Follow Her Heart: Addressing Gaps in Women's Heart Health Patient Resources

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Abstract

Cardiovascular disease is the leading cause of premature death in women globally, yet many remain unaware of their risk, and those diagnosed often lack access to gender-specific resources. This paper explores current heart health education resources tailored to women, identifying key areas needed to address educational inequities. A narrative review of scholarly and grey literature was conducted to evaluate existing resources. Three main themes emerged: Women's Heart Health Programs, Heart Health Education Topics for Women, and Women's Heart Health within Indigenous cultures. An evaluative component assessed the suitability of these resources using the Patient Education Material Assessment Tool (PEMAT), with consideration for the Saskatchewan healthcare context. An advisory committee of healthcare and community stakeholders reviewed the findings. Recommendations are provided using the MAP-IT health promotion framework to address possible solutions to the identified gaps.

Keywords: cardiovascular disease, heart health, women, patient education, Saskatchewan

Buschau, E. C., Johnson, K., & Petrucka, P. (2025). Follow her heart: Addressing gaps in women's heart health patient resources. *Canadian Journal of Cardiovascular Nursing*, *34*(2), 14–24. https://doi.org/10.5737/cjcn-35-2-14

Key Highlights

- Increased advocacy and improved education for clinicians and patients are vital components to addressing the growing risk of CVD among women.
- There is a current lack of women-specific resources for CVD that are not explicit to women, but may have women-specific implications, *and* a lack of Indigenous-specific resources.
- Online resources for women's heart health are often hard to find or navigate.
- The development and delivery of effective women's heart health educational resources delivered in a virtual format is key in addressing the prevalent status of women being "under-aware" and overcoming geographical barriers.

Cardiovascular disease (CVD), once thought to be a man's disease, is now on the rise in women worldwide, ranking as the number one cause of premature death in women around the globe, including Canada (Heart & Stroke Foundation of Canada [HSFC], 2023d; Kouvari et al., 2020; Parry et al., 2022). Not only are women more likely to die from CVD than their male counterparts, but they are also more susceptible to the negative impacts of cardiovascular risk factors (Jaffer et al., 2021). These risks and mortality rates are disproportionately experienced by women living in rural, remote, and northern areas (Jaffer et al., 2021). These disparities are further compounded in certain sub-populations (such as Indigenous, immigrant, or rural women) due to health inequalities (HSFC, 2018, 2023d; Jaffer et al., 2021). The lack of sex- and gender-specific research on CVD and lack of inclusion of women in CVD research, as well as a lack of awareness amongst both women and clinicians, have been identified as main contributing factors to poorer outcomes for women with and at risk of heart disease (HSFC, 2018, 2023d; Norris et al., 2020). For the purposes of this review, the term "woman" will include both the sex (i.e., biological attributes including physical and physiological features, such as hormones, genes, and anatomical characteristics) and gender (i.e., sociocultural factors of constructs influencing roles, behaviours, and identities) definitions.

The aim of this narrative review is to examine the current literature on women's heart health education programs including access and availability to women-specific resources available online, with the purpose of identifying opportunities to develop contextually-relevant virtual resources for diverse populations.

Background

Women's heart health has been recognized as an increasing area of importance in women's health over the last 25 years. Canadian leaders in cardiovascular care, such as the Heart and Stroke Foundation of Canada (HSFC), brought women's heart health to the foreground with such publications as *Ms Understood* in 2018 (HSFC, 2018). Since that time, increased advocacy and improved education regarding women's heart

health for both clinicians and patients has been acknowledged as a priority by the Canadian Cardiovascular Society (CCS), the HSFC (2018; 2023d), and the Canadian Women's Heart Health Alliance (CWHHA; CWHHA, 2023a). Furthermore, in response to the Truth and Reconciliation Calls to Action numbers 19 and 20 (Government of Canada, 2015), it is imperative that the heart health of Indigenous women be addressed in collaboration with Indigenous communities and health leaders.

The management of CVD includes drug therapy, medical intervention (e.g., coronary angioplasty), and behavioural modification to address risk factors (e.g., diet, activity, smoking cessation; Fredericks & Guruge, 2015). It is patient education, however, that is the most common intervention not only in treatment but also in prevention. Fredericks and Guruge (2015) describe patient education as "a process for providing information to patients with the goal of changing knowledge and behaviors aimed at maintaining or improving health" (p. E14).

