ca/OCAP.html).

reliability of the analysis. Codes were quantified based on the frequency of their occurrence in transcripts and the number of interviewees that mentioned them (Castro, Kellison, Boyd, & Kopak, 2010). Codes were aggregated into themes based on similarity and relationship to each other (Auerbach, 2003). The aggregated themes were presented to the ARC for review and interpretation that would inform the development of the final themes. A score was provided for each theme that was a product of the frequency of occurrence of each code within the seven transcripts multiplied by the number of interviewees whose transcripts mentioned the code. Each interviewee was assigned a number from one to seven, and this number was provided when a quote was used to support a theme.

Facilitators of and barriers to nutrition policy implementation from the qualitative interviews were originally organized by the researchers from the University of Alberta into a socio-ecological model (Townsend & Foster, 2011). After this framework was reviewed by community members of the ARC, the decision was made to organize the themes into the four quadrants of the community’s version of the Cree Medicine Wheel to represent a holistic and culturally appropriate interpretation of findings (Graham & Leeseberg Stamler, 2010). The Medicine Wheel was considered by Alexander First Nation community members guiding this study, including two Elders, to be a more appropriate framework to organize results because it provided a non-hierarchical and relational way to categorize all components and stakeholders of school nutrition policy implementation (Wenger-Nabigon, 2010). A concurrent triangulation mixed-methods approach (Yin, 2009) was used to synthesize the findings from the surveys and interviews (Creswell & Plano Clark, 2010).

Ethics

This study was conducted according to the guidelines laid down in the Declaration of Helsinki (World Medical Association, 2013), and all procedures involving human subjects were approved by the University of Alberta’s Research Ethics Board 1. Written informed consent was obtained from all participants.

Results

Of the staff members with a mailbox at the school, 80% completed the survey ($n = 28$ of 35). Of the 28 survey participants, 27 (96.4%) answered all closed-ended questions and 24 (85.7%) additionally answered the open-ended questions. Of those who responded to all of the questions, 13 (54.2%) provided contact information to participate in the individual interview, and of these, 7, representing 20% of school staff, were able to be interviewed before the end of the school year. These interviews provided rich data that was layered, intricate, detailed, and nuanced. Further coding was not possible after the seventh interview; therefore, data saturation was achieved (Fusch & Ness, 2015).

Facilitators of and Barriers to School Nutrition Policy Implementation

Figure 1 shows themes derived from qualitative interviews that identified facilitators of or barriers to school nutrition policy implementation, organized within the four quadrants of the Medicine Wheel. Each quadrant represents a distinct ecological category, which are staff, student, school, and community and culture. The colours used in the figure are appropriate for a Cree Medicine Wheel from Alexander First Nation, with blue in the west (left), white in the north (top), yellow in the east (right), and red in the south (bottom).

