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Quebec Nurses' Perceptions of the Integration of Sustainable Diet Promotion Into Clinical Appointments: A Qualitative Study Perceptions des infirmières et infirmiers du Québec de la prise en compte de l'alimentation durable dans leur pratique clinique : une étude qualitative

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Article abstract

Introduction: A sustainable diet is a diet that is respectful of ecosystems, culturally acceptable, accessible and healthy. It is considered as a promising avenue for optimizing health and reducing the impacts of food on the environment. Several nursing associations have demonstrated a growing concern for nurses' involvement in environmental and climate change issues, including in promoting sustainable diet. However, the literature reveals a lack of data on why and how nurses could address sustainable diet in their clinical practice.

Objective: The aim of this study was to explore clinical nurses' perceptions of their role in the promotion of sustainable diet.

Methods: A descriptive qualitative study was conducted based on 6 focus groups involving 20 nurses from 7 regions of the province of Quebec, Canada. Computer-assisted thematic analysis was conducted on verbatim transcripts.

Results: The discussions revealed 3 major themes. First, some dimensions of sustainable eating are already implicitly addressed and nurses were theoretically open to make further. However, it was difficult to see how nurses could translate this interest into concrete action due to a lack of time and their other clinical priorities. Lastly, in order to do this, nurses need support from health organizations as well as clear guidelines, training and tools.

Discussion and conclusion: Despite experts' recommendations, many barriers and inadequacies between experts' recommendations and nurses' reality prevent the implementation of concrete initiatives toward the promotion of sustainable diet among nurses. Nurses are invited to get involved and contribute to the promotion of sustainable diet with a "bottom-up" approach.

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Quebec Nurses' Perceptions of the Integration of Sustainable Diet Promotion Into Clinical Appointments: A Qualitative Study

Perceptions des infirmières et infirmiers du Québec de la prise en compte de l'alimentation durable dans leur pratique clinique : une étude qualitative

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role

Abstract

Introduction: A sustainable diet is a diet that is respectful of ecosystems, culturally acceptable, accessible and healthy. It is considered as a promising avenue for optimizing health and reducing the impacts of food on the environment. Several nursing associations have demonstrated a growing concern for nurses' involvement in environmental and climate change issues, including in promoting sustainable diet. However, the literature reveals a lack of data on why and how nurses could address sustainable diet in their clinical practice. **Objective:** The aim of this study was to explore clinical nurses' perceptions of their role in the promotion of sustainable diet. **Methods:** A descriptive qualitative study was conducted based on 6 focus groups involving 20 nurses from 7 regions of the province of Quebec, Canada. Computer-assisted thematic analysis was conducted on verbatim transcripts. **Results:** The discussions revealed 3 major themes. First, some dimensions of sustainable eating are already implicitly addressed and nurses were theoretically open to make further. However, it was difficult to see how nurses could translate this interest into concrete action due to a lack of time and their other clinical priorities. Lastly, in order to do this, nurses need support from health organizations as well as clear guidelines, training and tools. **Discussion and conclusion:** Despite experts' recommendations, many barriers and inadequacies between experts' recommendations and nurses' reality prevent the implementation of concrete initiatives toward the promotion of sustainable diet among nurses. Nurses are invited to get involved and contribute to the promotion of sustainable diet with a "bottom-up" approach.

Résumé

Introduction : L'alimentation durable désigne une alimentation saine, solidaire et juste, présentant un faible impact environnemental et contribuant à la souveraineté, à la sécurité et à la santé alimentaires. Plusieurs associations infirmières ont manifesté un intérêt croissant pour favoriser la contribution infirmière en regard des enjeux climatiques, notamment en matière d'alimentation durable. Cependant, peu de données sont disponibles sur les rôles et les actions attendues des infirmières et infirmiers. **Objectif :** L'objectif de cette étude était d'explorer les perceptions infirmières de la prise en compte de l'alimentation durable dans leur pratique clinique. **Méthodes :** Une étude qualitative descriptive a été menée auprès de 6 groupes de discussion impliquant 20 infirmières et infirmiers de 7 régions de la province de Québec, au Canada. Les transcriptions intégrales des rencontres ont été analysées selon une analyse thématique assistée par ordinateur. **Résultats :** Les discussions ont révélé 3 thèmes principaux. Premièrement, les infirmières et infirmiers abordent déjà implicitement certaines dimensions de l'alimentation durable et ont une ouverture « théorique » pour l'intégrer davantage. Deuxièmement, les infirmières et infirmiers perçoivent difficilement comment cet intérêt peut se traduire par des actions concrètes en raison du manque de temps et de leurs autres priorités cliniques. Troisièmement, les infirmières et infirmiers ont besoin de soutien de la part des organisations de santé ainsi que des lignes directrices claires, des formations et des outils. **Discussion et conclusion :** Plusieurs barrières et inadéquations entre les recommandations émises par les experts et la réalité de la pratique infirmière empêchent la mise en place concrète d'initiatives chez les infirmières et infirmiers qui sont invités à s'engager et à contribuer à la promotion de l'alimentation durable avec une approche dite *bottom-up*.

Mots-clés

alimentation
durable;
développement
durable; pratiques
infirmières;
recherche
qualitative; rôle
infirmier

INTRODUCTION

Sustainable diet is defined as a diet with low environmental impact that contributes to food security and healthy lives for current and future generations (Gonzalez Fischer & Garnett, 2016). A sustainable diet is one that respects biodiversity and ecosystems, optimizes natural and human resources and that is culturally acceptable, economically equitable, accessible, affordable, nutritionally safe and healthy (Burlingame & Dernini, 2012). Previous studies (The EAT-Lancet Commission on Food, Planet, Health [EAT], 2019; Gonzalez Fischer & Garnett; Harmon et al., 2011; Rose et al., 2019) have formulated recommendations to guide the adoption of sustainable diet (Figure 1).