Why Women

With the incidence of heart disease on the rise in women globally, there is an imperative for healthcare professionals and programs to respond. Approximately 80% of heart disease in women is preventable, yet research consistently shows that women are under aware of their risks (HSFC, 2018, 2022). Most research related to heart disease has focussed on men, successfully leading to a decline in the incidence of heart disease in men. It is now well-known that women experience heart disease differently, have different risk factors, and are more at risk of developing specific types of heart disease (HSFC, 2018, 2022; Norris et al., 2020). Women experience myocardial infarction with non-obstructive coronary arteries (MINOCA) with twice the frequency of men. They are also significantly more likely to experience Takotsubo heart failure (i.e., stress-induced heart failure), and spontaneous coronary artery disease (SCAD; HSFC, 2018, 2022; Norris et al., 2020). Recognizing the disparities in heart health outcomes between men and women was the first step; now is the time to address these disparities.

Why Saskatchewan

In Saskatchewan, 31.7% of the population reside in rural, remote, or northern communities, which is almost twice the national rate (Statistics Canada, 2024). The rate is almost double for First Nation and Metis residents, with 60% of the 180,000 Indigenous people living in rural or northern locations in Saskatchewan (Statistics Canada, 2016).

The incidence of cardiovascular disease (CVD) in women can differ by province and regions, as well as by geographic location, with notable increase in CVD risk factors and mortality in rural, remote, and northern areas (Jaffer et al., 2021). The age-standardized mortality rate of heart disease amongst women in Saskatchewan per 100,000 was 11% higher than the national rate in 2023 (Statistics Canada, 2025). These disparities are further compounded by the health inequalities facing Indigenous women (Jaffer et al., 2021). Addressing accessibility to rural, remote, and northern areas also means addressing accessibility for Indigenous populations.

It is widely recognized that patients living in rural or remote areas have poorer outcomes in cardiovascular disease highlighting the need for improved equitable and accessible healthcare in this population (Buyting et al., 2021). The incorporation of virtual care is one way to address the inequalities of rural and remote Canadians (Buyting et al, 2021; Wilson et al., 2020). Online resources have become the first place that patients look for medical information, but also a valuable tool in the management of chronic disease (Rush et al., 2018).

The geographic and demographic landscape of Saskatchewan creates a unique opportunity within Canada, not only to address the heart health of women but also, to address the inequities facing the heart health of women in rural, remote, or northern communities and Indigenous women. Improved heart health awareness, education, advocacy, and accessibility for women in Saskatchewan in the communities that they reside in is vital to the health of Saskatchewan women, as it is to all women.

Search Strategy

A literature search was conducted of relevant peer-reviewed journal articles and organizational websites accessed through CINAHL, the University of Saskatchewan Library search tool (USearch), and Google Scholar. In addition, a systematic search of grey literature was done for patient teaching resources and known cardiology care leaders within North America through Google. The key search terms, which were developed in consultation with the librarian and co-author used were: "heart health", "cardiovascular health", "women", "females", "patient education", "patient teaching", "patient information", "heart health program". Documents accepted for this review met the following criteria: published in the last 10 years, published in English, and freely available online.

In reviewing the articles, it was intended to encompass general findings. The selected articles reflected a combination of academic and grey literature. A total of six articles regarding women-specific heart health education initiatives were selected as appropriate: five quantitative and one qualitative. In addition, there were 40 patient-oriented resources compiled through the grey literature search. The included materials presented as print (n = 1), informational websites (n = 6), videos including webinars and patients' lived experience (n = 21), and infographics (n = 12). Of note, 15 resources included patients with lived experience. Selecting resources that provided a formative evaluation was preferred. However, this criterion could not be included as there was no formative evaluation available for any of the resources found.

Virtual resources were primarily authored by larger centres or leaders in heart health, including the CWHHA (n = 11),

University of Ottawa Heart Institute ($n = 9$), Cardiac College ($n = 5$), National Collaborating Centre for Indigenous Health ($n = 4$), and the HSFC ($n = 3$). Each resource was independently reviewed using the Patient Education Material Assessment Tool (PEMAT) to assess for understandability and actionability, and further assessed with two questions regarding specificity to women and Indigenous women, reducing the final list to 13 (Shoemaker et al., 2024).

Methods and Resource Evaluation

Each patient education resource was reviewed using the PEMAT, as indicated above, to assess for understandability and actionability (AHRQ, 2024). The PEMAT was chosen because it was designed to assess whether patients can understand the written or audiovisual material, and whether patients are provided the information to act on it. They were further assessed with two questions regarding specificity to women and Indigenous women (i.e., "The material addresses heart health as it relates specifically to women" and "The material provides Indigenous-specific information as it relates to women's heart health"). The average score for understandability was 86%, and actionability was 74%. Of these resources, 83% were women-specific, with only 10% being Indigenous women-specific. All resources were available online.