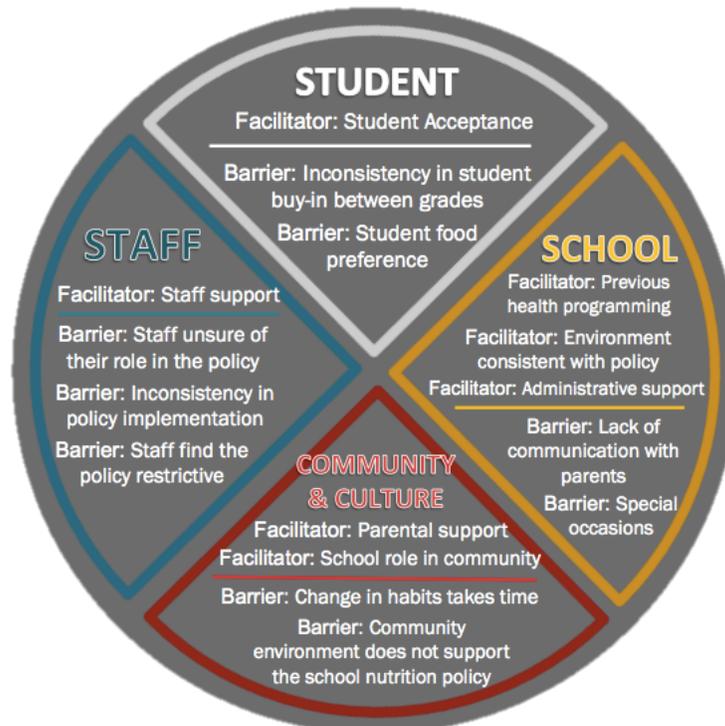


Figure 1. Staff-perceived facilitators of and barriers to Kipohtakaw Education Centre school policy implementation, organized within the quadrants of a traditional Cree First Nation Medicine Wheel.

Facilitators of School Nutrition Policy Implementation

Table 1 shows the score for each theme derived from qualitative interviews that identified facilitators of school nutrition policy implementation, within each of the four categories of the Medicine Wheel. Table 1 also shows exemplar quotes derived from the qualitative interviews that support each theme, in addition to supportive statistics derived from the survey. Important and noteworthy facilitators are discussed following the table.

Table 1
Staff-Perceived Facilitators of Kipohtakaw Education Centre’s Nutrition Policy Implementation Within Each Ecological Category Ranked by Score and Accompanied by Example Interview Quote and Supporting Survey Statistic

Theme	Score ^a	Exemplar interview quote (Interviewee #)	Quantitative survey statistic
STAFF FACTORS			
Staff support for the nutrition policy	20	“[Staff] all work together and bring our ideas together [around healthy alternatives].” (5)	26.3% (<i>n</i> = 5/19) of staff indicated in an open-ended survey question that other knowledgeable staff helped them the most to deliver quality nutrition education to students.
STUDENT FACTORS			
Student acceptance	18	“In elementary [grades] they do talk about health. They have to learn it in school, right? So they come home and say, ‘No, <i>kukum</i> [“grandmother” in the Cree language], that’s not good for you, you need to eat this,’ you know, celery or whatever.” (1)	67.9% (<i>n</i> = 19/28) of staff members believed the school nutrition policy has impacted the way students are eating at school.
SCHOOL FACTORS			
Previous healthy school programming	60	“The school’s done well, we’re the first APPLE ^b School for First Nation school boards, we had EarthBox [garden] planting vegetables and things like that, and the apples, and now this nutrition policy.” (5)	The majority of interview participants (71.4%; <i>n</i> = 5/7) mentioned previous programs that have created a healthy school environment previous to the policy dissemination.

Environment consistent with policy	20	“Whoever is shopping for the canteen knows what they’re doing and then the hot lunch program, the cook is on board too and so there’s fruit and vegetables. The kids have noticed the difference having a healthy lunch and having energy.” (5)	78.6% (<i>n</i> = 22/28) of staff members agreed or strongly agreed that healthy food was available and 64.3% (<i>n</i> = 18/28) of staff members agreed or strongly agreed that administrators have created a school environment that helps children eat healthy foods.
Administrative support	20	“We had a meeting at the beginning [of the year] and we went over the policy in great detail.” (6)	67.9% (<i>n</i> = 19/28) of staff members agreed or strongly agreed that administrators had helped them prepare to implement the school nutrition policy.
COMMUNITY AND CULTURE FACTORS			
School role as support system and role model in community	48	“It’s huge for First Nation culture for us at [the school] to be a role model.” (5)	Not applicable. Question about this topic not asked on the survey.
Parental support	20	“I know that parents have been trying to make an effort, you know, have healthier choices.” (6)	89.3% (<i>n</i> = 25/28) of staff indicated that they had not been contacted by parents regarding resistance to the school nutrition policy or the change in foods available to students.
<p>^aA score is provided for each theme that is a product of the frequency of occurrence of each code multiplied by the number of interviewees whose transcripts mentioned the code.</p> <p>^bAPPLE = Alberta Project Promoting Active Living and healthy Eating (APPLE Schools; www.appleschools.ca).</p>			