Food production is a major source of environmental degradation around the world (Holguera & Senn, 2021). The current food system is considered responsible for one third of greenhouse gas emissions (GHGEs) (Mason & Lang, 2017) and contributes to various social and health problems. Based on a projected increase in the world's population of about 30% and changes in diet that follow projected changes in living standards, by 2050, food-related GHGEs could increase by 80 to 90% (Springmann et al., 2018). In addition, unhealthy diets are a significant risk factor for non-communicable diseases (NCDs) (Branca et al., 2019). Cardiovascular diseases are the leading causes of diet-related mortality,

followed by cancers and type 2 diabetes (Afshin et al., 2019). The World Health Organization estimates that NCDs caused 71% of global deaths in 2016 (World Health Organization, 2019). Facing these challenges, the promotion of sustainable diet has been described as a promising avenue for optimizing the population's nutritional and overall health and for reducing the impacts of food on the environment (de Coninck et al., 2018; EAT, 2019; Swinburn et al., 2019). Several nurses' associations and boards have demonstrated a growing concern about the impact of climate change and environmental issues on health. For instance, the Canadian Nurses Association and the *Ordre des infirmières et infirmiers du Québec* have published position statements of these issues and specifically mentioned nurses' key contributions to promoting sustainable diet (Canadian Nurses Association, 2008a; Ordre des infirmières et infirmiers du Québec, 2021). In 2008, in a precursory way, the report "The Role of Nurses in Greening the Health System" (Canadian Nurses Association, 2008b) recommended that nurses should train themselves, collaborate with other health professionals and get involved in clinical and community settings for promoting sustainable diet. Similarly, the EAT-Lancet Commission on Food, Planet, Health, emphasized that nurses should integrate the principles and recommendations of sustainable diet into their clinical appointments, nutrition action plans, communication campaigns and advocacy initiatives as well as into their own diet (EAT, 2019).

Figure 1

Recommendations to guide the adoption of sustainable diet

1. Increase consumption of plant-based protein relative to animal protein and increase consumption of fruits and vegetables from various sources.
2. Reduce consumption of animal-based protein, avoid processed meats, and opt for poultry and eggs rather than grazing or fodder animals.
3. Purchase fish from sustainable fisheries only.
4. Choose fresh, whole or less processed foods.
5. Choose unpackaged or less packaged foods, or foods with recyclable packaging.
6. Choose seasonally available, local foods.
7. Eat in moderation and avoid waste by using your leftovers and composting food waste.
8. Choose pesticide-free, organic and fair-trade food.
9. Learn about food production.

To the best of our knowledge, only three papers have explored health professionals' attitudes and practices regarding sustainable diet, and none of these were published recently or conducted specifically with nurses (Duncan & Bergman, 1999; Guillaumie et al., 2020; Sulda et al., 2010). Participants in these qualitative studies stressed that sustainable diet should be promoted through public policies, clinical guidelines, advertising campaigns, educational programs and professional training. They said that a lack of knowledge on sustainable diet combined with unsupportive working environments led to a lack of empowerment, collaboration, and leadership on the part of professionals with regard to promoting a sustainable diet. The studies also highlighted the need for practical recommendations and guidelines targeting healthcare practitioners, as the study participants perceived international advisories and policies on sustainable diet as being disconnected from their professional reality and not pragmatic enough (Duncan & Bergman; Sulda et al.). Five other studies—all qualitative—that were specifically conducted with nutritionists on their perceptions of sustainable diet reported similar results (Dagenais & Mercille, 2021; Harmon et al., 2011; Hawkins, Balsam, & Goldman, 2015; Hawkins, Balsam, & Graves, 2015; Heidelberger et al., 2017). In these studies, some participants underlined that they did not perceive tackling climate change and environmental issues as a priority or as part of their job (Dagenais & Mercille; Harmon et al.; Hawkins, Balsam, & Goldman; Hawkins, Balsam, & Graves; Heidelberger et al.). Finally, two literature reviews explored nurses' contributions to environmental and climate change issues (Álvarez-Nieto et al., 2017; Benton & Shaffer, 2016). These reviews reported that food policy guidelines are a powerful driver of change and have the potential to increase nurses' knowledge and training, their funding for innovative initiatives and collaboration with other healthcare practitioners and communities. The authors of these reviews also recommended that clinical institutions monitor the integration of sustainable development into nursing practice, including sustainable diet, to improve the success of the initiatives. According to our literature review, no studies promoting sustainable diet in