Considering each resource's scores, and acknowledging that there was duplication in some resources, the list was narrowed down to 13 resources that scored above 80% on both understandability and actionability and were women specific. The exceptions were four videos regarding Indigenous women's heart health. One of the limitations of the PEMAT score in this setting is that it utilizes a highly biomedical worldview, which can perpetuate colonial oppression when utilized to assess Indigenous experiences, wisdom, and knowledge (Diffey et al., 2016). While these videos scored less than the 80% using the PEMAT scale, it can be argued it reflects the limitations of the PEMAT tool, not the resources, therefore these specific resources were included.

Committee Development and Input

To increase the methodological rigour and community collaboration, an advisory committee was formed to validate the 13 resources chosen. The membership was established through previous and current working relationships to represent cardiology care, primary healthcare, and Indigenous cultural care. The final committee consisted of a cardiologist specializing in women's heart health, a registered nurse from Saskatoon's Women's Heart Health Clinic, an Indigenous Elder, a Nurse Practitioner within a rural community, and a woman with lived CVD experience. Unfortunately, it was not possible to secure a Nurse Practitioner from within a northern community. The key request that was posed to the advisory committee was providing either a yes or no to the question "Is this useful for women in my community?" for each of the 13 resources reviewed. Each response of "yes" was scored as 1, and a "no" was scored as 0. The total score was then divided by the total responses to reveal the percentage of confirmed usefulness (Table 1). Despite multiple attempts to ensure feedback, only 80% of the committee returned completed documents. These responses were then reviewed revealing the following:

There was universal agreement on usefulness for seven of the 13 resources. Some offered feedback regarding their choices with caveats of websites being difficult to navigate, or why they did not choose a specific resource, citing reasons such as excessive use of medical terminology and difficulty understanding the presenters.

It should also be noted that, at this time, we have not received feedback from our Indigenous representative, which would be of high priority for the review of all resources, but especially in the review of the *Mite Achimowin* video series. Those offering feedback acknowledged that the impact and efficacy of the video amongst Indigenous populations would potentially be impacted by the Indigenous language spoken in it.

Informing Recommendations

To shape the recommendations for a roadmap forward, the MAP-IT framework was utilized. MAP-IT provides the

Table 1

Confirmation of Usefulness of Reviewed Resources

Resource	Confirmation of Usefulness, (%)
A Guide to Women's Heart Health – Ottawa Heart Institute	100
Your Heart Journey – Women@Heart	100
Polycystic Ovarian Syndrome and Heart Disease – CWHHA	100
Canadian Women's Heart Health Centre – Patient Education	100
Mite Achimowin – Heart Talk 1	100
Mite Achimowin – Heart Talk 4	100
Pregnancy Complications and Heart Health – CWHHA	100
Cardiovascular Risk Factors for Women – CWHHA	75
Cardio Oncology – CWHHA	75
Mite Achimowin – Heart Talk 2	75
Mite Achimowin – Heart Talk 3	75
Takotsubo Cardiomyopathy – Cardiac College	50

Note. CWHHA = Canadian Women's Hearth Health Alliance.

structure to inform and evaluate public health intervention (Office of Disease Prevention and Health Promotion [ODPHP], 2022). It is defined by the following steps: mobilize individuals and leaders within a community, assess the need of the area, plan the approach, implement the plan, and track progress (University of Kansas, 2023).

Contextual Review

For this review, the findings were inductively derived into three themes grounded in the literature: women's heart health programs, women's heart health education topics, and women's heart health in the context of indigenous cultures. Data were systematically coded by identifying and labeling the key data pieces.

Once the essential data pieces were identified, we looked for patterns and ground the codes that shared the ideas. These patterns became the initial clusters that were named or themed. Once the initial themes were articulated, the data was reviewed once more to ensure that the integrity of the intent and context was maintained. We then looked at the opportunities to narrow the themes. It was not necessary to discard any of the original themes, but we did undertake some renaming for clarity, and finally reviewed once more to ascertain that the themes were clear and the examples were optimized.

Women's Heart Health Programs

Specific heart health education programs have taken multiple forms including programs for menopausal women (Hassan et al., 2017), a nurse-led women's heart health clinic (Wray, 2014; 2020), electronic mobile health intervention (Sengupta, et al., 2020), sex-specific cardiac risk factor management (Low et al., 2018), and education on myocardial infarction symptoms in women aimed towards rural women (Kalman et al., 2018; See Table 2). Improved self-efficacy, increased knowledge and awareness, and decreased depressive symptoms occurred as a result of the mobile health intervention (Sengupta et al., 2020) and mosque-based physical activity intervention (Banerjee et al., 2017). Providing self-referral options also led to improved patient enrollment and commitment (Wray, 2014).

