



What We Learned: Food Environments in Saskatchewan Public Recreation Facilities

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Released: June 2023

This report is a summary of our research study:

A need for multi-sector and multi-pronged solutions to address the many barriers inhibiting change from unhealthy food environments in publicly funded recreation facilities: a mixed-method study. *Applied Physiology, Nutrition, and Metabolism*. 47(8): 847-859. <https://doi.org/10.1139/apnm-2021-0770>



Saskatchewan
Parks and Recreation
Association



Saskatchewan
Health Authority

Acknowledgements

This research project was primarily guided and funded through in-kind contributions and collaboration between:

Eat Healthy Play Healthy Advisory & Practice Committee members:

- Dr. Hassan Vatanparast and Melanie Warken, Vatanparast's Nutritional Epidemiology Lab, College of Pharmacy and Nutrition, University of Saskatchewan
- Dr. Rachel Engler-Stringer, Community Health and Epidemiology, College of Medicine, University of Saskatchewan
- Melanie Baumann, Ministry of Parks, Culture and Sport, Government of Saskatchewan
- Jillian Code and Naomi Shanks, Ministry of Health, Government of Saskatchewan
- Tim Hanna, Saskatchewan Parks and Recreation Association
- Cathryn Abrametz, Tracy Sanden, Melanie Warken and Stacey Wiens, Public Health Nutritionists, Saskatchewan Health Authority
- Nicole Ferguson, Heart and Stroke Foundation

This research project was also made possible through in-kind contributions from:

- Jill Aussant, Audrey Boyer, Chelsea Brown, Lea Polkinghorne, Barb Wright, Registered Dietitians and corresponding NUTR 531 students, Saskatchewan Health Authority
- Christine Nisbet, Tamara Diaz, Abby Lehmann and Kassandra Lestrat, Research Assistants with Vatanparast's Nutritional Epidemiology Lab, College of Pharmacy and Nutrition, University of Saskatchewan
- Dr. Patti-Jean Naylor, School of Exercise Science, Physical and Health Education, University of Victoria

We are grateful to the anonymous Eat Healthy Play Healthy research participants from across Saskatchewan who included municipal recreation directors, managers and supervisors; privately contracted food service providers; and parent volunteers. Your insights and recommendations into the food environments of Saskatchewan publicly funded recreation facilities were much appreciated.

The study received ethical approval from the Human Behavioural Research Ethics Board at the University of Saskatchewan.

"I do think this is so valuable and I just want to thank you guys for reaching out to communities and for offering some help."

Food Service Provider 1

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Introduction

In 2016, members of the Eat Healthy Play Healthy (EHPH) Advisory Committee began collaborating to support healthy food and beverage choices as easier choices in Saskatchewan (SK) public recreation facilities (PRFs). This aligns with the national recreation framework for supportive environments.¹ To understand the current state, a baseline evaluation was conducted. This report intends to summarize the results of the baseline evaluation. Results can be used to build awareness and capacity in SK, and to inform changes to practices and policies for a healthier future state. Results can also be used to monitor change over time.

Background

Eating practices are one of the primary behavioural risk factors for premature death globally.² Eating practices and patterns have negatively shifted over time due to broad environmental factors such as an increased production of processed food, rapid urbanization and changing lifestyles.³ Eating practices and patterns are also highly influenced by local environmental factors such as the availability, accessibility, placement, pricing and promotion of foods and beverages in places where people live, learn, work and play. In addition, eating practices may be influenced by interpersonal factors such as social support networks.

Public recreation facilities provide a welcoming space for families to participate in physical, social, intellectual and creative pursuits in Canada.¹ As PRFs are often preferred gathering places for families, the importance of their food environments are gaining recognition in Canada.¹ Concession stands and vending machines are common outlets for food and beverage options in Canadian PRFs. However, options have been described as unhealthy and contradictory to participation in recreation activities that support health and wellness.⁴⁻⁷

Research Purpose

The **purpose** of our study was to conduct a baseline evaluation of food environments in SK PRFs. A popular socio-ecological framework was adapted to manage and analyze data (Figure 1).⁸ The factors that influence healthy eating practices and patterns in Canada, including collective and individual determinants, were applied to the framework.⁹ Definitions for each of the factors are included in

Appendix A. Our study focused on the collective determinants including policy, environmental (physical, economic, social) and interpersonal factors.