Previous healthy school programming. When interviewees were asked if they perceived the healthy changes at the school as a gradual process or as a quick development after the policy was implemented, the majority of interviewees who had taught at the school for at least one year (80.0%; $n = 4/5$) acknowledged the changes had occurred gradually over time, often citing health-based community research projects at the school that dated back almost a decade as the reason for the gradual change (Gokiert et al., 2017; Pigford et al., 2013). Interviewee 1 suggested that previous health programs and research initiatives in the community had provided plenty of groundwork for the development of a school nutrition policy: “[Healthy changes] were kind of happening before, just slowly bringing in a little bit of things, you know, and then when the policy came in it wasn’t like a shock to everybody.” The gradual environmental transition, removing unhealthy foods from the canteen and incorporating more fresh and nutritious ingredients into the school lunch menu, was viewed by staff as a significant enabler to the implementation of the school nutrition policy. Staff took notice of the environmental changes, with Interviewee 6 noting, “The kitchen staff is making sure that they have the assistance of a dietitian to plan menus.” Health-oriented programming that preceded the implementation of the school nutrition policy was a significant influence in preparing the staff and student mindset for applying healthy changes, eventually leading to the initiation and development of the school nutrition policy.

Environment consistent with policy. The consistency of the school environment with the school nutrition policy tenets and the availability of nutritious options for students and staff assisted in the implementation of the school nutrition policy. In regards to the food environment 78.6% of staff ($n = 22/28$) agreed or strongly agreed on the survey that healthy food was available at the school. Additionally, 64.3% of participants ($n = 18/28$) reported that administrative staff had created a school environment that helped children eat healthy foods. While all staff had not unanimously implemented the school nutrition policy, there were key “health champions” that supported the policy and were crucial to creating a conducive environment for policy implementation.

Administrative support. Most (67.9%; $n = 19/28$) agreed or strongly agreed that administrators had helped them prepare to implement the school nutrition policy and cited instances in which staff functions were organized to reflect the nutrition policy with healthy choices for food. Interviewee 1 said, “[Administration] tries to promote healthy [alternatives] when we have functions here without the kids. We have all the fruits and vegetables and sandwiches and I haven’t heard any complaints.” As the school nutrition policy was administrator driven, the support for healthy changes has been consistent and maintained since policy development.

School role as support system and role model in the community. A significant community and cultural facilitating factor for school nutrition policy implementation identified by staff was the school’s role in the community of Alexander First Nation. The role was described as providing support, modelling behaviour, and acting as a resource. Participants recognized the importance of their double role, first as educators at the First Nation school and second as community role models, and acknowledged the effect that their leadership with school policies and nutrition initiatives could have on the health of the entire community. “It’s going to be a trickle effect in people’s lives and that’s good for all of us. Change is hard,” indicated Interviewee 5, also saying, “At least at the school, we can provide healthy alternatives and that has been just rolling out to individual people now and they’re going to be thinking, ‘Well, if at the school I can’t bring candy or cookies and cupcakes, well, then, what about my own eating?’” Staff identified that the school had a role model effect in the community, and the health initiatives occurring within the walls of the school would most likely not stay in those confines. Interviewee 7 stated eloquently, “I think it’s one of the best things we could be doing for the students and for the community because ultimately that’s who it’s going to affect.”

Barriers to School Nutrition Policy Implementation

Table 2 shows the score for each theme derived from qualitative interviews that identified barriers to school nutrition policy implementation, within each of four categories. Table 2 also shows exemplar quotes derived from the qualitative interviews that support each theme, in addition to supportive statistics derived from the survey. Informative barriers with respect to policy implementation are discussed following the table.