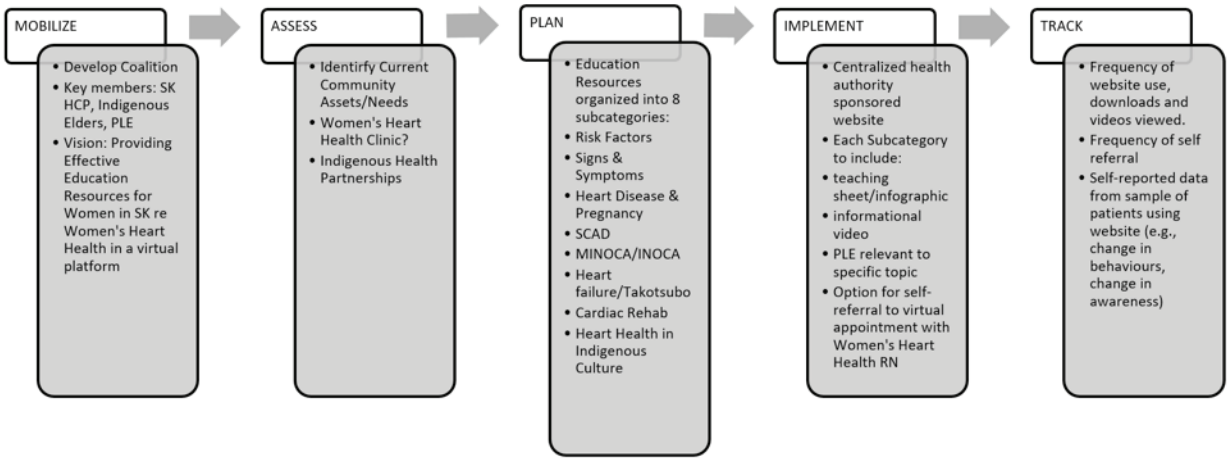
Structured programs, including the mosque-based physical activity intervention, the heart health education for menopausal women, and sex-specific cardiac management, addressed specific cardiovascular risk factors, such as activity levels, diet, and smoking, with improved outcomes on cardiac end points, such as blood pressure, waist circumference, and cholesterol levels. However, they were not statistically significant (Banerjee et al., 2017; Hassan et al., 2017; Low et al., 2018). Statistically significant improvements were noted in both exercise tolerance and attitudes toward physical activity (Banerjee et al., 2017).

Nurse-led interventions, as seen in the nurse-led women's heart health clinic, revealed statistically significant improvements in blood pressure, cholesterol levels, and absolute CVD risk (Wray, 2014). This intervention offers a strong mechanism for success in addressing the educational gaps regarding patient-specific education. There is also the opportunity to engage nurse-led interventions in primary prevention in addition to secondary prevention and chronic disease management. Nurse-led interventions have been found to have a reduction in cost impacts to the healthcare system, while improving health outcomes (Browne et al., 2015; Salmanca-Balen et al., 2017).

Women's Heart Health Education Topics

Figure 1

Follow Her Heart: A MAP-IT Approach



Note: SK = Saskatchewan; HCP = healthcare provider; PLE = personal learning environment; SCAD = spontaneous coronary artery dissection; MINOCA = myocardial infarction with no obstructive coronary artery disease; INOCA = ischemia with no obstructive coronary arteries.

