

**Exploring Indigenous and Visible Minority Women's Access to Preventive Breast and
Cervical Cancer Screening in Canada: A Narrative Review**

by

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A Major Paper submitted in partial fulfillment
of the requirements for the degree of
Master of Arts (MA) in Interdisciplinary Health

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Abstract

Canada's health care system is founded on the principles of need rather than ability to pay, priding itself for its decentralized, publicly-funded health care system that provides first-dollar coverage for preventive services across all provinces and territories (Allin *et al.* 2020; Kumachev *et al.* 2016). Despite best efforts through federal sharing and the indisputable evidence for early preventive mammography and Pap smear screening, profound disparities are found in service availability, utilization and accessibility for Indigenous and Visible Minority women in Canada (Amankwah *et al.* 2009; Demers *et al.* 2015; Ferdous *et al.* 2020). The purpose of this narrative review is threefold: to explore the incidence of breast and cervical cancer amongst Indigenous and Visible Minority populations in Canada, to explore potential barriers associated with the uptake of mammograms and Pap smear tests by these two populations; and to explore achievable interventions to improve access to cancer preventive services for Indigenous and Visible Minority women. This review uses the WHO Social Determinants of Health framework (SDOH) (World Health Organization 2010) rooted in equity to guide the review of the literature, and the Five Dimensions of Accessibility of Healthcare Services (Levesque *et al.* 2013) to guide the thematic analysis of intervention models.

An initial literature search was conducted using Google Scholar and Science Direct databases for articles published from 2000 to 2022, yielding 8,462 articles. After screening for irrelevant titles, and non-Canadian studies, 97 publications remained. After 71 duplicates and publications that did not meet the search criteria were removed, a manual search was performed, yielding a total of 34 publications that were included in the narrative review. Of these 34 articles, 17 articles concerned Visible Minority populations and 17 articles, Indigenous populations. The articles included in this review covered four provinces: (1) British Columbia, (4) Manitoba, (13)

Ontario and (2) Quebec, with the remaining 14 referencing Canada as a whole. The studies shared similar trends in breast and cervical cancer incidence and screening uptake for Indigenous and Minority women, with Pap smear uptake being lower than the national threshold and mammography uptake being lower in these populations compared to the rest of the Canadian population. Through thematic analysis, the most common barriers influencing accessibility and underutilization of preventive breast and cervical cancer were found to include socioeconomic status, culture and communication, education, lack of appropriate health care providers, and societal beliefs and attitudes towards cancer screening amongst both populations. Finally, possible interventions were identified in the literature that may inform strategies to achieve more equitable access to healthcare services tailored to Canada's multicultural society.

Keywords: Pap Smear, Mammogram, Social Determinants of Health, Canada, Preventative Health Care, Access to Health Care

Acknowledgments

During the last two years, many people have supported me in completing my Major Paper and the Master of Arts in Interdisciplinary Health program. I want to express my appreciation and acknowledgement to these individuals who have had a great impact on both my professional and personal development.

I would like to first express my deepest appreciation to my supervisor Dr. Parveen Nangia. I am beyond grateful for the intangible support and guidance in writing this paper after many unforeseen circumstances and goodbyes to fellow colleagues. Your knowledge and expertise in the field of research and sociology has shaped my admiration and passion for research. I would also like to extend my gratitude to Dr. Diana Urajnik who has always encouraged me in the classroom and in proofing this review. The appreciation I have for the both of you go beyond words.

I would also like to acknowledge the Graduate Coordinator for the Interdisciplinary Health program, Dr. Elizabeth Wenghofer for her unconditional support and understanding to her students. Your compassion does not go unnoticed and it is greatly appreciated by many. Lastly, I would be remiss in not mentioning former Laurentian University professors Dr. Shelley Watson and Dr. John Lewko who provided clarity and kept me grounded during the first year of my studies. You have both helped shape the academic I am today, and the wisdom you have instilled in me will be forever cherished.

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Introduction

The importance of race-based data in healthcare has become increasingly advocated for within the Canadian healthcare system (Rizvic 2020). In other countries, race and socioeconomic status have been shown to play a major role in health outcomes and health care utilization, however, the lack of race – and ethnic – based data collection in Canada impedes government officials from making equitable changes to combat systemic racism in healthcare. Non-medical factors, referred to as the Social Determinants of Health, are conditions in which a person is born or grow into that influence one’s health, including race and ethnicity, geographic location, education and socioeconomic status (World Health Organization 2010). Indigenous and Visible Minority populations in Canada have been shown to have disproportionately poorer health outcomes compared to other Canadians, as was recently highlighted by the COVID-19 pandemic. The Canadian constitution recognizes Indigenous individuals as persons who belong to one of the three distinct cultural groups: First Nations (FN), Métis and Inuit (Cole *et al.* 2021). As of 2016, 4.9% of the population was represented by Indigenous peoples, with First Nations people accounting for the largest subgroup of the Indigenous population in Canada (Cole *et al.* 2021). People who are not Indigenous and are non-white in skin colour represent the Visible Minority population (Chiu & Maheux 2011). Canada has Visible Minority population of approximately 6 million, representing 19.1% of the total population, with the majority living in Ontario, followed by British Columbia, Quebec and Alberta (Iqbal *et al.* 2017; Statistics Canada 2011). According to the National Household Survey of 2011, Statistics Canada (2011) indicate that nearly 65.1% of the Visible Minority population are Canadian immigrants. Both Indigenous and Visible Minority groups total close to one quarter of the Canadian population, and of these two groups, nearly 51% are women (Statistics Canada 2011; Arriagada 2016). Despite

representing a large proportion of the Canadian population and its revelation in recent literature, these populations have experienced long-standing health inequities (e.g. Filha *et al.* 2020), and can be considered vulnerable. For example, and historically, breast and cervical cancer risk has been disproportionately high for these vulnerable populations, with some sub-populations having a higher risk of acquiring a high-risk HPV strain (HR-HPV) leading to cervical cancer, and others procuring a late-stage diagnosis of breast cancer (Cerigo *et al.* 2013; Decker *et al.* 2016). Through regular mammogram and Papanicolaou (Pap) screening, breast and cervical cancer detection can occur earlier without symptoms present, which has been shown to drastically reduce mortality rates of these diseases worldwide (Filha *et al.* 2020).