Table 2

Staff-Perceived Barriers to Kipohtakaw Education Centre’s Nutrition Policy Implementation Within Each Ecological Category Ranked by Score and Accompanied by Example Interview Quote and Supporting Survey Statistic

Theme	Score ^a	Exemplar interview quote (Interviewee #)	Quantitative survey statistic
STAFF FACTORS			
Staff find the nutrition policy restrictive	33	“I personally don’t think I should have to eat healthy all the time because that’s not how I eat. I’m kind of putting this false façade into these kids like I’m some kind of nutrition freak but I’m not.” (3)	Only 6 of 11 staff (54.5%) who indicated they ate a diet of average quality agreed or strongly agreed with the policy statement that only healthy food will be served at school and classroom celebrations, compared to 13 of 15 staff (86.7%) who stated that their diet was “above average” ($p = .096$). ^b

Inconsistency of staff policy implementation	12	“To be honest I didn’t even know there was a policy until you [researchers] came here.” (1)	25% (<i>n</i> = 5/20) of staff responded that staff resistance or staff refusing to abide by policy was a barrier to nutrition policy implementation.
Staff unsure of role in policy	12	“Just for the position that I have now I don’t feel that I get to have a bigger role in [nutrition] education.” (7)	Staff were more likely to strongly agree with policy statements that were explicit (57.1%; <i>n</i> = 16/28) compared to statements that were vague (39.3%; <i>n</i> = 11/28).
STUDENT FACTORS			
Student preference for unhealthy foods	45	“When their palates are used to that kind of food and then they come here and they have the option of healthy food versus something packaged, then, you know, their tendencies are to go with something they’re comfortable with.” (7)	39.3% of staff members (<i>n</i> = 11/28) cited “lack of interest from students” as a moderate or major barrier to providing quality nutrition education in accordance with the policy.
Inconsistency of policy buy-in by students in higher grades	40	“Elementary children always ... listen to what their teachers say and their parents say, but by the time they get to junior high of course the teachers don’t know anything.” (6)	When asked about the biggest barrier to implementing the school nutrition policy, 30% (<i>n</i> = 6/20) of staff suggested student resistance was a significant barrier, with 33.3% (<i>n</i> = 2/6) of those who suggested student resistance explicitly citing high school students as the most non-compliant.
SCHOOL FACTORS			
Lack of communication with parents	24	“I don’t think some of the parents understand there is a nutrition policy.” (1)	89.3% (<i>n</i> = 25/28) of staff members indicated that they had not been contacted by parents regarding resistance to the school nutrition policy or the change in foods available to students at school. Yet “Resistance from parents of students” was cited as a moderate or major barrier to providing quality nutrition education in accordance with the policy by 50.0% of staff members (<i>n</i> = 14/28).

Special occasions	9	“I notice that in the kitchen she makes cupcakes and stuff, [saying] ‘Ugh, just this once,’ but, like, just this once is once a month.” (4)	71.4% ($n = 5/7$) of interview participants explicitly mentioned exceptions or treats or moderation and lack of clarity in the policy about such situations.
COMMUNITY AND CULTURE FACTORS			
Change in habits takes time	15	“It’s always, like, the first few years when you try anything you’re not going to see the total effects.” (6)	Not applicable. Question about this topic not asked on the survey.
Community environment does not support the school nutrition policy	10	“Then you kind of throw out the health thing for [culture], but then we want everyone to be healthy, but we want [the students] to know the culture, so you’re just kind of clashing there ... if this is cultural, if this is important to us, then why can’t we have that every day?” (3)	Not applicable. Question about this topic not asked on the survey.
<p>^aA score is provided for each theme that is a product of the frequency of occurrence of each code multiplied by the number of interviewees whose transcripts mentioned the code.</p> <p>^bFisher’s exact test.</p>			

Inconsistency of staff policy implementation. One staff member (Interviewee 1) admitted to not being aware there was a policy until researchers had arrived to ask about it, and another (Interviewee 3) said they were aware of the policy but had never taken the time to read it: “That’s my fault, because they had a couple printed out but I didn’t actually go through it. I don’t have time to go through it. I have, like, no prep [time].” On the other end of the spectrum, other staff members were fully aware of the policy and had implemented changes into their classroom environment. For instance, Interviewee 5 said, “I put up the Canada Food Guide, both our Cree one and our English one and the kids are over there reading it ... we count our number of fruits and vegetables we’re getting in our lunch meal ... they run over to the chart and say, ‘[I am] supposed to have seven to eight a day.’” Some staff felt that other competing student issues were higher priority than policy implementation, as explained by Interviewee 7:

There are just so many issues sometimes at the school, whether it’s cell phones, whether it’s attendance, whether it’s language, whether it’s, you know, food is just like sometimes you need to pick battles and if you want kids to come to school, what are you going to pick? Are you going to take away their chips?