Table 2

Summary Table of Women-Specific Heart Health Education Initiatives

Author(s)/Year/Title/ Country	Purpose	Sample/Design	Data/Tools	Results
Banerjee et al. (2017). A pilot examination of a mosque-based physical activity intervention for South Asian Muslim women in Ontario, Canada	"To examine the feasibility, acceptability and effectiveness of a mosque-based physical activity program for South Asian Muslim women in Canada." (p.349)	19 women; community-based pilot project, single group intervention, pre-and post-intervention test outcomes evaluation.	Duke Activity Status Index; International Physical Activity Questionnaire	Increase in self-efficacy scores, and the importance of engaging in regular physical activity; fewer participants classified as inactive.
Hassan et al. (2017). Effect of health education program on cardiovascular risk factors among menopausal women in Malaysia. Malaysia	"To evaluate the effectiveness of health education program on cardiovascular risk factors among perimenopausal women in Kelantan, Malaysia." (p.51)	64 women, age 45–55. Randomized control trial	Intervention group received multiple forms of health education (workshops, lectures, counselling), control group routine advice	Significant reduction in blood pressure in both groups only.
Kalman et al., (2018). Educating rural women about gender specific heart attack and prodromal symptoms. United States of America	"To test the efficacy of using acronyms to educate rural women on female MI and prodromal symptoms as well as the appropriate response to these symptoms and to assess if knowledge gained was sustained for a 2-month period." (p.113)	137 rural women. Age 25–90 Quasi-experimental design with two groups with site randomization of educational intervention.	Matters of Your Heart Scale version 2	No statistically significant difference in knowledge.
Low et al. (2018). The women's heart health program: A pilot trial of sex-specific cardiovascular management. Singapore	"To compare the clinical outcomes (CV risks factor control and CV event rates), quality of life and the self-reported knowledge, attitudes, intentions and practices amongst women already known to have CV disease, when managed" in sex neutral vs sex-tailored women's heart health program." (p.2)	100 women. Age 21–99. Randomized control trial.	CV risk markers (BMI, SBP, HgbA1c, HDL, LDL)	No significant difference in CV risk markers between groups, quality of life knowledge, attitudes, intention and practices.
Sengupta et al. (2020). A mobile health intervention system for women with coronary heart disease: Usability study. United States of America	"To examine the usability of a prototypic mHealth intervention designed specifically for women with CHD...and the influence on selected health behaviours and psychological characteristics of participants." (p.e16420)	10 women; Single-group, pre-intervention test, post-intervention test design	System usability scale; Eating Habits Confidence Survey; Exercise Confidence Survey, Perceived Stress Scale; Rapid Eating Assessment for Participants–Short Form; International Physical Activity Questionnaire-Short FormPatient Health Questionnaire-9	All participants completed study. Statistically significant improvements in waist circumference, weight, and BMI. Improved depressive symptoms.
Wray, W. (2014). Preventing Cardiovascular Disease in Women. Canada	Review of Women's Healthy Heart Initiative clinic after initial 3 years of operation	Retrospective review of aggregate clinical outcomes of 317 clinic patient records.	Clinical outcomes. Patient satisfaction survey.	Decrease in average BMI; reduction in BMI and LDL levels with pharmacologic and lifestyle therapy; patients appreciated self-referral.

Note. CV = cardiovascular; BMI = body mass index; SBP = systolic blood pressure; HbgA1c = test for average blood sugar level; HDL = high-density lipoprotein; LDL = low-density lipoprotein; CHD = congenital heart disease.

The sub-themes of specific topics within this theme most frequently addressed by the reviewed resources were women-specific risk factors (n = 11), heart disease symptoms (n = 7), pregnancy and heart disease (n = 4), SCAD (n = 4), MINOCA or ischemia with non-obstructive coronary arteries (INOCA; n = 4), viewing heart disease with an Indigenous lens (n = 5), heart failure (n = 3), takotsubo cardiomyopathy (n = 3), and cardiac rehabilitation (n = 2). See Table 3. Some resources covered multiple topics (i.e., women-specific risk factors and pregnancy and heart disease), while others were more singularly focused.

Table 3

Topics of Women's Heart Health Education Resources and Frequency

Topic	Frequency (*n*)
Women Specific Risk Factors	11
Heart Disease Symptoms	7
Heart Disease with an Indigenous Lens	5
SCAD	4
MINOCA/INOCA	4
Heart Failure	3
Takotsubo	3
Cardiac Rehabilitation	3
Autoimmune Disorders and Heart Disease	2
PCOS and Heart Disease	2
Atrial Fibrillation	1
Cardio-oncology	1

Note. SCAD = spontaneous coronary artery dissection; MINOCA = myocardial infarction with no obstructive coronary artery disease; INOCA = ischemia with no obstructive coronary arteries; PCOS = polycystic ovary syndrome.

Risk Factors

Risk factors specific to women was the most prominent education topic discussed, being reflected in 11 of the education resources. These are important to discuss, as they constitute a longer list of contributing influences for women than men. Not only do women need to be aware of the "classic" risk factors, such as high blood pressure, elevated cholesterol, and smoking, but they also need to be aware of the impacts of potential pregnancy complications (e.g., pre-eclampsia), auto-immune diseases, and polycystic ovarian syndrome (PCOS), which increase women's risk of heart disease, as well as how these evolve through the life-course of women (Canadian Women's Heart Health Centre [CWHHC], 2022a; Norris et al., 2020).

Heart Disease Signs and Symptoms

Another distinguishing element of heart disease in women is how their symptoms present (CWHHC, 2022c; Norris et al., 2020). While sharp or crushing chest pain can be reported by both women and men, there are a number of other symptoms women experience, often presenting as a constellation of less specific symptoms (CWWHC, 2022c; Ottawa Heart Institute, 2023). These can include shortness of breath, chest pressure, extreme sweating, stomach pain/nausea/indigestion. Some of the symptoms specific to women can include profound fatigue, lightheadedness, generalized anxiety, flu-like symptoms, sleep disturbances, and palpitations (CWHHC, 2022c; CardioSmart, n.d.; Ottawa Heart Institute, 2023). Providing tools for women to identify their symptoms is imperative in overcoming the vulnerabilities of being under-aware and underdiagnosed, and can ultimately save lives (CWHHC, 2022c; American College of Cardiology Foundation [ACCF], 2024).