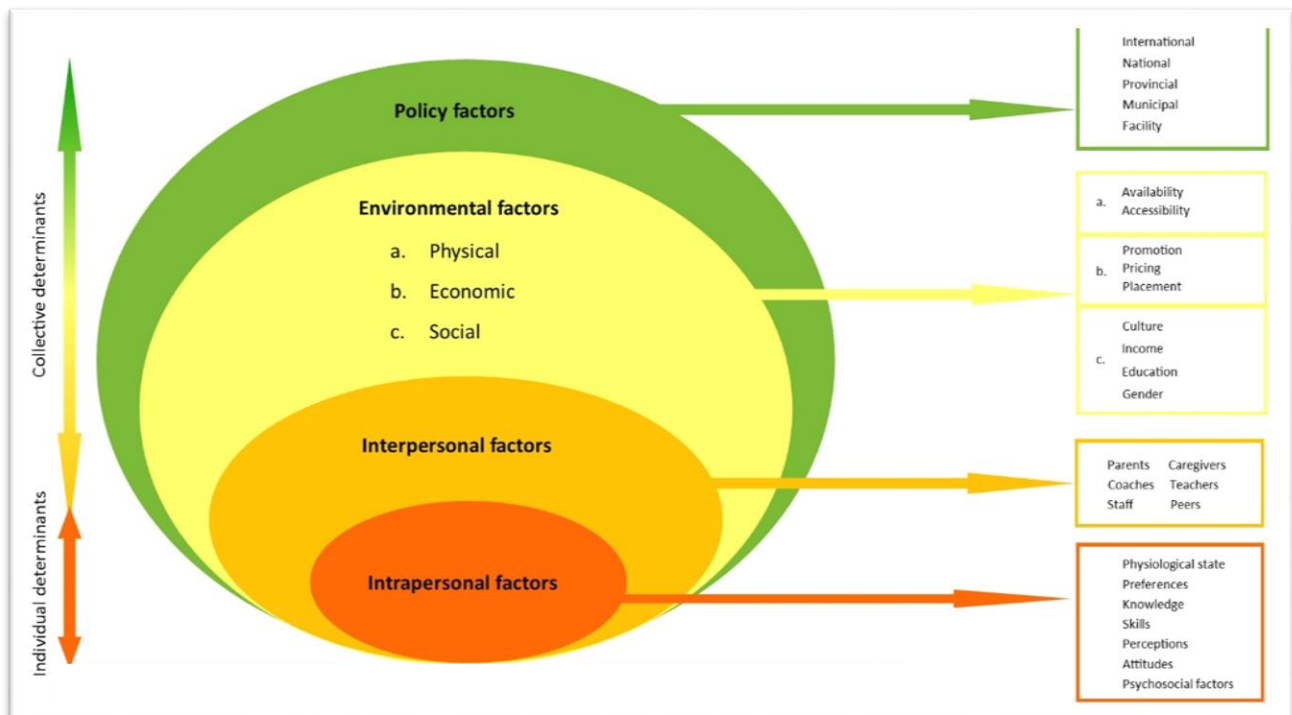


Figure 1: Factors that influence eating practices and patterns

Research Objectives, Tools & Methods

Our **first objective** was to measure the healthfulness of foods and beverages offered in concession and vending services in SK PRFs, and how often they were available. We also wanted to determine how options were placed, priced and promoted to sell. The *Nutrition Environment Measures Surveys – Restaurant reduced item audit* (rNEMS-R) tool and a vending audit tool were used to complete this objective. Registered Dietitians (RDs) from the Saskatchewan Health Authority (SHA) and EHPH Advisory Committee members were invited to conduct the surveys to foster relationships between the health and recreation sectors. Surveyors were provided a toolkit and training. Completed surveys were sent to a research graduate student and research assistants at the University of Saskatchewan for data cleaning, entry and statistical analysis. Registered Dietitians used the rNEMS-R scoring protocols and the *Healthy Foods for my Recreation Setting - [Nutrition Standards for Saskatchewan](#)* (2018)¹⁰ to determine the healthfulness of packaged foods and beverages for analysis.

Our **second objective** was to interview recreation leaders and food service providers to gain a deeper understanding of the barriers and facilitators to offering healthy foods and beverages in SK PRFs. We also wanted to determine:

- solutions to overcome existing barriers;
- where there was a state of readiness in SK;
- information and resources needed; and,
- what organizations would like to see in a written toolkit.

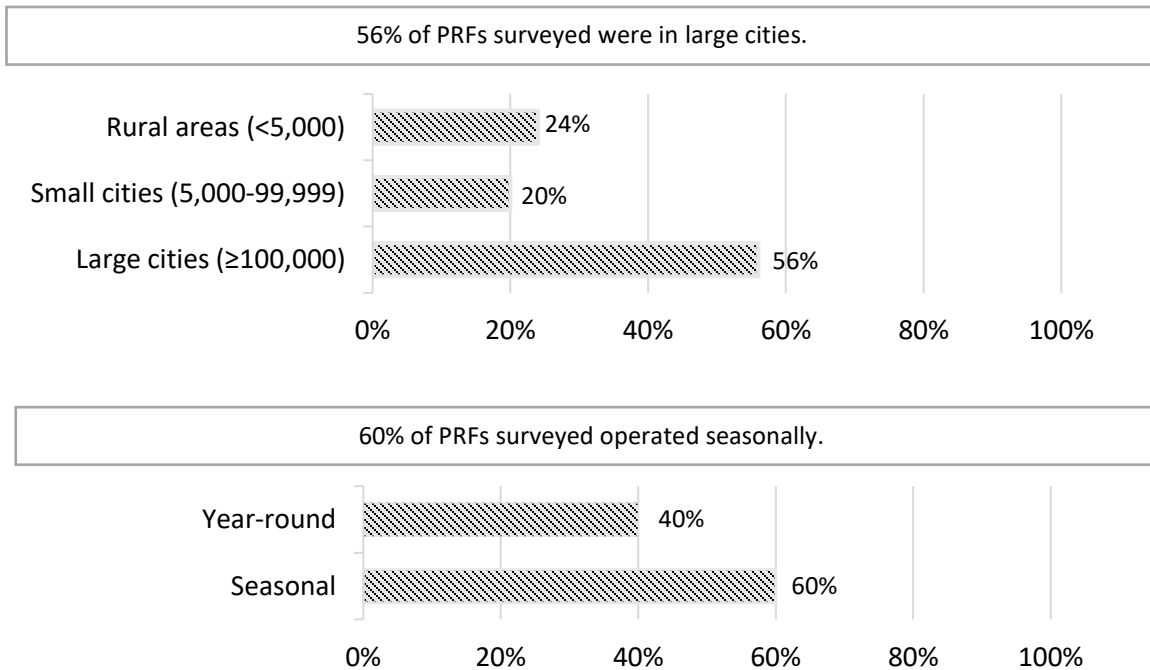
To complete this objective, the EHPH Advisory Committee adapted interview questions from related research in British Columbia; refer to Appendix B.⁶ Interviews were conducted by telephone, audio-recorded and manually transcribed by a student researcher. Transcriptions were coded and analyzed into themes by a student researcher and a few representatives from the EHPH Advisory Committee.