The inconsistent delivery of policy objectives by school staff presented a barrier to policy implementation.

Staff unsure of role in policy implementation. Staff members were uncertain of their role as nutrition policy facilitators, advocates, and enforcers. In particular, staff did not feel it was their role to enforce the school nutrition policy and were unsure what to provide students for healthy snacks that followed the policy. Staff cited, for example, competing priorities and anxiety over being the only enforcer of the policy as reasons for refraining from taking on a policy advocate role. As the vast majority of staff members were not health educators, many felt the school nutrition policy was not part of their daily classroom responsibility, as one interviewee stated: “I’m a [subject²] teacher, so I’m not going to, like, stop in the middle of [subject] class and talk about nutrition.” In terms of direct policy statements about staff members’ role in school nutrition policy adoption, exemplification, and implementation, participants were more likely to strongly agree with statements from the policy that were explicit, such as “[School staff] will limit the use of food items as rewards. For example, no candy for cleaning desks or finishing work early” (57.1%; $n = 16$), compared to more ambiguous policy statements, such as “[School staff] will establish linkages between health education and foods available at the school” (39.3%; $n = 11$).

Participants were unsure which healthy snacks to provide to students in their classrooms. Some participants reported having stopped giving any snacks after being informed they could no longer provide certain packaged foods to students that did not honour the policy: “I’ve been concerned about [what to give students as snacks]. When the kids don’t want to eat what’s being served from the kitchen, what do you do? You’ve got nothing to give to them.” However, other staff ignored the policy and continued to provide packaged and other “unhealthy” snack food, claiming that unhealthy food is better than no food at all. As Interviewee 3 articulated, “I don’t think about the nutrition policy, I think about, okay, this child is hungry so I’m going to satisfy the hunger, whether it’s a granola bar with chocolate chips in it or whether it’s an orange.”

Lack of communication with parents. Lack of communication with parents regarding the policy was perceived by staff as a barrier to school nutrition policy implementation. This was because some parents were still sending meals and snacks to school with their children that did not comply with the policy due to their lack of awareness of it. “Resistance from parents of students” was also perceived as a moderate or major barrier to providing quality nutrition education in accordance with the policy by 50.0% ($n = 14$) of survey respondents. Participants perceived parental involvement as beneficial to school nutrition policy implementation, with Interviewee 4 claiming, “Gradually making [parents] aware of what’s going on at the school, about the nutrition policy because personally I don’t think some of the parents understand there is a nutrition policy.” Staff perceived the parents as being potentially unaware there was a policy or what it required of them as parents of students attending the school. Interviewee 6 emphasized this barrier by saying, “We still need to have avenues where we meet with [parents], where we

² Subject taught (e.g., science, math, or English) removed to ensure anonymity of participant.

could talk directly to parents and to show them the benefit too of leading, of teaching by example.”

Community environment does not support the school nutrition policy. An important theme derived from the data was the contrast between the community nutrition environment and the school nutrition environment. There were three main characteristics of the community environment that exemplified how it did not support the school nutrition policy. One feature of the community environment was that foods served at cultural events sometimes differed from those endorsed by the policy at school. A second feature was that the home food environment did not always support healthy eating. A third feature was that the community’s only store, which was a gas bar, had few healthy food options.

Participants perceived both health and culture as important school priorities. Staff viewed cultural events and celebrations as a significant part of the local First Nation culture but indicated that not all foods served at such events held at the school adhered to the school nutrition policy. As Interviewee 7 mentioned, “You know sometimes we have [name of cultural event³] and cookies are passed around and so there seems to be exceptions anyway.” During these school events, staff members were unsure how to enforce the policy. Interviewee 3 stated,

It’s traditional⁴ food so we’re not counting calories, we’re not counting nutritional factors because it’s about the culture, but really if you take a look at it, it’s not healthy. ... We want everyone to be healthy, but we want [the students] to know the culture, so you’re just kind of clashing there. You get mixed information and if as a staff [member] I’m getting mixed information how much more confused are the kids, right?