In Canada, a variety of factors have been shown to predict the underutilization of screening services for both breast and cervical cancer, including immigration, ethnic and racial status, Indigenous status, rural residence, lower socioeconomic status and/or educational attainment, and not having a family physician (Cerigo *et al.* 2013). Cervical cancer is the 12th most commonly diagnosed cancer, and breast cancer is the second leading cause of death caused by cancer among Canadian women (Ferdous *et al.* 2020; Canadian Cancer Society 2021). In developed countries, cervical cancer screening programs, followed by the management of detected precancerous cervical lesions, have reduced the mortality of cervical cancer by close to 70% (Zehbe *et al.* 2016; Amankwah *et al.* 2009). If preinvasive and early-stage cervical cancer is detected through Pap testing, close monitoring and treatment can prevent the progression of invasive cancer, mitigating the risk of metastasis and premature death (Voruganti *et al.* 2016). Similarly, breast cancer screening through mammography has been shown to reduce breast cancer mortality by up to 21% for average-risk women who receive regular screening (Ferdous *et al.* 2020). Early detection and early-stage diagnosis of both breast and cervical cancer through

regular screening is essential to ensure the best treatment outcomes. Although evidence favouring the uptake of preventive health care is indisputable (e.g. Iqbal *et al.* 2017), studies show a lack of consistency across Canadian provinces (Hutchinson *et al.* 2018). Not all provinces and territories have a screening program for cervical and breast cancer, and those that do have differing guidelines compared to their provincial neighbours. Furthermore, uptake of screening differs across provinces and territories as well, however, the average for eligible persons is still well below the national target of 70% and 80% for breast and cervical cancer respectively (Canadian Partnership Against Cancer 2020; Canadian Partnership Against Cancer 2015).

Contrary to other countries, Canada has a decentralized, publicly-funded health care system that is administered primarily by the 13 provinces and territories, each with its own insurance plan for health coverage (Allin *et al.* 2020). Canada's Universal Health Care system is founded on the principles of need rather than ability to pay, allowing Canadian citizens or permanent residents to apply for provincial or territorial health coverage that provide first-dollar coverage of physician, diagnostic and hospital services, as well as public health and preventive care like mammography, Pap test screening and immunizations (Martin *et al.* 2018; Allin *et al.* 2020). According to Chaput, Del Guidice and Kucharski (2021), Pap test screening still remains the standard of care for cervical cancer screening in Canada, and is recommended every three years for asymptomatic women aged 21 or 25 years to 65 or 70 years who are or who have been sexually active. Women 70 years and older who have had three successive negative Pap test results in the previous 10 years may stop screening (Chaput *et al.* 2021; Canadian Partnership Against Cancer 2018). Breast cancer screening through mammography is recommended for women aged 50 to 74 every 2 to 3 years, however, this is conditional on a patients' relative value

of potential harms and benefits of screening (Chaput *et al.* 2021). Despite best efforts through federal sharing and the evidence to support regular uptake of preventive health services, profound inequities in service use and accessibility continues to be problematic for Indigenous and Visible Minority populations in Canada (Martin *et al.* 2018).

Indigenous and Visible Minority women share common sociodemographic characteristics and show similar trends in the underutilization of screening services and rates of cancer incidence and mortality across provinces (e.g. Demers *et al.* 2015). Indigenous women in Canada experience historical trauma shaped by colonialism, geographic displacement and resource appropriation, contributing to inequities that lead to a decreased life expectancy and an increase in comorbidities (Cole *et al.* 2021). Using a population-based cohort of approximately 2 million respondents of the 1991 Canadian Long Form Census that was followed until 2009, Withrow *et al.* (2016) found that First Nations people were more likely than non-Indigenous people to fall within the lowest income quintile, and to live in a rural area with poor access to health resources. Similarly, Schoueri-Mychasiw and McDonald (2013) mention that recent immigrants face challenges due to cultural differences and immigration, including religious and cultural beliefs, English language proficiency and migration stress. Most of Canada's migrants come from countries where the first language is neither English nor French (Pandey *et al.* 2021). Of the immigrant population in Canada, 78% reported a mother tongue other than English or French (Statistics Canada 2011). Studies show that individuals with language and cultural barriers are more likely to experience lower income and face challenges with economic and social integration, which further exacerbates the risk of poor health outcomes (Pandey *et al.* 2021). Although these two populations greatly differ in their cultural experiences, they experience similar issues in accessing and complying with the guidelines for mammograms and Pap smears

in Canada, ultimately leading to underutilization, late-stage diagnosis and higher mortality rates (Cerigo et al. 2013; Decker *et al.* 2016; Iqbal *et al.* 2017).

Using the World Health Organization (WHO) Commission for Social Determinants of Health (CSDH) Framework that is based on the principle of health equity to address and mitigate the unjust and unavoidable differences in health among groups (World Health Organization 2010) to guide this review, the primary objective is to provide a comprehensive overview of the current literature surrounding access to, and the uptake of preventive breast and cervical cancer screening for Indigenous and Visible Minority women in Canada. The WHO SDOH framework is comprised of two elements: (1) socioeconomic status and political context, that refers to the structural, cultural and functional aspects of the social system that influence health opportunities, and (2) structural determinants and socioeconomic positions that influence the health of individuals and populations in addition to the unequal distribution of these factors due to unequal positions in society (World Health Organization 2010).