nursing care have been published. Nevertheless, a number of programs promoting sustainable diet have been implemented in the cafeterias in health care settings (Kinney, 2010; Liquori et al., 1998; Päiväranta et al., 2020; Ranke et al., 2015; Strotmann et al., 2017) and in nutritionists' training programs and practices (Hege et al., 2021; Knoblock-Hahn & Medrow, 2020). These sustainable diet initiatives in health care settings were facilitated by grassroots movement of motivated employees, policies, managers' support, a step-by-step approach, and training and support (Liquori et al.; Ranke et al.; Strotmann et al.). Conversely, lack of knowledge, motivation, and human and financial resources, and the perceived difficulty of implementing changes often led to unsuccessful initiatives (Hege et al.; Knoblock-Hahn & Medrow; Liquori et al.; Ranke et al.; Strotmann et al.). These studies' authors also perceived the need to develop implementation and evaluation tools on efforts to promote sustainable diet in clinical settings (Liquori et al.; Ranke et al.; Strotmann et al.). Other initiatives promoting sustainable diet in community settings found that multi-component approaches that simultaneously influenced knowledge, skills, social norms and habit formation yielded better results for large-scale change (Hege et al.; Jones et al., 2012; Knoblock-Hahn & Medrow; Liquori et al.). Regarding the impacts of initiatives promoting sustainable diet in food services within healthcare establishments, studies reported an increase in consumer satisfaction with food quality (Kinney; Liquori et al.; Ranke et al.; Strotmann et al.), staff knowledge and collective involvement in the promotion of sustainable diet (Hege et al.; Kinney; Knoblock-Hahn & Medrow; Liquori et al.; Ranke et al.; Strotmann et al.).

Lastly, the academic literature reveals, among other things, the need to provide specific guidelines on integrating sustainable diet promotion into clinical practices, to include these guidelines in academic curricula and training and to provide financial support and time for partnerships and implementing innovations in clinical settings (Hege et al., 2021; Knoblock-Hahn & Medrow, 2020). At this time, very little information is available on specific ways nurses could integrate

sustainable diet promotion into their practice or on nurses' perceptions of the best ways to do so.

OBJECTIVE

In this context, the aim of this study was to explore nurses' perceptions on the integration of sustainable diet promotion into their practice. More specifically, this study had three objectives: 1) To document nurses' perceptions of integrating sustainable diet promotion into their clinical appointments; 2) to explore the facilitating factors and challenges that influence nurses' integration of sustainable diet promotion into their practice; and 3) to make recommendations to support the integration of sustainable diet promotion into nurses' practice and more generally in clinical settings.

METHODS

DESIGN

An exploratory descriptive qualitative study was conducted based on focus groups. This qualitative approach was selected to develop an in-depth understanding of nurses' perceptions regarding integrating sustainable diet promotion into their clinical practice. Focus groups allowed participants to share their experiences and stimulated their reflections on practices, challenges and recommendations to develop a complex description of the problem and of the factors influencing participants' experiences (Creswell & Poth, 2016). This study followed the reporting guidelines for conducting and reporting qualitative studies "Consolidated Criteria for Reporting Qualitative Studies" (Tong et al., 2007) and the "Standards for Reporting Qualitative Research" (O'Brien et al., 2014).

SETTING AND SUBJECTS

This study was carried out in the province of Quebec, Canada, in May and June 2021. A non-probability convenience sample was formed with nurses from seven regions of the province of Quebec.

During the recruitment process, the researchers were careful to include nurses with different characteristics that could potentially affect their practice (gender, age, employment status and worksite setting). Participants were recruited through an electronic invitation letter sent to nurses who were members of the Universi-D network (a non-profit organization that provides diabetes educational services to health care professionals) and to nurses working in the Quebec City hospital network (*Centre hospitalier universitaire de Québec*) as well as through the research team's academic contacts. The snowball method was also used, as participants could suggest that the team contact specific individuals with relevant experiences regarding addressing sustainable diet in their nursing practice. Potential participants were told that researchers from *Université Laval* were interested in knowing more about their views on the promotion of a sustainable diet in nurses' clinical practice. Inclusion criteria specified that each participant had to be a registered clinical nurse and to provide nutrition education in their daily practice. Given the COVID-19 pandemic and nurses' availability constraints, focus groups were conducted by videoconference and 20 participants were recruited.

DATA COLLECTION

The principal investigator (SLM, a nursing master's student) conducted all six focus groups using a semi-structured topic guide (Figure 2). Only SLM and the participants were present during the videoconference. SLM knew four of the participants before they took part in the groups, but no conflict of interest was reported and it is reasonable to assume that this did not significantly influence what these participants said. Also, while it was useful to know some of the items of significance (based on SLM own background and studies) that could emerge from the focus group, SLM made conscious efforts not to accept potentially common assumptions at face value. The topic guide was based on the Kellogg Foundation's Logic Model (2004), which addresses four topics (Figure 2) (Kellogg, 2004).

Figure 2

Topic guide

1. Current situation

In a few words, could you describe your work setting and patients with which you address diet issues? (Here, the interviewer presents a definition and the nine dimensions of sustainable diet, the same provided in the Introduction section of the present article.)

In your current practice, what dimensions of sustainable diet do you address, if any?

How do you address them?

Do you think sustainable diet should be more prominent in your appointments or not?

How far should your contributions go?

2. Strategies and tools

What strategies and tools could you use to address sustainable diet with patients?

What strategies and tools could you use to address the dimensions of sustainable diet that you do not currently discuss with patients?

Would you be more inclined to address these topics with specific patients, or less inclined with specific patients?

What challenges do you think nurses would face or should anticipate facing when discussing sustainable diet with patients?

(Here, the interviewer presents a list of promising tools, including posters in the waiting room or consultation room, handouts for patients, phone or computer applications, websites and web links, documentaries and YouTube videos, and podcasts.) Which of these tools would you like to use the most? Which ones would be most useful, in your opinion?

What food practices associated with sustainable diet would you present in priority?

With which patients would you address these practices?

3. Factors influencing addressing sustainable diet in your clinical practice

What would prevent you from addressing sustainable diet in your clinical practice or make it difficult to do so?

What would make it easier to address sustainable diet in your clinical practice?

What would you concretely need in order to be able to address sustainable diet in your clinical practice (in relation to patient characteristics, the clinical setting and more broadly the health care system and the general population)?