Participant Recruitment & Sample

To recruit recreation leaders and food service providers in SK, invitations and an online registration system were shared through SPRA's e-newsletter, website, social media and presentations to key stakeholder groups from October 2017 to August 2018. Seventeen (17) participants consented to surveys in 45 PRFs and/or to a telephone interview. The participants represented 16 communities in SK with at least one from each of the [SK Districts for Sport, Culture and Recreation](#) (Figure 2). Most PRFs were in large cities and operated seasonally.



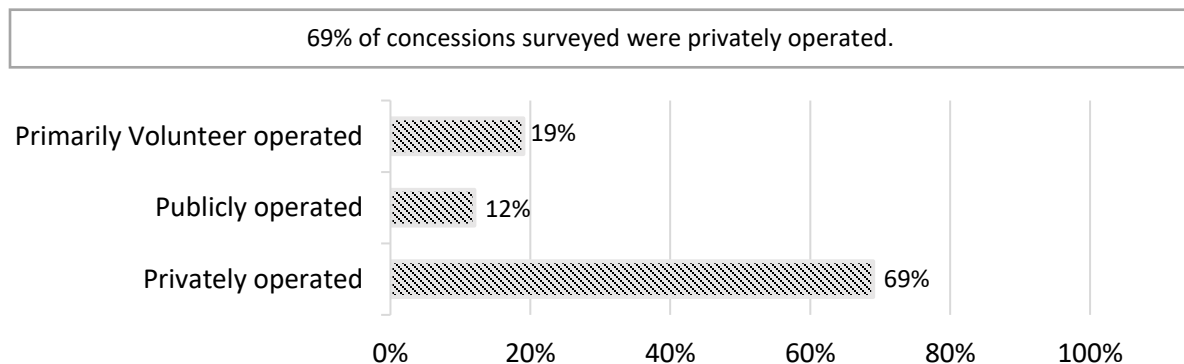
Figure 2: Participants represented 16 communities in SK



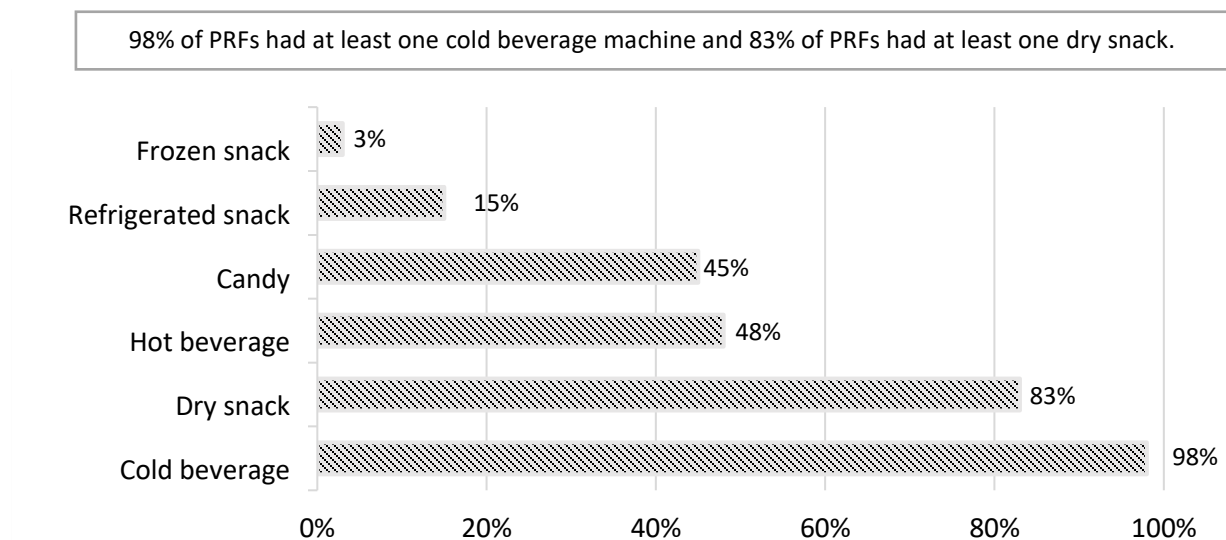
Survey Results

1. Concession & Vending Characteristics

In the 45 PRFs, 42 concessions and 452 vending machines were surveyed. On average, that was one concession and 10 vending machines per PRF in SK confirming that they are an important part of the recreation food environment. Most concessions were privately operated. Concessions in large cities were all privately operated, while concessions in small cities were split between being privately and publicly operated, and concessions in rural areas were mostly operated by volunteers.