Taking into consideration the five dimensions of accessibility to healthcare services conceptualized by Levesque *et al.*, (2013), this review also aims to provide information on possible barriers to access and interventions to increase the uptake of preventive screening amongst the review populations through approachability, acceptability, availability and accommodation, affordability, and appropriateness. Within this model, Levesque *et al.* (2013) illustrate five corresponding abilities of populations, including the ability to perceive, seek, reach, pay and engage that interact with the dimensions of accessibility to achieve access to healthcare services. In this framework, approachability and acceptability refer to patients being able to identify services and how these services are socially and culturally accepted, respectfully (Levesque *et al.* 2013). Further, availability and accommodation references how services can be

accessed and in a timely fashion (Levesque *et al.* 2013). According to Levesque and colleagues (2013), affordability and appropriateness refers to the financial burden on both time and resources spent by individuals accessing health services, and the quality of services provided.

The review sought answers to the following research questions:

- (1) What is the incidence of breast and cervical cancer in Indigenous and Visible Minority women in Canada compared to other Canadian women?
- (2) What are the barriers to accessing preventive screening for breast and cervical cancer in Indigenous and Visible Minority women in Canada?
- (3)) What are possible achievable interventions to improve access and uptake of cervical and breast cancer screening for Indigenous and Visible Minority women in Canada?

Identifying barriers in accessing preventive cancer screening can be used by policy makers, healthcare providers, and researchers to create strategies that may inform equitable healthcare services tailored to Canada's multicultural society. Further, this paper can inform changes in practice to better improve the uptake of preventive screening, which in turn can decrease mortality rates amongst vulnerable populations in Canada.

Materials and Methods

A search was conducted to identify peer-reviewed literature describing access to, potential barriers and utilization of mammograms and Pap smear tests among Indigenous and Visible Minority women in Canada. The CSDH was used to identify possible barriers to screening within both populations, including income, ethnicity and race, geography, education level, and power imbalances. Conceptualized by Levesque, Harris and Russell (2013), the Accessibility framework helped identify determinants that have an impact on access to health services from a multilevel perspective, where systemic factors are considered in conjunction with factors at the individual, community and population level.

Protocol Development

This review aimed to identify breast and cervical cancer incidence and barriers experienced by Indigenous and Visible Minority women in accessing preventive screening and recommendations to improve screening amongst this population. The protocol outlined in Table 1 illustrates the populations of interest, concepts and context that defined the research questions.

Table 1: Population/participants, concept and context (PCC) for review protocol based on the JBI Manual

PCC Element	Definition*	Example
Population/ Participants	<i>“important characteristics of participants, including age and other qualifying criteria”</i>	<p>Indigenous or Visible Minority women ages 21 – 70 living in Canada who have low screening rates or have never been screened for cervical cancer.</p> <p>Indigenous or Visible Minority women ages 50 – 70 living in Canada who have low screening rates or have never been screened for breast cancer.</p>

<p>Concept</p>	<p><i>“The core concept examined by the review should be clearly articulated to guide the scope and breadth of the inquiry. This may include details that pertain to elements that would be detailed in a standard systematic review, such as the “interventions” and/or “phenomena of interest” and/or “outcomes””.</i></p>	<p>Breast cancer / Mammography</p> <p>Pap (Papanicolaou) smear / Cervical cancer</p>
<p>Context</p>	<p><i>“may include... cultural factors such as geographic location and/or specific racial or gender-based interests. In some cases, context may also encompass details about the specific setting”</i></p>	<p>Indigenous/Aboriginal: original peoples and their descendants of what is now known as Canada.</p> <p><u>Population:</u> First Nations, Métis and, Inuit **</p> <p>Visible Minority /immigrant/ migrant/ ethnic minority : non-white and non-Indigenous people residing in Canada</p> <p><u>Population:</u> South Asian, Chinese, Black, Filipino, Latin American, Arabic, Southeast Asian, West Asian, Korean, Japanese, visible minorities with “multiple” identities and those “not included elsewhere” **</p>

*Definition is per JBI Reviewer’s Manual Chapter 11.

** Definition is per the Canadian Encyclopedia.

Search Strategy and Study Selection

The literature search was conducted using Google Scholar and Science Direct databases between January and February of 2022 to identify peer-reviewed literature related to cervical and breast cancer incidence among Indigenous and Visible Minority populations and barriers associated with the uptake of cancer screening. Originally, the article search was restricted to literature dating from 2015 to 2022, however due to limited relevant results, the search was expanded to include literature from 2000 to 2022, covering a 22-year time period. Consistent

with the process outlined by Ferrari (2015), article titles were screened and eliminated if they were not related to breast or cervical cancer, or preventive screening for either disease. Further literature was removed if the study was not conducted on Canadian populations or sub-populations residing in Canada. Duplicates were then isolated and eliminated from the review. In addition, a manual search of literature pertaining to Indigenous and Visible Minority screening for breast and cervical cancer was conducted by reviewing the reference lists of manuscripts. By expanding the literature search to incorporate manual searches of references and extending the time period, the review was more robust, especially in an area of research that is lacking ethnic- and race-based information for preventive medicine. All relevant articles were recorded on an excel tracking sheet, indicating their year of publication, authors, ethnic and racial category, sample size, cancer type, geographic location, screening uptake rate, barriers to screening, and recommendations. Figure 1 illustrates the publication selection process used for the narrative review.