4. Expected outcomes

You have recommended the use of [summary of recommended strategies, tools, and other initiatives]. What effects do you think they would have:

- On patients and their relatives?
- On your clinical setting?
- More broadly on the health care system and general population?

This model was selected as it provides program development guidance, in terms of documenting a given current situation, the factors influencing it, the desired result, the recommended strategies, and the outcomes that should result from those strategies (Kellogg, 2004). This was appropriate since this study aimed to develop a logic model for integrating sustainable diet promotion into nursing practice. To further the discussion, the interviewer could ask participants more specifically about factors identified in a previous study that influence the integration of sustainable diet promotion into clinical practices:

- 1) nurses' social and demographic characteristics (i.e. age, education, any special diet the nurse may personally be following);
- 2) knowledge, attitudes and values;
- 3) skills and professional practices; and
- 4) characteristics of the health system and practice setting (Guillaumie et al., 2020).

This study was selected since it systematically reviewed multi-level factors involved in the integration of sustainable diet into the health system. The topic guide was previously tested with health professionals who are part of the research team's network and minor changes were made to clarify wording.

Focus group meetings lasted approximately 60 minutes; they were recorded on video and conducted at one- or two-week intervals to allow time for transcriptions and iterative analysis to be conducted by the research team. Considering that the focus groups took place during the COVID-19 crisis, to facilitate nurses' participation, the research team created small groups of three to five participants and held them over multiple time slots. Despite the small number of participants, the authors believe they have reached data saturation. After the first four focus groups, few additional elements emerged from the interviews. These groups allowed for exchanges, interactions and the emergence of new data and were particularly relevant given the novelty of the subject of this study (Kitzinger, 1994; Lange, 2002; Morgan, 1997).

ETHICAL CONSIDERATIONS

All participants completed a consent form before taking part in the focus groups and none were compensated for their participation. The ethics committee of the *Centre de recherche du Centre hospitalier universitaire de Québec* approved the study (#2020-4766).

ANALYSIS

During and after each focus group, the interviewer took field notes to provide insights that would shape the way the subsequent focus groups were conducted and for data analysis purposes. This was done in addition to recording the focus groups and producing full transcripts of the recordings. Following a process inspired by the continuous thematic analysis, two team members (SLM, LG; research director) discussed the codebook and the coding in an iterative fashion in order to establish patterns or themes until they reached consensus (Creswell & Poth, 2016). A mixed approach (inductive and deductive) was used to develop the codebook. Codes were derived from the four main topics of the Kellogg Foundation's logic model (i.e., current situation, strategies and tools, influencing factors, expected outcomes) (Figure 2), the topics of the conceptual framework on the integration of sustainable diet promotion into health professionals' practice (e.g., knowledge, attitudes and values, skills and professional practice) (Guillaumie et al., 2020) and from the corpus of data. The transcripts were thematically analyzed using the qualitative data analysis software QDA Miner. All focus groups were conducted in French and the quotes reported in this article were professionally translated into English. At the beginning of each focus group, the interviewer informed all participants about the nine recommendations guiding the adoption of sustainable diet promotion practices set out in previous studies (mentioned above in the introduction) (EAT, 2019; Gonzalez Fischer & Garnett, 2016; Harmon et al., 2011; Rose et al., 2019), the alignment of these recommendations with the Canada Food Guide (Government of Canada, 2019), and a few key facts on their impact on population health and environmental issues.

RESULTS

Participants were between 20 and 50 years old with an average of eight years of practice. Among participants, 80% were women and half (n = 10) worked in hospital settings. Considering that in 2019, an estimated 58.5% of nurses in Canada worked in a hospital (Canadian Institute for Health Information, 2019), this rate was considered appropriate. A greater proportion worked in the *Capitale-Nationale* region due to the snowball technique and younger nurses also appeared to show more interest in the study. Three-quarters of the 20 registered nurses recruited reported that their clinical consultations usually lasted between 30 and 60 minutes. A similar proportion reported dedicating between 5 and 14 minutes of their consultations to nutritional counseling.

Analysis led to the identification of three major themes related to the inclusion of sustainable diet promotion in nurses' clinical practice (Figure 3).

NURSES ARE ALREADY ADDRESSING A FEW DIMENSIONS OF SUSTAINABLE DIET BUT DEMONSTRATED A THEORETICAL OPENNESS TO DO MORE

Nurses are already addressing some elements of sustainable diet through the Canada Food Guide. Indeed, most participants mentioned addressing dimensions #1, 2, 4 and 9 of sustainable diet (See the complete list in Figure 1) because these recommendations are part of the Canada Food Guide for healthy habits and optimal health outcomes. Participants recognized this tool as the main and most legitimate support guiding their diet-related clinical approach.

However, nurses indicated that they were focused on the Canada Food Guide and that they did not intend to promote sustainable diet. They reported that they did not explicitly mention sustainable diet to their patients or discuss related issues with them.

We don't talk about sustainable diet [during clinical appointments] and I don't see how I would do education on that. Yes, we promote good eating, I'll refer to the food guide and bring up a few recommendations in line with

sustainable diet, but without ever saying so concretely. (FG 2, participant 3)

However, nurses mentioned their willingness to be part of the movement that promotes sustainable diet. Despite not currently addressing sustainable diet explicitly in their clinical appointments, all participants expressed their openness and interest toward doing so. Most nurses endorsed the idea that their profession should contribute to Quebec's socioecological transition toward sustainable development. Participants underlined that nurses could develop their leadership in this area and advance their profession by contributing to a better knowledge of sustainable diet at a societal level and said that it would give them a sense of pride and gratitude and a feeling of personal and professional achievement. "I think that, yeah, it should take more space because nurses have a lot of impact on patients' lifestyles and attitudes. It could be a responsibility to do promotion [of sustainable diet], and it would be rewarding, too" (FG 3, participant 4).