Cold beverage and dry snack vending machines were the most prevalent types of vending machines available in SK PRFs.

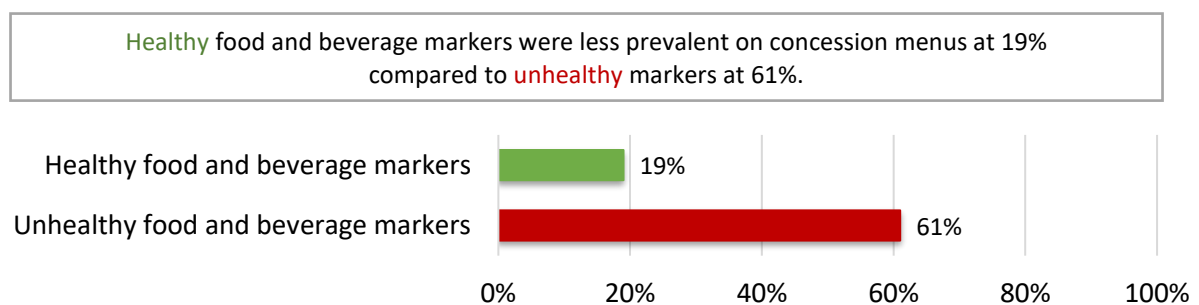


A significantly higher prevalence of dry snack (94%) and hot beverage (58%) vending machines ($p < 0.01$) as well as cold beverage (100%) vending machines ($p < 0.05$), was found in urban PRFs compared with rural PRFs.

2. Concession & Vending Healthfulness

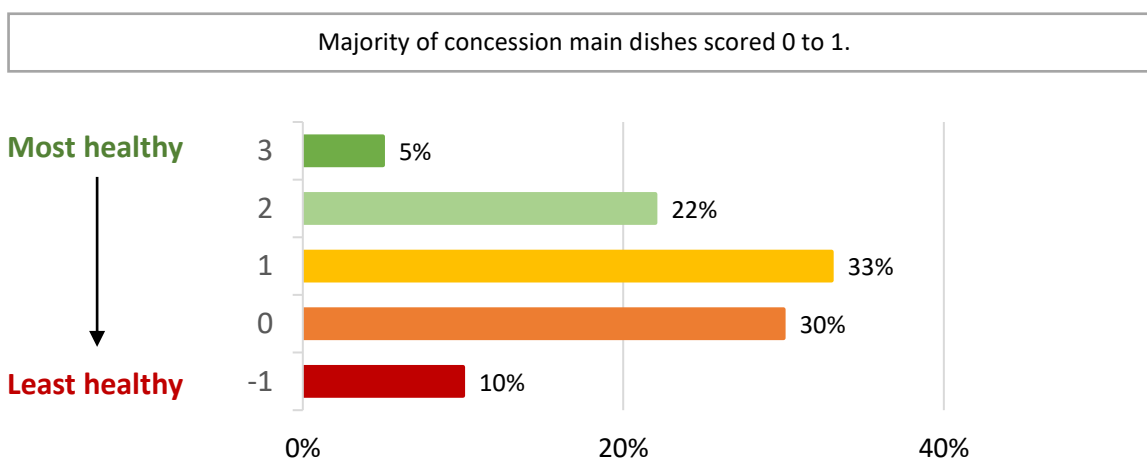
a) Concession Marker Foods and Beverages

Marker foods and beverages, defined as **healthy** or **unhealthy**, were recorded from 42 concession menus. Examples of healthy markers were fresh fruit, whole grains and lower-fat plain milk. Examples of unhealthy markers were potato chips, regular fries, and refined/white grains. Unhealthy markers were more prevalent than healthy markers.



b) Concession Main Dishes

From 42 concession menus, 984 main dishes were recorded and scored on their healthfulness. Following the rNEMS-R scoring protocols, main dishes were defined as having a significant protein source plus another food group like carbohydrates or vegetables. Points were awarded if main dishes had quality protein sources, whole grains and non-fried vegetable servings. Points were subtracted if main dishes had added fat such as dressing, cheese or bacon. Scores ranged from a **-1 (least healthy)** to a **+3 (most healthy)**.