MINOCA/INOCA

MINOCA is defined as a myocardial infarction "without significant coronary artery stenosis (i.e., >50%) on coronary angiography" (Pacheco et al., 2024). This includes a heterogenous group of atherosclerotic (e.g., plaque rupture, plaque erosion, calcific nodules, and coronary microvascular dysfunction) and nonatherosclerotic (e.g., SCAD, embolism, and vasospasm) conditions that result in myocardial infarction (Pacheco et al., 2024, Health e-University, 2023a). Up to 30% of women experiencing chest pain are actually experiencing MINOCA due to dysfunctional, narrowing, blocked, or spasming coronary microvasculature (CWHHC, 2022d). Risk factor management, symptom management and psychosocial support are key to treating this diagnosis (CWHHC, 2022d).

SCAD

As mentioned above, SCAD is one of the non-atherosclerotic presentations of MINOCA. It is not specific to women; however, 90% of SCAD patients are women, while accounting for 35% of acute coronary syndrome in women under the age of 50 (Clark et al., 2021; Gilhofer & Saw, 2019; Hayes et al., 2018). SCAD is also not associated with traditional cardiac risk factors (Clark et al., 2021) and can be triggered by emotional events, physical stress and even pregnancy (HSRC, 2023a). This contributes to significant mental health impacts for women who have experienced SCAD (Hayes et al., 2018). Despite the disproportionate number of women experiencing SCAD, there are limited resources directed specifically to women (CWHHC, 2022b; Health e-University, 2023; HSFC, 2023a).

Heart Failure/Takotsubo

Heart failure affects both men and women; however, women are more likely to experience heart failure with

Table 4

Top Rated Online Resources Reviewed with PEMAT Scores and Inclusion of Women-Specific and Indigenous-Specific Information

Document Name	PEMAT Understandability Score (%)	PEMAT Actionability Score (%)	Women-Specific	Indigenous-Specific
A Guide to Women's Heart Health (University of Ottawa Heart Institute, 2023)	100	100	x	
Cardio Oncology (CWHHC, 2023c)	86	100	x	
Cardiovascular Risk Factors for Women (CWHHC, 2022a)	93	100	x	
Heart Attack Symptoms Most Often Reported by Women (CWHHC, 2022c)	100	100	x	
Canadian Women's Heart Health Centre - Patient Education (University of Ottawa Heart Institute, 2025)	100	100	x	
Mite Achimowin - Heart Talk 1 (NCCIH, 2019a)	71	33	x	x
Mite Achimowin - Heart Talk 2 (NCCIH, 2019b)	71	33	x	x
Mite Achimowin - Heart Talk 3 (NCCIH, 2019c)	71	33	x	x
Mite Achimowin - Heart Talk 4 (NCCIH, 2019d)	71	33	x	x
Polycystic Ovary Syndrome and Heart Disease (CWHHC, 2023b)	80	100	x	
Pregnancy Complications and Heart Health (CWHHC, 2022d)	93	100	x	
Takotsubo Cardiomyopathy (Health e-University, 2023c)	100	100	x	
Your Heart Journey (WomenHeart, 2025)	100	100	x	

Note. PEMAT = patient education materials assessment tool; CWHHC = Canadian Women's Heart Health Centre; NCCIH = National Collaborating Centre for Indigenous Health.

preserved ejection fraction (HFpEF; CWHHC, 2023b). Women also have unique risk factors to heart failure, including hypertensive disorders in pregnancy, PCOS, peripartum cardiomyopathies, and chemotherapy induced cardiomyopathies specific to treatments utilized more in women (e.g., chemotherapy for breast cancer treatment) (CWHHC, 2023b). The biggest strategy for managing heart failure in women is seeking prevention through early and appropriate treatment of risk factors (CWHHC, 2023b).

Takotsubo is a temporary stress-induced cardiomyopathy with 90% of cases occurring in women ages 58–75 (Health e-University, 2023c). This is an important area of women-specific heart health, given such high incidence. It also highlights the importance of addressing stress management for women.

Pregnancy and Heart Health

Pregnancy is frequently described as a "stress-test" on the heart (CWHHC, 2022e). Blood pressure complications (e.g., gestational hypertension and pre-eclampsia) and gestational diabetes are linked to increased risk of heart disease later in life, such as heart failure and microvascular disease including SCAD (CWHHC, 2022b, 2022e, 2023b). Women understanding the presence of increased risk associated with these complications of pregnancy can not only increase their awareness but also encourage advocacy for their own health.