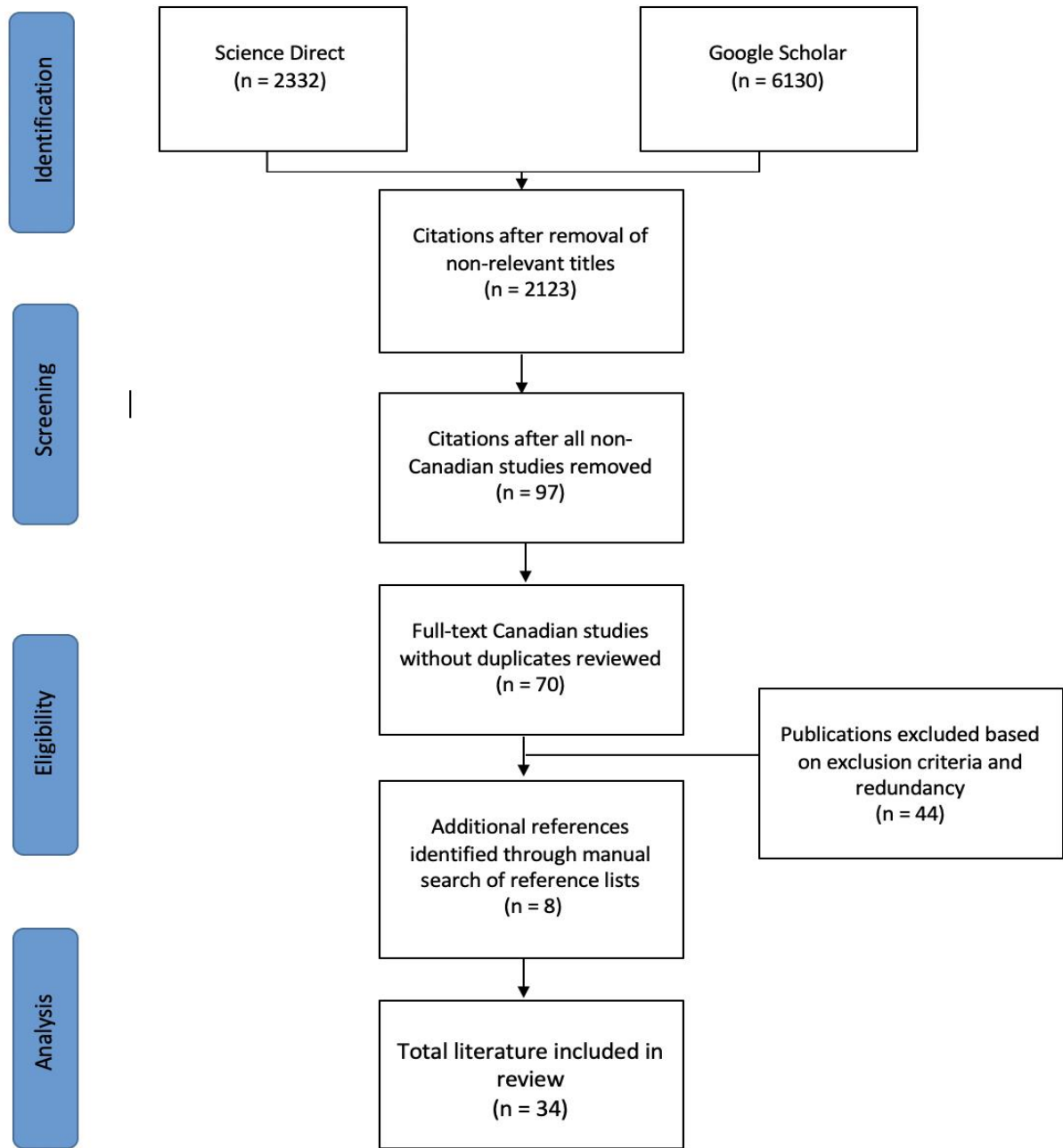


Figure 1: Flowchart of the literature selection process for the narrative review.

The following are examples of search terms and combinations used in each database to locate publications:

Combination 1: ((Visible Minority) OR Minority OR Immigrant)) AND Canada (AND (Pap smear) OR (Cervical Cancer)) OR (Mammography OR Mammogram OR (Breast Cancer)) AND Access OR Barrier AND (Social determinants of health)

Combination 2: (Aboriginal OR Indigenous) AND Canada AND (Pap smear) OR (Cervical Cancer) OR (Mammography OR Mammogram OR (Breast Cancer)) AND Access OR Barrier AND (Social determinants of health)

Inclusion and Exclusion Criteria

The inclusion and exclusion criteria for this review were based on the study objectives and questions. When searching databases, the following inclusion/exclusion criteria were used: (1) only peer-reviewed publications were included, (2) only studies about Canadian populations were included between the dates of 2000 and 2022, (3) only papers concerning Indigenous and Visible Minority or Immigrant women aged 15 years and older were included, (4) literature touching on incidence and mortality of breast and cervical cancers, (5) incidence and prevalence of preventive breast and cervical cancer screening, (6) barriers to healthcare services (including but not limited to Pap smears and mammograms) were included, as well as (7) possible interventions to mitigate these barriers, including recommendations for best practices. There was no preference for the type of study and no grey literature was used.

Analyses

The literature was analyzed to identify incidence rates of breast and cervical cancer in Indigenous and Visible Minority women. Subsequently, analyses focused on barriers

surrounding the uptake of mammograms and Pap smear tests for Indigenous and Visible Minority women based on the CSDH Framework. Key themes as set forth by the Framework included: barriers related to economic stability, education access and quality, social and community context, health care access and quality, and neighbourhood and built environment. Once barriers were identified in the literature, they were categorized accordingly based on which CSDH theme the barrier belonged to. The Five Dimensions of Accessibility to Healthcare Services Framework was then used to sort recommendations into categories that are designed to improve overall accessibility to health services. Categories were not mutually exclusive; for barriers and recommendations that spanned more than one category, the barrier and recommendation was placed in the category of best-fit.

Results

Search Results

In total, 8,462 manuscripts were identified using the search engines and search terms outlined above. After screening for titles in the search results that identified relevant articles to the review topic and populations, and after adhering to the inclusion/ exclusion criteria, removing duplicate manuscripts, and reviewing the abstracts, 34 articles were included in this narrative review. Articles identified in the literature search were found to describe breast and cervical cancer incidence, mortality and screening rates amongst Indigenous and Visible Minority women in Canada; provided descriptions of potential barriers in accessing preventive cancer screening; and included recommendations to mitigate barriers. Of the 34 manuscripts, the oldest article dated 2007 and the most recent article dated 2021. Of the studies included in this narrative review, 4 took place in Manitoba, 13 in Ontario, 2 in Quebec, 1 in British Columbia, and the remaining 14 pertained to Canada as a whole (e.g. Withrow *et al.* 2017; McDonald &

Kennedy 2007). In addition, of the 34 publications included in this review, 17 articles were in reference to Indigenous women and the remaining 17 concerned Visible Minority women, 13 of the total concerned cervical cancer and Pap smear tests, 10 were focused on breast cancer and mammography, and the remaining 11 were a combination of breast and cervical cancer screening. Depending on the provincial location of the study and the sample size, the age ranged from 18 to 69 years, and 15 to 74 years for cervical cancer and breast cancer, respectively. Both qualitative and quantitative studies were found in the review, with the smallest sample size of 18 and the largest sample size of over 300,000. A summary of the relevant literature can be found in Table 2.