Staff members could easily identify instances in which they were confused over whether the policy was to be enforced and if and how “moderation” in consumption applies to cultural food situations.

Home food environments may not support healthy eating. Staff members acknowledged that as policy facilitators, they can only control what is served or offered at school and not restrict foods brought from home or sent by parents. Unhealthy foods at home may influence student resistance to adopting healthy eating practices at school, as Interviewee 4 remarked: “The kids never have stuff like that [beans and zucchini] ... they don’t eat that at home so they’re not going to eat it here.” Interviewee 2 touched on the challenge of educating students to eat healthy foods at school when there is potentially a contrasting food environment at home: “It’s hard for [staff members] to train them how to eat in school, especially [when] you don’t know what they’re eating at home.”

Another example of how the community nutrition environment does not reinforce the healthy school nutrition policy and its efforts to serve or sell exclusively healthy food is that in

³ Within an oral culture, certain ceremonies and cultural events are not to be written down.

⁴ Traditional foods are those with cultural significance, such as meat obtained from wild animals.

Alexander First Nation there is only one convenience store that sells food. It does not provide many nutritious options. Staff members occasionally referred to the school nutrition policy as “restrictive” based on the local community context, with Interviewee 3 stating, “I find there needs to be a nice balance between this nutritional policy and what’s rational and what’s ideal for this community and for this school.” Staff members were unsure how to approach this juxtaposition between the community nutrition environment and the school nutrition policy that could potentially hinder policy implementation, particularly as it relates to the importance of First Nation culture and community.

Limitations

A limitation of this study is that we were unable to link individual survey responses to interview data because we did not ask participants to provide any identifying information when they completed the survey to ensure their anonymity. Another limitation is that it was not feasible to pilot-test the survey in a small school, as we would have included the same school staff members in the piloting of the survey as in the completion of the version used for the study. The lack of pilot survey data meant that we were not able to evaluate the survey’s adequacy as a research instrument; however, questions on the survey were either borrowed from validated surveys or reviewed for appropriateness by community members of the Alexander Research Committee. Another limitation is that Elders from Alexander First Nation working at the school were not included in the study because they did not have a school mailbox. Elders could have provided unique insight into the school nutrition policy’s implementation, as many had been working as cultural advisors at the school for a significant length of time. They would have potentially been able to discuss the policy implementation process at the school as they observed it, from the beginning of policy development to its implementation, with knowledge of local First Nation culture, traditions, and health perspectives. It should be noted, however, that Elders were members of the ARC and were able to provide cultural insight into the data interpretation and alignment with the Cree Medicine Wheel. Another limitation is that data generation took place in only one community, so results may not be generalizable to other First Nations or to Indigenous communities in general. Instead, the results provide some insight into staff perspectives of the process of school nutrition policy implementation in one setting.

Discussion

This study explored school staff perceptions of factors that were potentially unique to school nutrition policy implementation at Kipohtakaw Education Centre in Alexander First Nation (Tagalik, 2010). When examined using the Medicine Wheel, the school quadrant had the most staff-perceived facilitating factors for policy implementation, which were administrative support, an environment that offered and encouraged healthy food choices, and previous health-oriented programming at the school. Similar factors have been identified by other researchers as

important for supporting school health policy (Assembly of First Nations, 2008; Lohrmann, 2010; Watts, Mâsse, & Naylor, 2014).