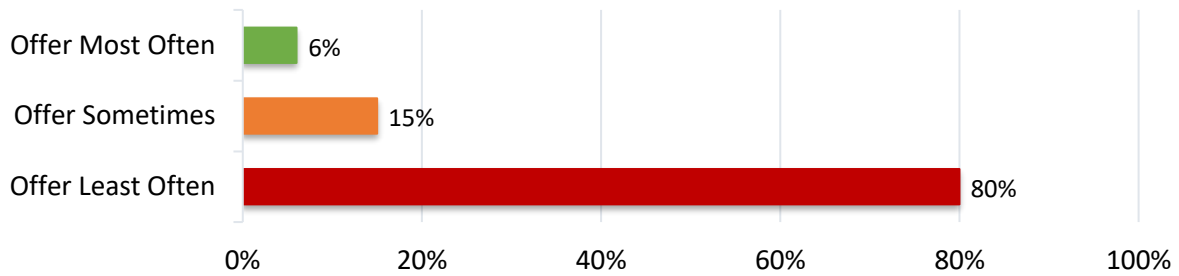


c) Packaged Foods and Beverages

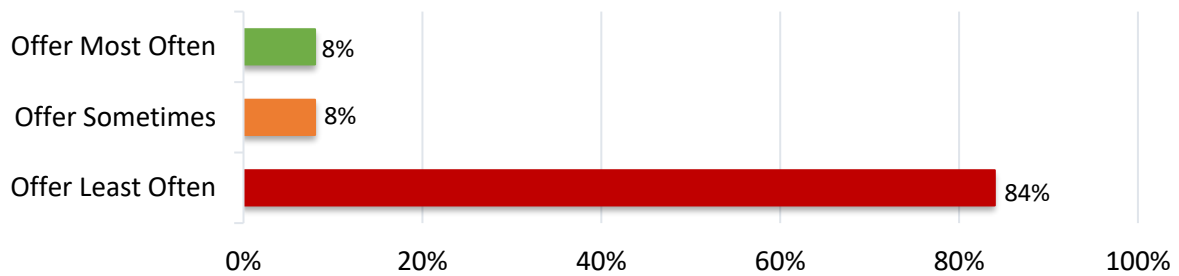
Packaged foods and beverages offered through concession and vending services in 45 SK PRFs were categorized as **Offer Most Often**, **Offer Sometimes** or **Offer Least Often** based on [Healthy Foods for my Recreation Setting - Nutrition Standards for Saskatchewan \(2018\)](#). The table below provides a brief description of how foods and beverages fit into each category.

Offer Most Often	Offer Sometimes	Offer Least Often
Contains a variety of nutrients	Contains some nutrients	Contains few nutrients
Generally lower in fat, sugar and salt	Generally higher in fat, sugar and salt	Generally higher in fat, sugar and salt
Generally higher in fibre	Generally lower in fibre	Generally lower in fibre

Of the 1569 packaged foods and beverages offered **in concessions**, 6% were categorized as **Offer Most Often**.



Of the 3207 packaged foods and beverages offered **in vending**, 8% were categorized as **Offer Most Often**.



The most common **packaged foods** offered in concessions and vending were potato/corn chips, chocolate bars, candy, other salty snacks and baked goods. The most common **beverages** offered in concessions and vending were soft drinks, hot drinks, sports drinks, juice and smoothies.

Interview Results

Seventeen (17) participants were interviewed by telephone. Participants referenced barriers to healthy eating ($N=812$) more than twice as often as facilitators ($N=354$), which demonstrates the complexity of the situation. Key barriers and facilitators are summarized in Figure 3, which is not indicative of prevalence or repetition of participant references.