THE CHALLENGES NURSES ANTICIPATE IN ADDRESSING SUSTAINABLE DIET IN THEIR CLINICAL PRACTICE

Despite participants' theoretical openness to contributing to the promotion of sustainable diet, they perceived that addressing sustainable diet in their clinical appointments would not be very feasible. In specialized care services, nurses reported meeting patients with complex and multiple pathologies, making food an already complicated aspect of their treatment. They reported having other priorities of care which made it less relevant to address sustainable diet in these contexts (e.g., surgeries, emergencies, deliveries). Participants also mentioned that the topic would be inappropriate with patients living in long-term health care facilities who eat meals provided by food services and therefore have limited food choices. Other patients' characteristics made nurses reluctant to address sustainable diet, such as patients who were elderly, had low financial resources or lived in rural areas where sustainable diet may be less available or not well known. Several nurses also anticipated negative reactions from patients if they brought up the subject.

Table 1*Characteristics of participants (n = 20)*

Characteristics of participants	N
Region	
<i>Capitale-Nationale</i>	8
<i>Montréal</i>	4
<i>Chaudière-Appalaches</i>	2
<i>Lanaudière</i>	2
Northern Quebec	2
<i>Montérégie</i>	1
<i>Abitibi-Témiscamingue</i>	1
Gender	
Men	4
Women	16
Age (years)	
20–29	10
30–39	7
40–49	3
Years of nursing practice	
0–4	5
5–9	8
10–14	3
15–19	2
20 +	2
Work setting	
Hospital	10
Primary care	7
Community organization	2
Long-term health care facility	1
Main profile of patients	
Chronic diseases (e.g., diabetes, pulmonary or heart diseases)	8
Routine care with a diverse clientele	7
Obstetric or pediatric	3
Oncology	1
Geriatrics	1
Mean duration of appointments (minutes)	
0–29	3
30–59	15
60 +	2
Mean time attributed to nutrition education during appointments (minutes)	
0–4	1
5–9	9
10–14	7
15 +	3

Figure 3

List of key findings

- 1. A few dimensions of sustainable diet already addressed and a theoretical openness to do more promotion of sustainable diet**
 - Sustainable diet partially addressed through the Canada Food Guide
 - Nurses' interest in being part of the movement to promote sustainable diet
 - Some health care settings particularly appropriate for addressing sustainable diet
- 2. The anticipated challenges of addressing sustainable diet in nurses' clinical practice**
 - Addressing sustainable diet in clinical appointments is perceived not feasible or acceptable in hospital settings
 - Even with more time, they would not address sustainable diet
 - Lack of societal and organizational support for promoting sustainable diet
- 3. Nurses' recommendations for advancing their contributions to sustainable diet promotion**
 - Clear strategies and guidelines for nurses
 - Resources and tools for patient education
 - Training for nurses on sustainable diet

Often people experience so many other tensions, I don't think the hospital environment is conducive to learning, they already forget 50% of what we say so adding sustainable diet on top of that wouldn't be very appropriate. I don't know where I'd fit it in, I'd even be worried about angering my patients, they have other more important concerns. (FG 2, participant 1)

Some participants mentioned being more optimistic about the possibility of addressing sustainable diet in community settings, schools and primary care services, as these settings are dedicated to healthy habits and to chronic disease prevention and management. They perceived these environments as being conducive to a greater openness and receptivity on the part of the clientele. Proximity, trust and opportunities to provide follow-up were seen as facilitating factors. However, most participating nurses currently working in primary care settings reported that they would not address sustainable diet, even if they were provided with more time. Nurses reported being already overloaded with work and training and that they were seriously concerned about adding more topics to address in their appointments. Nurses reported that they already

have a limited time available with each patient for addressing priorities of care, in initial as well as follow-up appointments. They indicated that they already have difficulty providing personalized care that targets patients' characteristics, such as their clinical profile, personal strengths and constraints, food habits and preferences, as well as their availability and motivation to attend appointments. Thus, they point out that even if they had more time, considering their care priorities, they would not spend it on promoting sustainable diet.

I admit that when I meet with a patient, I want to focus on the messages I want them to take home with them, so going into all this information would be superfluous, especially given the short time we have. And even if I had more, I'd invest it elsewhere. (FG 2, participant 4)

In addition, nurses reported a lack of societal and organizational support for promoting sustainable diet. Overall, participants stressed that as long as sustainable diet are not a priority in health organizations and more broadly in society, it would hardly be feasible for nurses to engage in the large-scale promotion of sustainable diet. They reported needing engagement from nurses'

associations, public health organizations and care setting managers in order to provide them with the legitimacy to promote sustainable diet in their clinical appointments. Participants reported being discouraged about the health care system's lack of engagement in promoting sustainable development, especially in the context of the current COVID-19 crisis.