One of the highest-scoring facilitators of school nutrition policy implementation at the school was the many years of health programming that supported student and staff health initiatives that preceded the implementation of the policy. Many teachers had familiarity with the Alberta Project Promoting Active Living & health Eating (APPLE Schools; www.appleschools.ca), which is an evidence-based and cost-effective program to motivate change and transform the school environment to promote comprehensive school health. Alexander First Nation was the first on-reserve school in the province of Alberta to be an APPLE School. Through its engagement with University of Alberta researchers, the school had also participated in EarthBox Kids, which created gardens in school classrooms to promote healthy eating, vegetable and fruit consumption, and the delivery of nutrition education (Hanbazaza et al., 2015; Triador, Farmer, Maximova, Willows, & Kootenay, 2015). The nutrition policy was an extension of these and other school health initiatives. Unfortunately, there is disproportionately less funding per student for Indigenous schools compared to non-Indigenous schools in Canada (Drummond & Rosenbluth, 2013). Schools located in First Nation communities therefore often seek funding to support programs and services that schools located off reserve take for granted, and might not be able to support the type of health programming that has been implemented at Kipohtakaw Education Centre. These unique factors must be taken into account when considering the success of school policy implementation.

Another important facilitator was Kipohtakaw Education Centre’s central role as a support system and role model in the community of Alexander First Nation. The school provides a location for social gathering, learning, and positive role modelling. Staff discussed the school’s role as a model for community members in leading health initiatives and providing a place for nutritious food and physical activity opportunities. The important leadership role that staff members had, in terms of health and wellness initiatives in the community, enhanced school nutrition policy implementation by situating the policy in the larger context of community wellness. Staff members saw beyond the student impact of the policy and were able to understand the importance of the school nutrition policy in the broader community context.

It is important that students, as the primary target of the policy, are receptive to its tenets. A salient barrier to policy implementation noted by staff was that students preferred unhealthy foods, which may be related to students’ limited exposure to healthy foods, such that more time is needed for them to adapt to a changing food environment (Atik & Ertekin, 2013). Staff members provided a variety of explanations for the resistance to policy buy-in by students in higher grades, including older students having more freedom to purchase unhealthy snacks at the local convenience store. The home environment of many students may contain many unhealthy foods. Implementation of healthy food policies and practices in Alexander First Nation and other First Nation communities may be hindered by the high prevalence of food insecurity experienced by many First Nation households, meaning that families might not have physical or economic

access to healthy foods and are unable to serve their children healthy meals (Willows, Hanley, & Delormier, 2012).

The finding that staff considers the policy restrictive was a high-scoring barrier to implementation. Staff turnover at the school could change the salience of this barrier over time. The school administration has worked to educate staff members on the importance of healthy eating and has provided nutrition education curricula for teachers to implement in their classrooms. Based on the findings of the present study, the school nutrition policy was revised in February 2016 to provide staff members with a list of food items, including brand-name packaged foods, that are considered healthy choices for students. These actions are intended to reduce the number of staff members who feel restricted by the school nutrition policy.

A distinctively First Nation barrier to school nutrition policy implementation identified by staff was the perceived disparity between, on the one hand, the federal and provincial nutrition guidelines that were the basis of the policy at Kipohtakaw Education Centre that emphasized a low-saturated-fat diet (Jessri, Nishi, & L’Abbé, 2015) and, on the other, the nutritional quality of traditional First Nation foods served at cultural events in the community and school. These foods include bannock (a traditional Indigenous quick bread made of white flour, baking powder, salt, and a fat such as lard, margarine, or butter) and wild game of the region (e.g., moose, deer, rabbit, duck). Canadian scientific literature emphasizes the health benefits of consuming traditional unprocessed animal and plant foods harvested from the land, water, and air, as they are associated with better diet quality and higher vitamin and mineral intake (Downs et al., 2009; Kuhnlein & Receveur, 2007). First Nation Peoples value these foods because they connect them to their culture (Willows, 2005). Despite the scientific literature supporting the cultural and nutritional significance of traditional foods, staff members perceived that the traditional foods served at school cultural events were contradicting the school nutrition policy. While some traditional foods, such as bannock if made with white flour and lard, are unhealthy and not aligned with the school nutrition policy, game meat and healthy versions of bannock do not violate nutrition guidelines (Health Canada, 2007). This finding suggests that nutrition policies for First Nation schools need to specify healthy traditional food options for students, and that staff training about healthy traditional food options is needed. For example, it could be emphasized that game meat typically contains less saturated fat than meat from domesticated animals and that baked bannock made using whole wheat flour, berries, and vegetable oil is healthier than other versions (British Columbia Ministry of Forests, 2013).