Cardiac Rehabilitation

Cardiac rehabilitation is known to benefit CVD patients significantly, through improved physical and psychological wellbeing and increased psychosocial support (Heald et al., 2021; Neubeck et al., 2022). Women who participate in cardiac rehabilitation live longer and are less likely to return to hospital (CWHHC, 2023). Ensuring women are aware of the benefits of accessibility of cardiac rehabilitation is imperative in providing full cardiac treatment to women living with CVD.

Women's Heart Health in the Context of Indigenous Culture

Historically, First Nations peoples have approached heart health holistically, recognizing that the physical, emotional, and spiritual needs of not only the individual but also the community were integral in heart health (Fontaine et al., 2019). The impacts of colonialism and the dominance of a biomedical worldview have silenced First Nations ways of knowing and sharing of that knowledge (Fontaine et al., 2019). Lifestyle-related risk factors (e.g., diabetes), experiences within the health care system, relationships with children and grandchildren, and residential schools are all identified as impacting the health of the *mite* (heart; Fontaine et al., 2019). *Mite achimowin*, or Heart Talk from the Swampy

Cree dialect, provides an opportunity for Indigenous women to use their traditions of oral history and story telling to speak to the importance of heart health, and elevate Indigenous wellness practices (Fontaine et al., 2019). This approach moves away from the biomedical worldview, while honouring the idea of two-eyed seeing, recognizing there are multiple ways of understanding the world including Indigenous and biomedical knowledge (Martin, 2012; HSFC, 2023c).

Identified Gaps

Current resources provide a strong foundation of what to include in shaping the resources of Saskatchewan healthcare providers (HCPs). However, there are some notable gaps. While multiple resources address various heart diagnoses, there is a lack in providing women-specific instruction for cardiovascular diseases that are not explicit *to* women but may have women-specific implications from a gender or social perspective, such as SCAD, MINOCA, and cardiac rehabilitation. We know that men also experience SCAD and MINOCA, but the prevalence is higher in women (Gilhofer & Saw, 2019). Men are also more likely to participate in cardiac rehabilitation than women, which is often related to social factors impacting women, such as being the primary caregiver in a family (Gilhofer & Saw, 2019; Neubeck et al., 2022).

The ease of access to resources was sometimes limited, requiring multiple search terms, further scrolling, and sifting to find credible resources. The exception was the CWHHC, whose website was the most user friendly.

The cultural aspects as reflected above were derived from the literature as per the narrative review approach. Admittedly there are many opportunities to expand on the context of Indigenous Culture, but it is outside the scope of this initial narrative review. It was found that Indigenous-specific resources were significantly lacking and challenging to find. There is an opportunity for further inquiry into Indigenous-specific resources and to provide easier access, especially from more well-known heart health experts (e.g., HSFC and CWHHC), and more robust resources.

Recommendations

Through review of the literature and resources, it is recommended that women-specific educational resources be developed to address the multifaceted education needs regarding women's heart health and delivered via a centralized virtual platform to overcome the geographic challenges of a diverse population in urban, rural, remote and northern areas as seen in Saskatchewan. The following section describes a roadmap to the development, organization, and distribution of these resources utilizing the MAP-IT framework (ODPHP, 2022) as defined by mobilizing individuals and leaders within a community, assessing the need of the area, planning the approach, implementing the plan and tracking progress (University of Kansas, 2023).

Mobilize

This effort represents the first steps in mobilizing and developing a coalition of interested parties within the broader community of Saskatchewan. Including key individuals in the advisory group is the first step in developing a larger coalition. It is these same roles that would need to be represented in the development of Saskatchewan-based resources. In the future, this group could develop and clarify the vision to define the plan of action further. For the purposes of this paper, the vision identified is providing effective education resources for women in Saskatchewan regarding women's heart health within a virtual platform.

Assess

The next step would be to assess the community needs and assets. Review of the literature has provided direction in what topics would need to be addressed and potentially how to disseminate the information. An environmental scan of the province's current services would be required to identify if there were already programs in place and in what capacity they were addressing topics within women's heart health. For example, are there nurse-led women's heart health clinics available in Saskatchewan? What is the current mode of education, if any, regarding women's heart health? What partnerships with Indigenous communities are currently in place regarding heart health management? It is the involvement of the community stakeholders and heart health champions that would be crucial to the gathering of this data.