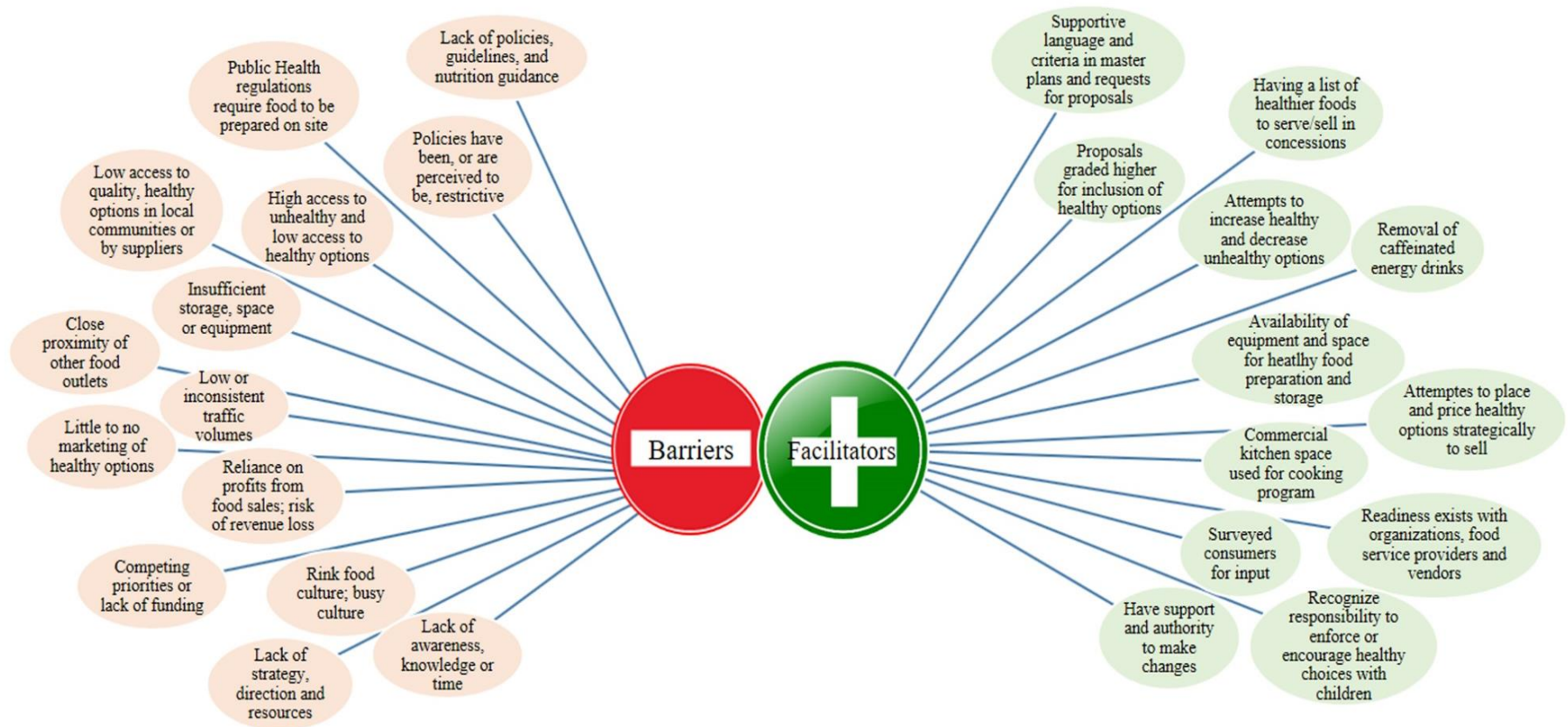


Figure 3: Summary of barriers and facilitators for healthy eating in SK public recreation facilities

Recreation Leader (RL) and Food Service Provider (FSP) Quotes by Socio-Ecological Factor

Policy factors	<ul style="list-style-type: none"> • “We’d be happy to come with a healthier policy if we knew [what] that would be.” RL13 • “We try not to limit them [food service contractors] on the business they conduct there, how it’s done, or we try not to provide too many restrictions for them.” RL10 • “They [municipality] have some say in what’s sold in the arena and right now my contract, although my contract is dated, it says that I must sell hamburgers, hotdogs, fries, popcorn and hot chocolate.” FSP2 • “The only thing we have kind of done to start that ball rolling is ... putting like the 25 percent minimum in the RFP [Request for Proposal] and starting to put more of the healthier options in the vending machines.” RL6
Environmental physical factors	<ul style="list-style-type: none"> • “One thing and just totally based on what we read, we did get rid of like the Monster drinks and that sort of thing.” RL13 • “We always like that idea of providing healthier food options so we’ve talked about bringing in an oven. We actually wired in a spot for it.” RL13 • “We are not really at a point where we can sit down and go through everything that they [food suppliers] offer and try to come up with different food items ... I have a limited amount of time ... making that connection without me having to do it would certainly be helpful.” RL9
Environmental economical factors	<ul style="list-style-type: none"> • “We have to ... get these sales done. With the type of operation we run, it’s tough to keep anything, any type of fresh produce ... because it’ll be busy one weekend and then we’ll go a week without being busy and stuff will spoil and it just costs too much, so everything we sell is something that can be cooked up real quick and is more of a convenience thing.” RL3 • “Our kitchen is a huge revenue for our operations to keep the doors open and then in our arena ... they would be more willing to do it provided that they knew that those numbers were still going to stay.” RL5 • “We don’t really promote healthy eating at all actually.” FSP1 • “I’d like to see the healthier choices be cheaper and easier to make.” RL10
Environmental social factors	<ul style="list-style-type: none"> • “The biggest ... obstacle to overcome is just the people’s regular expectation of what to get at a concession such as ours. There’s I think a real culture around getting deep-fried foods and hamburgers and those sort of things ... so to move away from that I think is a ... a steep learning curve for some people ... and that would definitely affect our profit margins which makes it difficult to go ahead and make major changes.” RL9 • “We are trying to change the culture at the rink around Minor Hockey, which includes people’s perspectives of hockey and youth sport but also around nutrition and like giving kids more better information about how to be a better athlete or how to take care of themselves.” FSP3 • “I know that that can be difficult to make that change and that mindset but I still feel like ... I think if we could stick with it long enough, I think we would see ... those start to support and buy into that.” RL11
Interpersonal factors	<ul style="list-style-type: none"> • “I think we just have to be creative with how we are doing it. There just hasn’t someone to take that lead.” RL5 • “As a volunteer, you are almost overwhelmed with your volunteer role and don’t give a whole lot of thought to outside of the box positive change.” FSP1 • “It has to be easy because the booth is all run by volunteers so it can’t be a complicated process to prepare something because a) people won’t do it, or b) we just don’t have the time to train people on that.” FSP3 • “I do like hearing what’s working in other municipalities ... I think it’s about sharing that information and ... having some dedicated resources to be able to implement and to be able to follow through with that stuff.” RL10

Moving Forward

To form recommendations for moving forward, relationships between the survey and the interview results were explored.