Table 2: Characteristics of search results (n=34 studies) on breast and cervical cancer screening for Indigenous and Visible Minority populations in Canada.

Author(s)	Location	Study Type	Sample Size	Age	Barriers	Recommendations
<i>Breast Cancer</i>						
<i>Indigenous</i>						
Decker <i>et al.</i> 2016	Manitoba	Quantitative	3560	15+	Area of residence	Collaboration between FN communities and healthcare providers
Demers <i>et al.</i> 2015	Manitoba	Quantitative	110,050	50+	Race, area of residence	No recommendations
Cole <i>et al.</i> 2021	Canada	Scoping Review	-	18+	Historical trauma, displacement, colonialism, resource appropriation.	No recommendations
<i>Visible Minority</i>						
Ferdous <i>et al.</i> 2020	Canada	Scoping Review	-	-	Low Socioeconomic status, lack of knowledge, social stigmatization, English language proficiency.	Appropriate cultural and competency training for physicians, increased awareness, cultural and linguistic sensitivity.
Iqbal <i>et al.</i> 2017	Ontario	Quantitative	41,213	-	Race and ethnicity, Immigration status**.	No recommendations
Sun <i>et al.</i> 2010	Canada	Quantitative	508	50 - 69	Age, low household income, physician contact	Increase recruitment, cultural and linguistically

						appropriate education programs
Schoueri-Mychasiw <i>et al.</i> 2013	Canada	Systematic Review	-	-	Language barriers, knowledge gaps, general practitioner recommendations, transportation barriers	Mailing translated letters, one-on-one outreach to increase knowledge.
Crawford <i>et al.</i> 2015	Canada	Qualitative	82	40+	Knowledge gaps, comfort	Additional dissertation methods, improved collaboration between care providers and community
Racine <i>et al.</i> 2021	Canada	Cross-sectional descriptive exploratory study	75	18+	Religion, lack of education, social barriers	Increased education, further research
Vahabi <i>et al.</i> 2015	Ontario	Quantitative	100,000	50 - 69	Immigration status**, age, cultural beliefs, physician contact	Cultural and linguistically appropriate education and programming
<i>Cervical Cancer</i>						
<i>Indigenous</i>						
Wakewich <i>et al.</i> 2016	Ontario	Qualitative	69	25 - 70	Legacy of colonization for FN women.	Foster intergenerational relationships, decolonization of women's bodies, develop culturally sensitive tools, HPV self-sampling
Demers <i>et al.</i> 2012	Manitoba	Quantitative	592	18+	No barriers	Culturally appropriate educational materials and preventive health services
Decker <i>et al.</i> 2014	Manitoba	Quantitative	105,815	18 - 69	Area of residence, age, aboriginal status	Culturally appropriate initiatives, HPV self-sampling for hard-to-reach women.
Cerigo <i>et al.</i> 2013	Quebec	Mixed Methods	403	21 - 69	Age, marital status, immigration status**, aboriginal status, rural residence, not having a family doctor.	Understand predictors, opportunities to adapt and enhance promotion activities that are population specific.
Maar <i>et al.</i> 2013	Ontario	Qualitative	18	-	Shame/stigma associated with sexual abuse, shortage of appropriate health care providers, lack of recall system, transportation barriers, education and socioeconomic inequalities, generational effects and colonial legacy.	HPV self-sampling, awareness campaigns, education programs,

Maar <i>et al.</i> 2016	Ontario	Mixed Methods; PAR	Unknown	unknown	Cultural barriers, privacy, lack of flexibility, comfort and respect for FN women	HPV self-sampling, screening promotion at multiple, culturally compatible levels,
Zehbe <i>et al.</i> 2016	Ontario	Community-Randomized screening trial	1002	25 - 69	Geographic isolation, cultural sensitivity	HPV self-sampling, increased collaboration with community partners, promote culturally appropriate knowledge-based education
Morgan & Wabie 2012	Canada		-	-	Remote locations, transportation barriers, inadequate culturally appropriate on-site health and educational services, distrust born out of historical abuse.	Ensure cultural safety within cross-cultural relationships, increased awareness of cultural concepts for HCP, inclusion of vulnerable populations in the planning, delivery and implementation of screening initiatives.
<i>Visible Minority</i>						
Amankwah <i>et al.</i> 2009	Canada	Quantitative	76, 214	18 - 65	Marital status, educational attainment, English-language proficiency, immigration status**, lack of HCP	Culturally sensitive intervention program, community collaboration, increased cultural-specific education for physicians
Voruganti <i>et al.</i> 2016*	Ontario	Retrospective matched cohort study	1566	25+	Immigration status**, sex of HCP, number of visits with HCP	Understand the predictors to inform policy
McDonald & Kennedy 2007	Canada	Quantitative	-	21 - 65	Race and ethnicity, English-language proficiency, immigration status**	No recommendations
Datta <i>et al.</i> 2018	Quebec	Quantitative	6393	21 - 65	Immigration status**, no HCP, low SES, marital status, educational attainment	HPV self-sampling, increased accessibility to HCP, additional education for HCP and patients
Vahabi & Lofters 2016	Ontario	Mixed Methods	30	21 - 69	Lack of education and knowledge about the healthcare system, difficulty accessing female HCP, language and cultural barriers, transportation, long wait times.	Increased collaboration with patients and community partners, empowerment, cultural sensitivity, increased education for HCP, HPV self-sampling.
<i>Breast and Cervical Cancer</i>						
<i>Indigenous</i>						
Mazereeuw <i>et al.</i> 2017	Ontario	Quantitative		C: 18 -69 * B: 50 - 74*	No barriers	Appropriate and timely follow-up,