It's societal and multidisciplinary. I think the institution really needs to follow us. If we explain things to the patients but the institution doesn't, there's no continuity or coherence. This has to be a major institutional pivot, from the organization, now we have nothing! (FG 6, participant 3)

NURSES' RECOMMENDATIONS FOR ADVANCING THEIR CONTRIBUTIONS TO SUSTAINABLE DIET PROMOTION

Given their openness to promoting sustainable diet but also the perceived complexity of doing so and the perceived inadequacy of their resources, participants called for the creation of clear guidelines describing nurses' roles in promoting sustainable diet, examples of initiatives that nurses could carry out and examples of content for such initiatives. Such guidelines should specify the targeted settings, patients' characteristics, messages to provide and types of collaboration expected with other health professionals, especially dietitians. These guidelines should be clear, simple and practical, should consider the previously mentioned barriers such as time constraints and work overload, and fit the day-to-day reality of nursing practice. These guidelines would give nurses a sense of confidence, credibility and professional competence, and enable them to place more importance on the promotion of sustainable nutrition in their clinical practice.

Me, I really like having guidelines, priorities. The support of managers and policies, too, because they're the ones who can get things moving, more so than us. I think there need to be training and acts reserved for nurses to delimit our power so we don't step on the toes of other professionals. (FG 5, participant 1)

Nurses recommended that they should be provided with tools that could be placed in the

clinical environment, such as exhibitions to be installed in corridors, posters or leaflets to place in waiting rooms, and information or mini-documentaries to broadcast on electronic monitors in waiting rooms. Nurses recommended that they should be provided with tools to use in their appointments and give to patients on a case-by-case basis, including handouts, lists of websites, mobile applications, documentaries and podcasts. Nurses also mentioned that they could encourage their settings' food services and patients to take part in events such as "Meatless Mondays" or "Sustainable Food Week". Nurses underlined that these tools should be diversified to meet the various needs of health care settings and to match with patients' characteristics and clinicians' preferences. They emphasized that tools should provide plain-language information, provide concrete facts and statistics on the benefits of adopting sustainable diet and examples for actions that can be taken. Ultimately, nurses reported that the best way to integrate sustainable diet promotion into nursing practice on a large scale would be to integrate it more broadly into existing reference guides produced for various chronic diseases (e.g., diabetes, stroke, heart disease). "The tools need to reflect concrete facts, statistics, reasons why our patients would be motivated to change, otherwise they won't care. These need to be visually attractive for patients to want to take a look" (FG 3, participant 1).

Finally, nurses recommended that they should be provided with training on sustainable diet and on how to integrate promotion into their clinical practice. Most participants recognized that they had little or no knowledge on sustainable diet and expressed their feeling of weak professional competence with regard to discussing sustainable diet and their relationships with environmental, social and economic concerns. Nurses pointed out that they already have very little education on nutrition in their initial academic curriculum and felt they had multiple learning needs relating to nutrition, not only concerning sustainable diet. Several options were suggested for initial and continuous training, including short, online and accredited training courses.

I think that trainings should be offered, for everyone, because educating someone on

something when you don't know about it as a baseline is really difficult. At university, in nursing, there's already a real lack of classes on nutrition, just one basic nutrition course would be super important. (FG 4, participant 3)

DISCUSSION

To the best of authors' knowledge, this study is the first to explore nurses' attitudes and practices about integrating sustainable diet promotion into their clinical appointments. Therefore, considering the growing interest in sustainable diet, the present study is intended to bridge a knowledge gap on nurses' practices and their contributions to sustainable diet.

A logic model was created that summarizes the findings of this study (Figure 4). The logic model was inspired by the Kellogg approach (Kellogg, 2004) and a systematic review on sustainable nutrition in health organizations (Guillaumie et al., 2020). Several lessons can be drawn from this study.

First, nurses showed an overall positive attitude toward the idea of becoming more involved in promoting sustainable diet. Nurses reported being already engaged in promoting a few dimensions of sustainable diet as these dimensions are part of the Canada Food Guide, i.e., promoting fruits, vegetables and plant-based protein consumption; reducing the consumption of animal-based protein; choosing fresh, whole, or less processed foods; and taking action to learn about food products. Previous studies have mentioned these topics as dimensions of sustainable diet (EAT, 2019; Gonzalez Fischer & Garnett, 2016; Harmon et al., 2011; Rose et al., 2019). In addition, nurses also believed it would be rewarding for themselves and for the profession to contribute the societal transition toward sustainable development, including by promoting sustainable diet. They also saw themselves as accessible professionals whom patients trust and therefore who could play a role in promoting sustainable diet to their patients. This is in line with a previous systematic review that reported the overall positive attitude of health-related

professionals toward the idea of contributing to sustainable diet promotion (Guillaumie et al., 2020). This is also in line with previous position statements and reports that have called for nurses to contribute to the promotion of sustainable diet (EAT; Gonzalez Fischer & Garnett; McGuire, 2013).

Second, despite this openness, nurses reported that addressing patients' health issues and characteristics would always be their priority and perceived addressing sustainable diet as secondary in their practice, even in primary care settings. This finding suggests the importance of promoting among nurses a holistic vision of planetary health, in which the health of humans, animals and the planet are inseparable (Drake et al., 2021). In this perspective, nurses would play a critical role in simultaneously addressing patients' food security, the benefits of healthy and sustainable foods and the impact of food choices on planetary health (Drake et al.). Nurses' organization and clinical institution should provide them facts and statistics on the decreased risk of chronic diseases, other health problems and environmental issues. It would be a key approach to increase nurses' involvement in promoting sustainable diet (Drake et al.). Ultimately, it should also be more widely recognized that food is an essential element for achieving most of the United Nations' Sustainable Development Goals and that nurses have a key role to play in translating these goals into their clinical practice (Dekker et al., 2020; Grosso et al., 2020).