Nutrition Policy and Capacity Building

Some participants reported taking action to support healthy food and drinks in SK PRFs but most often the actions were not supported through nutrition policies, guidelines or contract requirements at the municipal level. Developing and implementing nutrition policies, guidelines or contract requirements will facilitate and sustain healthy change. Participants also expressed a need for an equitable, widespread uptake of nutrition policy across all PRFs in SK. An approach that is mandated, monitored and enforceable by governments may support an equitable, widespread uptake.¹¹⁻¹²

Policies alone do not provoke significant change. Policy development and implementation needs to include capacity-building initiatives such as municipal/facility champions, technical support, training and resources to mobilize policy into practice.¹²⁻¹⁶ This validates the recent development and implementation of the *Healthy Foods for my Recreation Setting series—Nutrition Standards for Saskatchewan* (2018), *Getting Started* (2018) and *A Step-by-Step Guide* (2020) by the Government of SK, the SHA and the Saskatchewan Parks and Recreation Association.^{10,17-18}

Offering opportunities to exchange knowledge and to apply learning, particularly amongst recreation leaders and food service providers, can further support capacity building.¹⁹ The Canadian Parks and Recreation Association's online community, The Bench, is an existing platform that could be considered. Such platforms could also provide a medium for sharing new recommendations and resources as they are released.

Healthy Food Access

A high availability of unhealthy foods/beverages and a low availability of healthy foods/beverages was found in SK PRFs. In rural areas, the low availability of healthy foods in the PRF may be a result of low availability in the community as a whole. With local grocers, key challenges reported were poor quality and inconsistent stocks of fresh foods, whereas with food suppliers, meeting large quantity requirements for orders was not always feasible due to lower sales volumes. In both urban and rural areas, a lack of healthier packaged options with a reasonable shelf life was also reported.

Slowly reducing the availability of unhealthy options while increasing the availability and promotion of healthy options is one strategy moving forward.²⁰ To increase sales volumes, municipalities or governing

boards may also want to consider strategies to improve traffic volumes and affordability of programming in PRFs and traffic volumes. For example, reducing fees for vulnerable population groups (e.g., children, youth, and seniors), renting out commercial kitchen space or integrating additional programs such as community gardens or farmers' markets.²¹ Food suppliers could also promote healthier options during their routine visits to PRFs or to allow for smaller quantity orders and/or group purchasing programs that offer cost savings.

Infrastructure that Supports Health

With vending machines being more prevalent in SK PRFs than concession stands, there is concern surrounding the availability and cost of certain types of machines and the healthfulness of products that they can offer. With the majority of vending machines in SK PRFs defined as beverage and dry snack machines, concerns exist with the level of processing required to extend the shelf life of such products and the general unhealthy nature of these products. One participant attempted to have a healthier vending machine and products in their PRF. Although they felt unsuccessful, this could have been for various reasons such as a lack of monitoring, staff/consumer buy-in, product availability, information, marketing, taste tests, and/or incentives.^{20,22} Ensuring a well-rounded approach to implementing healthy change in PRFs, including those with supportive infrastructure, would reduce economic risk and increase the likelihood of success and sustainability.

The cost of new infrastructure was also identified as a barrier to healthy change. Documenting infrastructure expiry dates could allow municipal/recreation leaders to forecast and incorporate the replacement costs into municipal budgets over time. It is also important for municipalities to understand the long-term financial savings by replacing old infrastructure; for example, replacing a deep fryer with a combi-oven would not only eliminate safety risks (e.g., transfer of hot oil), it would produce a similar product in a quicker turnaround time while reducing the use of energy, labour, space, and raw materials (e.g., oil).²³

Economic Security

Competing priorities and a lack of funding were identified as key barriers to healthy eating in PRFs.²² When priorities are competing, securing funding and capacity for paid staff to lead a new initiative is difficult, especially in seasonal PRFs. In addition, many PRFs appear to be already stretching their existing budgets.²⁴

These factors have created a reliance on the profits from unhealthy food and beverage sales to offset operating costs and program user fees. Participants perceived risk with offering healthy options as they

believed they would not sell and they were hesitant to compromise their revenues, and ultimately their operations. Contrary to this perception, one study found that when healthy options were made available and promoted in a PRF environment, they sold in proportion to their availability.²⁵ Further research is needed to reassure municipalities and governing boards that healthy change, when adequately done, will not affect the economics of their operations.

Participants suggested marketing healthy options as a way to promote and sustain sales and to reduce economic risk with trialing change. Food marketing has been shown to influence food preferences, practices and sales, especially when it is part of a comprehensive strategy to support healthy eating.^{20,26-28} Therefore, ideas for PRFs to implement healthy food marketing may include convenient packaging, aesthetic appeal, taste samples, posters with images, visibility and pricing strategies.²⁰ While improving the marketing of healthy options, it is equally important to work with various partners to reduce the marketing of unhealthy options.

A more comprehensive evaluation of food marketing in both urban and rural PRFs in SK would be beneficial. Food marketing in PRFs often goes beyond concessions and vending machines to include areas such as arena boards, score clocks, and billboards, and as such, these locations should be considered in a food marketing evaluation. Additionally, results could provide a baseline measure for monitoring long-term change and could be used to strengthen nutrition policies.