						culturally appropriate evidence-based health policy, increased knowledge translation between collaborators
McGahan <i>et al.</i> 2017	British Columbia	Quantitative	333, 327	C: <50, C, B: 50 – 69, C, B: 70+	Socioeconomic status, policy and legislation as a result of colonization	Additional research
Withrow <i>et al.</i> 2017	Canada	Quantitative	237, 905	25+	Low SES, age, geographic location, aboriginal status	No recommendations
Hutchison <i>et al.</i> 2018	Canada	Narrative Review	-	-	Attitudes and beliefs, lack of trust, lack of knowledge or awareness about screening, impacts of colonialism, discrimination, racism	Improve screening data
Withrow <i>et al.</i> 2014	Ontario	Quantitative	90, 866	C: 21 – 69* B: 50 – 74*	Age, educational attainment, lower SES, geographic location, race/ethnicity	Consider social factors for policy change in aboriginal health.
Tobias <i>et al.</i> 2020	Ontario	Mixed Methods	44	-	Aboriginal status, negative experience with government systems (racism, intergenerational trauma), cultural competency	Cultural training for HCP, unique needs of Indigenous population need to be considered in all policy stages.
<i>Visible Minority</i>						
Abdel-Rahman 2021	Canada	Quantitative	46,767 59,724	C: 25 – 69* B: 40 – 74*	Marital status, race and ethnicity, low SES and low self-perceived health	Changes in federal / provincial health policy
Lofters <i>et al.</i> 2016	Ontario	Quantitative	5311	C: 21 – 69* B: 50 – 74*	English-language proficiency, religion, cultural barriers	No recommendations
Gesink <i>et al.</i> 2014	Ontario	Qualitative	16 focus groups	-	Lack of insurance, marginal / vulnerable populations, lack of knowledge on OHIP, cultural stigma, health literacy	Intersectionality expanded to include social, cultural, demographic and economic factors for useful framework in health programs
Kerner <i>et al.</i> 2015	Canada	Quantitative	-	C: 21 – 69* B: 50 – 69*	Immigration status**, low SES.	Increased cultural awareness training, use of multilingual health educators, telehealth approaches to reach rural communities.
Ahmad <i>et al.</i> 2015	Canada	Qualitative			Fear about pain and diagnosis rooted in	Increased community partnership, language

			-	-	fatality, cultural and language barriers.	and emotional support, knowledge translation,
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* When age has two ranges, C denotes Cervical Cancer and B denotes Breast Cancer

**Length of stay in Canada (ie. recent immigrant being 0-5 years)

Breast Cancer Incidence & Mammography Uptake

In a British Columbia study on cancer incidence and survival for women aged <50 to 74 years, McGahan *et al.* (2017) found that breast cancer was the most common malignancy diagnosed for both Indigenous and non-Indigenous women. Over the 1993 to 2004 time period, age-standardized incidence rates for breast cancer between the two populations were similar (Indigenous = 224.0 per 100,000; non-Indigenous = 240.0 per 100,000), equating a standardized rate ratio (SRR) of 0.93 with a 95% confidence interval (McGahan *et al.* 2017). In addition, McGahan *et al.* (2017) noted no significant difference between the 1-year (Indigenous = 0.97 (97%); non-Indigenous = 0.96) and 5-year age-standardized cause-specific survival (Indigenous = 0.83); non-Indigenous = 0.85) between Indigenous and non-Indigenous women residing in BC. Contrary to this, in a study conducted in Manitoba analysing breast cancer incidence and mortality rates over the 1984 – 1988 and 2004 – 2008 time periods, Decker *et al.* (2016) found an increase in incidence for both First Nations and non-Indigenous women, however the Average Annual Percentage Change (AAPC) of First Nations women increased significantly compared to the non-Indigenous population (AAPC First Nation = 9.2%; AAPC non-Indigenous = 2.6%). Furthermore, Decker *et al.* (2016) also found the mortality rate of First Nations women increased, while the rate of mortality decreased for non-Indigenous women (AAPC First Nations = 15.8%; AAPC non-Indigenous = -6.6%). Moreover, an Ontario study conducted by Withrow *et al.* (2017) found that breast cancer deficits in survival for the Indigenous population was between 10 to 20 percentage points higher compared to non-Indigenous women. Decker *et al.* (2016) also

identified that among all women (age 18 – 69 years) diagnosed with stage II to IV breast cancer, 51.7% of First Nations women had high-grade, poorly differentiated tumours compared to 36.5% non-Indigenous women in Manitoba. In their final model, First Nations status was used as a predictor for stage at diagnosis and women aged 50 to 69 years who identified as First Nations were significantly more likely than non-Indigenous women to be diagnosed at a later stage of breast cancer (Decker *et al.* 2016). Similarly, for immigrant women, Iqbal *et al.* (2017) demonstrated that of all the women in their study cohort, immigrant women were less likely than Canadian-born women to be diagnosed with stage I breast cancer in Ontario.

In a Manitoba study, Demers *et al.* (2015) illustrated that 37% of FN women and 59% of all other women (those who are not registered under the federal Indian Registry) had a mammogram in the previous two years of their study period, and in all areas of residence, mammography rates were lower among FN than all other women. The relative rate (RR) remained constant from 1999 – 2000 (RR = 0.61; 95% CI) and 2007 – 2008 (RR = 0.62; CI 95%), however, the difference between the uptake of mammography screening between the two populations was less in the north than the rural south (Demers *et al.* 2015). Adding to this idea, Mazereeuw *et al.* (2017) reported the age standardized prevalence (ASP) of mammogram uptake for women aged 50 - 74 as significantly lower for Indigenous women living on reserve (ASP = 69.8%) in Ontario compared to Indigenous women living off reserve (ASP = 81.7%) and non-Indigenous women (ASP = 82.1%). Further, and consistent across studies, more Indigenous and Visible Minority women (as compared to White women) do not have a time-appropriate mammogram as suggested by provincial standards (Table 3).