Conclusion

Future longitudinal research to assess the progression of factors that affect school nutrition policy implementation over time may demonstrate that certain barriers diminish as the cycle of policy implementation occurs (Kyriakides, Creemers, Antoniou, Demetriou, & Charalambous, 2015). Barriers identified in the present study could be subject to substantial weakening or decline over time, such as staff inconsistency in policy implementation as staff

turnover occurs and more staff members implement the policy in their classrooms due to increased administrative support. More studies of First Nation communities in Canada that are implementing school health policies would provide additional direction in creating culturally relevant health policies (Gates, Skinner, & Gates, 2015).

The present study indicates that the school environment, inclusive of healthy food, staff support, and initiation by administration, is important for the effective implementation of healthy school policy. Foundational health programming that supports student and staff health initiatives as well as consistent encouragement of staff to promote healthy eating and the delivery of culturally appropriate nutrition education has been critical to the implementation of this First Nation school’s nutrition policy. APPLE Schools can draw on the results to inform supportive factors for policy implementation, strategies for reducing barriers, and insights into policy amendments that could serve to better implement First Nation school health policies.

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Appendix
Kipohtakaw Education Centre’s Nutrition and Physical Education Policy 126,
Implemented March 2014

Policy Statement: Kipohtakaw Education Centre will promote and provide nutritious snacks and meals consistent with the First Nation, Inuit, and Métis (FNMI) Food Guide while promoting nutrition education and daily physical activity.

Guidelines:

1. All Kipohtakaw Education Centre Staff must ensure that strategies are in place to foster the knowledge, skills and attitudes that promote healthy eating. In fulfilling this expectation Kipohtakaw Education Centre staff will:
 - a) establish linkages between health education and foods available at the school,
 - b) promote nutrition education and positive food messages provided by Alberta Health Services Website and Canadian FNMI food guide,
 - c) limit the use of food items as rewards, e.g. no candy for cleaning desks or finishing work early.
 - d) All school and classroom celebrations will follow the FNMI food guide and Alberta Health Services Guidelines for healthy living. (for example, *talent show, round dance, pow wow, birthday parties, Halloween, meet the teacher, parent teacher interviews, Christmas concert, Christmas parties, career fair, graduation, track and field, prom, Easter, year-end parties, 100th day of school celebration and in addition to any other school celebrations*).
 - e) Hot lunch menu and canteen menu to be posted in the monthly newsletter.
2. Kipohtakaw Education Centre will promote healthy, reasonably priced food choices when food is sold or otherwise offered. In fulfilling this expectation, Kipohtakaw Education Centre Staff will plan to:
 - a) access expertise in the community through partnerships, programs, referrals, etc.,
 - b) offer foods that are from the FNMI Food Guide
 - c) All fundraisers must follow the FNMI Food Guide and Alberta Health Services guidelines for healthy living.
3. Kipohtakaw Education Centre school community will examine their nutrition practices and provide opportunities, support and encouragement for staff and students to eat healthy foods. In fulfilling this expectation staff may do things such as:
 - a) create their own health and wellness team that includes staff, parents and students
 - b) choose healthy fundraising options
 - c) create an environment where healthy foods are available, affordable and promoted as the best choice,
 - d) review options with food suppliers to maximize the nutritional value of the items
 - e) define the frequency of special celebrations in yearly calendars and ensure that healthy food items are available on those days
 - f) will promote positive food messaging on lunch and snack items provided by parents (Kipohtakaw Education Centre staff are not responsible for unhealthy food choices brought from home)
4. Physical Activity. In addition to regularly scheduled physical education programming, Kipohtakaw Education Centre will provide opportunities for additional daily physical activity e.g. Daily Physical Activity (DPA) Bins, extracurricular sporting events, running club, energizers, etc. either within classroom time or outside of classroom time.