Third, nurses recommended that health care establishments should take the first step and make tools available for promoting sustainable diet. The first and easiest recommendation was the placement of patient communication tools in waiting rooms, such as exhibitions, posters, leaflets and content on electronic monitors that address sustainable diet. Previous studies have demonstrated the positive impact of health information materials provided in waiting rooms, especially infotainment provided on television (Maskell et al., 2018; Moerenhout et al., 2013; Ward & Hawthorne, 1994; Williams et al., 2019). The second recommendation was that nurses could provide their patients with leaflets and lists of websites, mobile applications, documentaries and podcasts. Nurses concerned with sustainable

diet could use this documentation with patients who have interest in this topic. A study demonstrated that leaflets that were simple, clear, concise, suitable for patients and visually appealing were successful for improving patients' knowledge and self-management (Moerenhout et al.). The third recommendation was to include more information relating to sustainable diet in the most common tools used for patient nutrition education, such as the Canada Food Guide and chronic disease management guides routinely provided by nurses.

Fourth, nurses reported needing training programs to increase their knowledge and skills on sustainable diet. Considering that nurses reported having several learning needs regarding nutrition, it appeared essential to make these trainings short and practical. Along this line, previous reviews have reported that accessible, accredited and interprofessional training that uses virtual, dynamic and interactive methods combined with printed educational materials had positive effects on nurses' self-efficacy, empowerment, knowledge integration and change practice (Fraser et al., 2017; Gysels et al., 2005; Légaré et al., 2012; Murphy et al., 2017; 2013). To our knowledge, in the province of Quebec under study, trainings on sustainable diet are already available, but they are designed for dietitians and not provided from an interprofessional perspective.

Lastly, nurses recommended a comprehensive approach, endorsed and promoted by several health organizations and professional associations, that would provide clear clinical guidelines, patient education tools and training opportunities for the promotion of sustainable diet. Despite the desire expressed by participants for government policies and professional association initiatives to support the integration of sustainable food promotion into their clinical practice, these avenues have proven to be unrealistic and inconsistent. A top-down approach from government and senior management requires extensive coalition work, and the current

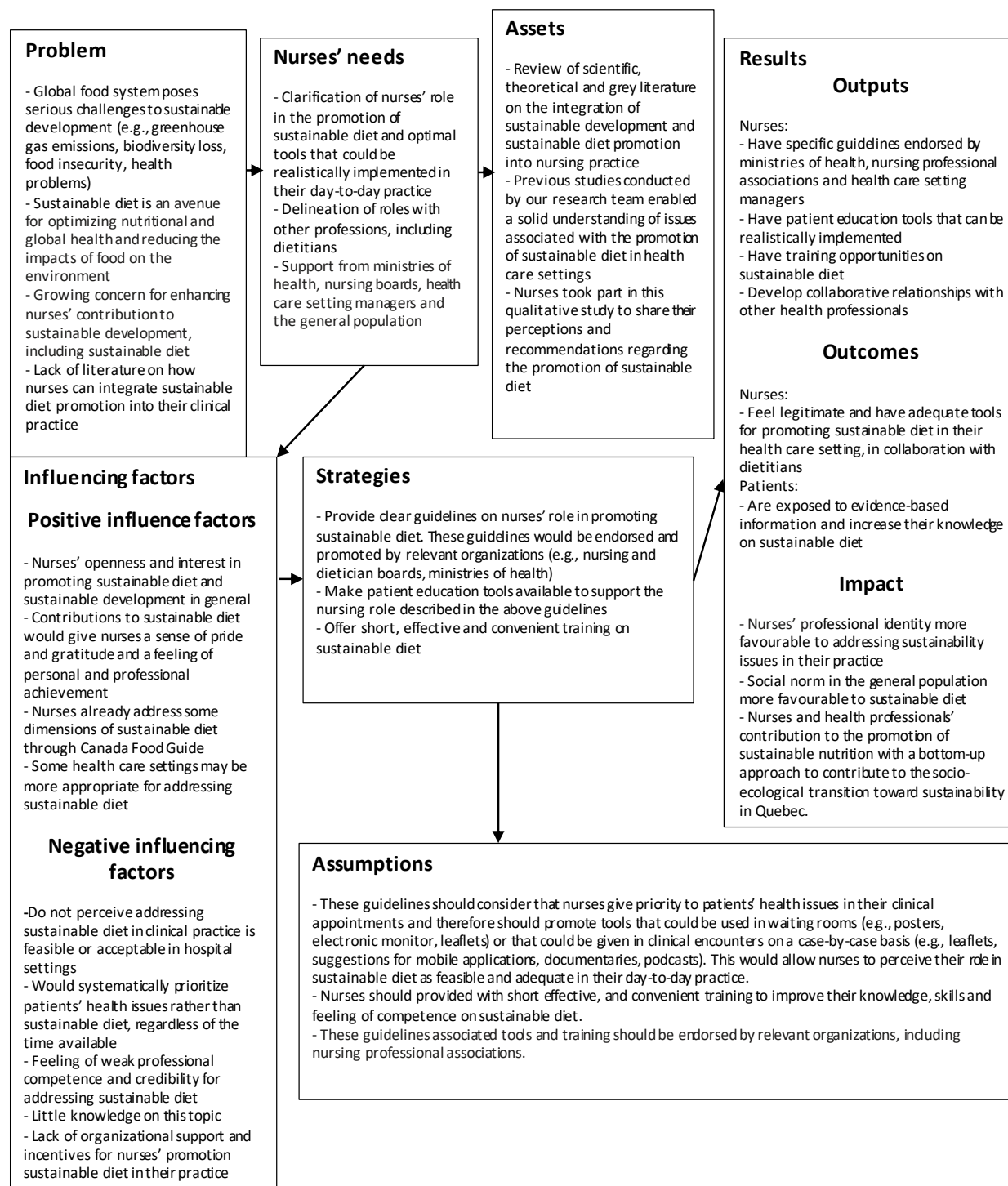
health care system is complex, with significant bureaucratic burdens and a siloed working structure, so initiatives may never get off the ground (Bilodeau et al., 2004; Bommert, 2010; Ogbeide & Harrington, 2011). For instance, Ontario studies report grossly inadequate government support (Ducak & Keller, 2011; Linton et al., 2018).