Table 3: Percent of Indigenous, Visible Minority and White women who have had a time-appropriate Mammogram in accordance with provincial standards.

Location	Author	Indigenous	Visible Minority	White	Difference
Canada	Abdel-Rahman	-	55.3	65.9	(-) 10.6
Manitoba	Demers et al.	37.0	-	59.0	(-) 22.0
Ontario	Mazereeuw et al.	76.4	-	82.7	(-) 6.3
Canada	Sun et al.	-	56.5	72.0	(-) 15.5

Similar to the Indigenous population, Visible Minority women have lower rates of mammography (Table 3). A study concerning Asian immigrant women in Canada showed significantly lower rates of mammography compared to non-immigrant women, with roughly 60% of women in this population (aged 50 to 69 years) having a mammogram within two years of the study compared to 72% of non-immigrants (Sun *et al.* 2010). In a similar study conducted in Ontario, Vahabi *et al.* (2015) found that only 64% of the total immigrant women ages 50 to 69 years who participated in their study were appropriately screened for breast cancer, 6% below the national threshold. The study further identified that new immigrant women (≤ 5 years in Canada) had a screening rate of 50% compared to a rate of 52% and 60% for recent immigrants (6 – 10 years in Canada) and established immigrants (≥ 11 years in Canada), respectively (Vahabi *et al.* 2015).

Cervical Cancer Incidence and Pap Test Uptake

Incidence and uptake of screening differ significantly across each province and territory due to provincial regulations of healthcare services and variations in screening programs (Kumachev *et al.* 2016). According to Demers *et al.* (2012), cervical cancer screening among Indigenous and non-Indigenous women in the Northwest Territories appear similar, however, in

Yellowknife, Indigenous women have a lower screening rate (rate = 71.1%) compared to their non-Indigenous counterparts (rate = 92.0%). Despite improvements in preventive screening across some provincial and territorial healthcare services, rates of invasive cervical cancer among Indigenous women have historically been 1.7 to 3.5 times higher than non-Indigenous women, and mortality rates, upwards of 4 times higher (Demers *et al.* 2012). This public health issue exists for other marginalized populations as well, with recent immigrants and Canadian-born women from minority ethnic backgrounds having lower use of Pap testing and higher cancer incidence compared to White, Canadian-born women (McDonald & Kennedy 2007). For example, McDonald and Kennedy (2007) found that White immigrant (77.3%) and Canadian-born women (80.7%) were significantly more likely than immigrant (61.4%) and Canadian-born Arab/Western Asian women (62.2%) to have had a Pap smear in the last 3 years. Table 4 illustrates differences in Pap smear uptake between Indigenous, VM and White (women) populations.

Table 4: Percent of Indigenous, Visible Minority and White women who have had a time-appropriate Pap test in accordance with the provincial standards.

Location	Author	Indigenous	Visible Minority	White	Difference
Canada	Abdel-Rahman	-	71.4	75.4	(-) 4.0
Canada	Amankwah et al.	85.3	76.9	86.5	(-) 1.2 ; (1) 9.6
Quebec	Cerigo et al.	75.2	-	-	-
Manitoba	Decker et al.	60.7	-	65.7	(-) 5.0
Ontario	Mazereeuw et al.	77.2	-	77.7	(-) 0.5

According to Decker *et al.* (2014), First Nations women in Manitoba aged 25 – 39 years of age had an invasive cervical cancer incidence rate 2-fold compared to non-Indigenous women

(FN = 21.9 per 100,000; non-Indigenous = 10.2 per 100,000). Similarly, First Nations women 40 – 69 years of age were recorded to have invasive cervical cancer incidence of 24.2 per 100,000, compared to 12.3 per 100,000 for all other women in the province (Decker *et al.* 2014). In an analysis of incidence and survival from 1993 to 2010 in British Columbia, McGahan *et al.* (2017) found that First Nations women had a significantly higher age – standardized incidence rate for most cancers compared to non-Indigenous women. This study showed that fluctuation did occur in the incidence of cervical cancer amongst this population, however, while rates increased for Indigenous women, incidence rates for non-Indigenous women remained constant over time (McGahan *et al.* 2017). Similarly, a Canada-wide cancer survival study conducted by Withrow *et al.* (2017) concerning a follow-up of the 1991 Census Mortality Cohort showed that FN adults had poorer survival rates than their non-Indigenous counterparts for most cancers. The largest absolute difference in survival rates between FN and non-Indigenous persons was for cervical cancer, where a 5-year relative survival rate was at least 20 percentage points higher among their non-Indigenous counterparts (Withrow *et al.* 2017). Further solidifying this disparity, among the Inuit population, age-standardized cervical cancer rates are 2.5 to 3 times higher than the Canadian average (8.0 per 100,000 in 2016; 9.1 per 100,000 in 2002), with one-fifth of the Inuit population residing in Nunavik, Quebec (Cerigo *et al.* 2013; Caird *et al.* 2022).

Since cervical cancer screening identifies dysplasia, a precursor to cancer that is easily treated to prevent invasive malignancy, the continued higher rates for First Nations women, in combination with the insurmountable evidence of high incidence among Visible Minority women, suggests that disparities continue to exist in screening or poor access and utilization of follow-up care. Over 40% of invasive cervical cancer cases in Canada occur amongst women who have never been screened, and 10% among women with infrequent screening (Datta *et al.*

2018). Combining two cycles of the Canadian Community Health Survey, Amankwah, Ngwakongnwi and Quan (2009) found that women who report never having a Pap test was more common amongst Visible Minority women (19.2%), especially Asian women (18.8% – 27.3%) than White women (8.9%), however, Indigenous women were still less likely than White women to be screened (10.5%). Analyzing the Pap test rates in Manitoba, Decker *et al.* (2015) found that rates were significantly higher for FN women less than 25 years of age compared to all other Manitoban women, but were lower for First Nations women 40 years and above. It was also noted that Pap smear rates were slightly lower in the north compared to the rural and urban south, but similar to mammography rates, the gap for screening uptake was less in the north than the south, although statistically nonsignificant (Decker *et al.* 2015). After adjusting for age, area of residence and time period, FN women were significantly more likely to receive a high-grade Pap test result compared to all other Manitoban women, indicative of moderate-to-severe cervical dysplasia (Decker *et al.* 2015).