Plan

The action plan is defined by setting specific objectives and strategies to accomplish them. These objectives are best informed by evidence-based interventions and engagement with the stakeholder group identified during the 'mobilize phase' (ODPHP, 2022). The review of literature completed for this narrative review would continue to inform next steps considering the assessment of what is currently in place and what gaps exist.

The significant rural, remote, and northern population in Saskatchewan potentiates the need/desire for a virtual tool kit format. This format provides ease of access to information to all women in the province from trusted resources, independent of their proximity to clinical care or actual geographical location.

Utilizing the current data available it is recommended that patient education be organized into the following eight categories: risk factors; heart disease signs and symptoms; SCAD; MINOCA/INOCA; heart failure/takotsubo; heart disease and pregnancy; cardiac rehabilitation; and heart health in Indigenous culture.

Health promotion that is rooted within the biomedical world is more likely to be ineffective within Indigenous populations (Diffey et al., 2019). In addressing heart health within Indigenous cultures, the voice of elders within the community needs to be included. It is imperative to collaborate

with Indigenous HCPs and acknowledge Indigenous ways of knowing and sharing how to care for heart health (Fontaine et al., 2019, Diffey et al., 2019).

Implement

Implementation is beyond the scope of this paper, but it is recommended that a centralized website be created, which would include a range of options/topics. For example, it might incorporate the previously described eight subcategories or modules as listed above, consisting of a teaching sheet/infographic ideally in multiple languages including, but not limited to English, French, Dene, and Cree. Additionally, informational videos featuring medical/nursing heart health experts speaking to select topics could provide critical information in patient-friendly language with the explicit intent to provide meaningful, understandable, and actionable information. The site may also include patients with lived experience relevant to the specific category sharing their stories.

Noting the prior success of nursing-led heart health programs and self-referral, it is recommended there be an option for a virtual appointment with a women's heart health nurse. Providing a self-referral option within the virtual platform supports an increase in access to appropriate care for those in rural, remote, and northern communities.

Track

Once implementation has occurred, tracking will be required to provide consistent feedback regarding the progress and efficacy of the intervention. Regular and accurate evaluation allows improvement to be acknowledged, and adjustment of the intervention(s) being assessed. Suggested tools for tracking would be data around website use, frequency of self-referral for a virtual nursing assessment, and self-reported data from a sample of patients using the website (e.g., change in behaviour, change in awareness).

Of note, ensuring appropriate data collection and tracking was in place would not only aid in providing effective education tools, but also have the potential to address the paucity of research evidence regarding women's heart health patient education interventions. Collecting data with the intention of publishing the results could supply other HCP and health authorities with evidence-based approaches to patient education, and evidence-informed quality improvement initiatives.

Limitations

There was a lack of scholarly literature regarding patient-specific education regarding women's heart health. This gap is consistent with the messaging of the "unders" of women's heart health being under-researched, under-diagnosed, under-treated, under-supported, and under-aware (HSFC, 2018). Much of the limited research on women's heart health was regarding education directed toward health professionals, such as the comprehensive CWHHA's Heart Health Education Course (CWHHA, 2023c). Educating healthcare providers is a vital step toward addressing the "unders" previously listed and improving heart health outcomes for women. It is the dearth of scholarly literature on *patient-focussed education* that should now inform our next steps.Availability of women-specific cardiology care is limited across the country. This makes it challenging to identify how creating the aforementioned resources would be supported financially and sustainably. Identifying women's heart health as a provincial health care issue provides the opportunity to pursue funding from the provincial health authority and to utilize current infrastructure to support this endeavour. The Saskatchewan Health Authority recently launched its first Women's Heart Health Clinic in Saskatoon. It is the clinicians within this clinic that would need to lead and develop the resources described above, and to request funding for ongoing support.

Conclusion

The issue of improving cardiac care and outcomes for women is coming to the forefront of healthcare, thanks to the work of multiple leaders in cardiology care, such as the Canadian Cardiovascular Society, the Heart & Stroke Foundation of Canada, the American College of Cardiology, and Canadian Women's Heart Health Alliance. As opportunities are created for HCPs to increase their knowledge of women and heart disease, there must also be opportunities for women to increase their knowledge. Providing effective health information and health promotion activities that are easily accessible for women at all stages of life and in various geographic locations is key in addressing the prevalent status of women being "under-aware."

By informing the framework for a virtual education toolkit on women's heart health, this important strategy for healthcare education, prevention, and advocacy can be delivered by healthcare team members to the target population, regardless of location, including urban, rural, or northern reach. This approach specifically addresses the inequalities experienced by women within cardiology care as well as the limited access to care for Saskatchewan residents due to geography and Indigeneity. This toolkit would empower communities to address these inequalities for women closer to home and ensure that women know that the health of their heart matters to them, their families, and their communities.

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