According to what is also reported in the literature review, the majority of initiatives are created by movements of motivated actors and employees (Kinney, 2010; Strotmann et al., 2017). In fact, local initiatives based on a bottom-up approach have been more frequently identified and described as promising for innovation and as examples of transformative leadership (Ballet et al., 2015; Bérard, 2013; Bilodeau et al., 2004; Bommert, 2010; Khan, 2016; Ogbeide & Harrington, 2011; Van den Hove, 2001). A recent *Montréal* study (Dagenais & Mercille, 2021), as well as other studies reported in our literature review, argue that it would be more realistic to integrate sustainable diet promotion into professionals' practices by initiating a gradual transition, creating partnerships and collaborations between professionals, and advocating to governments for better institutional policy networking (Dagenais & Mercille; Kinney; Liquori et al., 1998; Ranke et al., 2015; Strotmann et al.). Other studies state to establish guidelines as a joint initiative of several professional associations (Dagenais & Mercille; Kinney; Liquori et al.; Ranke et al.; Strotmann et al.).

In order to support innovations and encourage professionals' commitment, human and financial resources will nevertheless be necessary, thus requiring the involvement of administrative directors, who are usually responsible for budgets (Guillaumie et al., 2020; Linton et al., 2018). In the case of the present study, it would therefore seem more realistic for nursing associations to become involved in environmental causes and in the development of these initiatives, in concert with their counterparts in other professions, while advocating their wishes to governments.

Figure 4

Logic model for the integration of sustainable diet into nurses' clinical practice in the province of Quebec (Canada)



STRENGTHS AND LIMITATIONS

This study has several strengths and limitations. First, the qualitative design study allowed for a better understanding of nurses' experiences and perceptions about sustainable diet promotion (Creswell & Poth, 2016; Marshall & Rossman, 2014). This study is the first to be conducted exclusively with nurses on sustainable diet promotion. It favourably complements previous studies, especially those conducted in Canada, the United States and Europe, on health professionals' perspectives on sustainable diet (Casagrande et al., 2011; Harmon et al., 2011; Hawkins, Balsam, & Goldman, 2015; Hawkins, Balsam, & Graves, 2015; Heidelberger et al., 2017; Sulda et al., 2010) and provides precise information on the next steps nurses see as desirable. Although this study was conducted with Quebec nurses, the results and recommendations appear to be applicable to other Canadian provinces and to other Western countries. Social desirability bias within the focus groups may have influenced the data, in that participants may have altered their statements out of fear of stigmatization, embarrassment or the dominant speakers, even though the nurses were encouraged to share their own vision and even though the facilitator used strategies to reduce social desirability bias (Creswell & Poth; Marshall & Rossman) as necessary. Recording devices can also have an influence on participants' behaviors; the researcher therefore ensured that all participants were comfortable with their use (O'Brien et al., 2014). A limitation is that nurses are not necessarily experts on behavioral change management, and this may have affected the accuracy and relevance of the recommendations they made in our focus groups. Also, recruitment was conducted during the COVID-19 crisis. This resulted in a small sample and may have reinforced selection bias; as such, individuals willing to take part in the study may have been highly motivated and interested (Creswell & Poth). Focus groups are a qualitative survey method that facilitates exchanges and interactions between participants and is an effective method in the context of an exploratory study such as this one (Morgan, 1996). Nevertheless, videoconferencing can place limits on these interactions because of the distance and

resulting lack of human contact, or because participants may not be too familiar with these new means of communication and discussion (Cristel et al., 2020; O'Brien et al.).

CONCLUSION

This study highlights promising avenues for integrating sustainable diet promotion into clinical nursing practices as well as pointing out many challenges and inadequacies. Using nurses' theoretical openness to get them more involved would be crucial to overcoming the limits imposed by the complexity of the current health system. A bottom-up approach, stemming from movements of motivated employees and leaders, is needed for the integration of sustainable diet promotion into clinical practice nursing, and so is the creation of non-competitive, collaborative partnerships between nurses and their peers. Nurses must unite to create a common vision, objectives and actions for the promotion of sustainable diet. Institutional and professional bodies can also collaborate to provide the necessary resources and tools. Considering that few nurses are currently integrating sustainable diet promotion into their practice and that there is a lack of literature on the subject, it would be interesting to see if the findings of this study would be replicated in concrete nursing practice and if new barriers or recommendations would emerge. Future research toward nurses' promotion of sustainable diet should be conducted to assess the feasibility of these recommendations and to expand and deepen knowledge of best practices. Observing the positive effects of these research would also help to generate data, increase interest and develop more initiatives both from nurses, governments and the general population as well, toward making sustainable nutrition a societal priority.

Authors' contribution: SLM and LG have: 1) contributed substantially to the design of the research, the analysis, and the interpretation of the data; 2) critically drafted and revised the content through significant intellectual contribution; 3) approved the final version to be published and; 4) accepted responsibility for all aspects of the work ensuring that issues related to the accuracy or integrity of

any part of it are appropriately addressed and resolved. TD contributed to steps 2), 3) and 4) of the scientific article.

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