Consumer engagement

Participants made references to having a “rink food culture” and that the options available are heavily influenced by consumer demand and expectation. As other research also indicates, a comprehensive strategy that engages consumers to “buy into” healthy food options at PRFs would be beneficial.^{22,25,29}

Ideas shared by participants to improve consumer engagement are to form wellness committees, utilize staff/parent champions to lead change or conduct consumer surveys. Although research is limited, a few studies found that having such strategies in place while increasing the availability of healthy options resulted in a positive change to consumers’ purchasing patterns with little to no economic risk.^{25,30} As reported in other jurisdictions, a few participants also acknowledged that the food culture would take time to change and that any loss in revenue due to change will likely recover as consumers’ expectations shift.^{22,31}

Limitations

The following limitations may have influenced the results of this study:

- Recreation leaders and food service providers opted to participate based on interest and availability, and therefore may have resulted in a biased sample, and may not be representative of all SK recreation leaders and food service providers.
- Limited time, capacity and resources restricted data collection to observational collection at a single time point for concessions and vending machines only, which may not accurately represent the entire food environment of SK PRFs.
- Due to limited funding and physical distances between participating communities in SK, ten volunteer surveyors supported the NEMS survey process. Majority (9/10) surveyors were RDs and/or NUTR 531 students with the SHA; from an applied research standpoint, this was a positive approach as it created an opportunity for RDs to connect with municipal recreation contacts in their areas. However, from a research standpoint, it also increased risk for variance in how the data was collected. Although systematic procedures and training was provided, some inaccuracies in the survey data could exist.

Summary

Foods and beverages are prevalent in SK PRFs. While there have been some attempts to increase the availability of healthy options, majority of the options available in SK PRFs appear to be unhealthy. With an organizational readiness to change, a comprehensive approach including strategies that address policy, environmental and interpersonal factors should be considered as a way to work towards supportive environments where healthy food and beverage choices are easier choices.

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Appendix A - Definitions for each factor in the socio-ecological framework

- **Policy factors** have the potential to positively or negatively influence all of the factors in the framework, thereby influencing a consumer's food and beverage decisions. Policy can exist at multiple levels from national to municipal, and it can exist in different forms from mandatory to voluntary procedures, guidelines, requests for proposals and/or contracts. Supporting positive health outcomes of a population are possible through understanding and improving this broader policy context.
- **Environmental physical factors** includes the availability and accessibility of food, or the space or equipment that is required to safely store or prepare the food. Improving access to healthy food and beverage options makes the healthy choice easier for the consumer.
- **Environmental economic factors** includes the marketing of food as a commodity to generate profit. Food marketing can include promotion, placement and pricing factors that can positively or negatively influence a consumer's food and beverage decisions. Marketing healthy options makes it an easier for the consumer.
- **Environmental social factors** includes the cultural atmosphere that unnoticeably influences food choices. Improving policy, environmental physical and economic factors will facilitate a positive culture shift over time.
- **Interpersonal factors** in a recreation setting includes people, such as staff, coaches, parents and peers who influence the policy and environmental factors and who can positively or negatively effect consumers' food and beverage decisions.
- **Intrapersonal factors** include biological and behavioural factors like a person's physiological state, psychological state, food preferences, nutritional knowledge and perceptions of healthy eating. They are necessary to explain eating behaviours but not sufficient in itself due to many other influencing factors such as those described above.

Appendix B – Core telephone interview questions

1. What policies, guidelines or programs are currently in place at your facility(ies) that help people make healthy food and drink choices while visiting? PROBE: contracts requirements, financial incentives, corporate sponsorship, vending, fundraising, special events, cafeterias, concessions, children's programs.
2. What policies, guidelines or programs are currently in place at your facility(ies) that make it hard for people to make healthy food and drink choices while visiting? PROBE: contracts requirements, financial incentives, corporate sponsorship, vending, fundraising, special events, cafeterias, concessions, children's programs.
3. Are there any plans underway in your facility(ies) to support people in making healthier food and drink choices?
4. What ideas do you have to improve the food and drinks offered (and purchased) in your facility(ies)? PROMPT: what changes would you really like to see happen?
5. How ready do you think your organization is to make changes to increase healthy choices?
6. What would help you to gain more support internally (municipal or facility staff) or externally (patrons) for healthy food and drink changes in your facility(ies)? PROBE: e.g. resources, fact sheets, evidence summaries, education, success stories, training, funding ideas, etc.
 - a. Would you be interested in gathering feedback from your customers through a survey?
 - **If No**, continue to question 6.
 - **If Yes**
 - Make arrangements to mail/email them paper/electronic links to the EHPH Customer Survey.
 - Completed paper surveys can be emailed to eathealthy.playhealthy@usask.ca or fax (306) 966-6377 for analysis.
 - The EHPH Customer Survey will close March 31, 2018.
7. What would you need to help implement healthy changes? PROBE: e.g. a committee, toolkits (written resources, fact sheets, evidence summaries), sample policies, education, training, etc.
 - a. Would a written resource (e.g., toolkit) be helpful? **If no, skip to 7.**
 - b. If a written resource were to be developed, what would you like to see in it? PROBE: nutrition criteria, healthy eating options/ideas for the facility, pricing and placement strategies, posters, steps on how to make changes, weekly activities, etc.
8. Do you think your feedback is typical of other recreation leaders in SK? Why or why not? PROMPT: Is there anything unique about your facility(ies) (or customers visiting your facility) that would be different from other public recreation facilities in SK? PROBE: geographical location, population, type of facility.
9. Is healthy eating promoted in any other ways in your facility? PROBE: display cases, healthy eating flyers, etc.

Is there anything else that you would like to add?