Barriers to Accessing Mammograms and Pap Smear Tests

From a social determinants of health perspective, the reason for health disparities is multifactorial, and relates to a combination of socioeconomic, cultural, and historical factors specific to a certain population (Adams *et al.* 2021). In Canada, a variety of factors have been shown to predict the underutilization of preventive cancer screening, including accessibility issues grounded in rurality and the lack of a family physician, as well as lower educational level and/or lower socioeconomic status, Indigenous identity, and immigration status (Cerigo *et al.* 2013). Within Indigenous and Visible Minority populations, similar barriers were identified through thematic analysis of the literature despite differences in specific experiences of these

barriers. Identifying and understanding these barriers and predictors of screening underuse through thematic analysis can help shape health policy and inform systemic changes to improve the uptake of preventive screening for both groups.

Barriers Experienced by Indigenous Populations

Economic Stability & Education

Socioeconomics, Geography and Educational Attainment.

Race, socioeconomic status, education, and geography have been shown to be intersectional in nature, drastically influencing access and uptake of healthcare services for Indigenous populations in Canada (Maar *et al.* 2013; McGahan *et al.* 2017; Withrow *et al.* 2014). Consistent with an intersectional perspective, Withrow *et al.* (2016) report in their research concerning the disparities that exist among First Nations and non-Indigenous adults in Canada, that psychosocial factors including poor social support, stigmatization and a delay in seeking care is largely associated with socioeconomic disparities in cancer survival. When comparing the survival of cancer between these two populations, income and rurality offer a substantial explanation to the difference in survival between the two populations. To further elaborate, FN people are more likely than non-Indigenous people to fall within the lowest income quintile and to live in a rural area (Withrow *et al.* 2016). In a qualitative study on provider perspectives of structural barriers in preventive cancer screening, poverty explained by many on-reserve families was perceived to affect health negatively (Maar *et al.* 2013). In speaking of one particular community, a health provider noted that the community was very poor, and poverty only allows women to focus on how to get their children fed (Maar *et al.* 2013).

In addition, Withrow and colleagues (2014), using five years of Ontario CCHS data on cancer risk factors and screening for Indigenous people, found that these populations were typically younger, had less education, lower income and were more likely to live in a rural setting compared to their non-Indigenous counterparts. Maar *et al.* (2013) found in comparison to formally educated Indigenous women, Indigenous community members with low health literacy and a lack of awareness of the importance of cervical cancer screening were unlikely to undergo Pap test screening. Illustrating this intersectionality, Maar *et al.* (2013) state that the women who were formally educated and frequently participated in preventive screening measures were typically of higher socioeconomic status and better able to make their health a priority. In addition, many Indigenous women nearing the end of their childbearing years did not think cervical cancer screening was necessary due to the fact that they were in a monogamous relationship or were no longer sexually active (Maar *et al.* 2013).

Social and Community Context

Cultural Barriers Grounded in Colonialism.

Indigenous people in Canada share historical traumas rooted in colonialism, geographic displacement and resource appropriation that hinders this population's accessibility to healthcare services (Cole *et al.* 2021). Through participatory action research, health care providers in Northwestern Ontario explain that past governmental assimilation policies and initiatives, including residential schools and enfranchisement, continue to contribute to vast mistrust by some Indigenous people toward Canadian institutions, including the health care system (Maar *et al.* 2013). In addition to mistrust, policy and legislation due to colonization has been shown to create challenges for Indigenous people in achieving equitable access to resources for health and

wellness, including cancer prevention and treatment, and health service utilization (McGahan *et al.* 2017).

Indigenous and postcolonial health analysts have advocated for closer attention to the historical effects of colonialism for the Indigenous population, and how these effects further influence and intersect with the social determinants of health (Wakewich *et al.* 2016). Tobias *et al.* (2020) indicate that previous experience with racism in healthcare caused apprehension and anxiety regarding further engagement with the healthcare system with their key informants, including possible hesitancy to participate in preventive cancer screening. When the effects of colonialism coincide with geographic, educational and socioeconomic barriers, accessing services related to preventive medicine becomes more difficult (Wakewich *et al.* 2015).

Stigmatization Associated with Sexual Abuse.

Another unfortunate legacy of colonialism and residential schools are the high rates of sexual abuse in Indigenous communities, as well as the resulting emotions of shame and shyness surrounding female sexuality (Maar *et al.* 2013). It is important to note that Canadian government assimilation policies and initiatives, like the residential school system, affect not only those who were directly involved, but creates generational trauma associated with sexual and reproductive health that is still experienced today. In the early 1970s, nearly 25% of all FN women were sterilized without their consent, and on some reservations, the rate of sterilization reached up to 80% (Morgan & Wabie 2012). Sterilization and induced contraceptive practices still continued into the 2000s through the use of Depo-Provera and the recently discontinued Norplant synthetic hormonal contraceptives (Morgan & Wabie 2012; Porter 2015). According to Morgan and Wabie (2012), as long as colonial governments engage in these acts against

Indigenous women, distrust in sexual and reproductive health care systems as well as in health care providers will continue, ultimately hindering the uptake of preventive services.

Health and Health Care

Lack of Appropriate Health Care Providers.

Facilitating a trusting provider-patient relationship is essential to provide optimal patient care, however, as outlined in the previous section, cultural barriers and colonialism have played a major role in systematic distrust and poor uptake in services for Indigenous women. In addition to distrust, physician shortage and maldistribution in Canada adds to this burden, especially in geographically isolated locations like the rural north. From data collected in a 2004 Nunavik Health Survey, Cerigo *et al.* (2013) found that approximately 41% of Inuit women who had reported having a Pap smear two or more years prior to the survey reported that cervical cancer screening was not offered by their family physicians. This study may highlight the importance of the relationship between women and their primary care providers in accessing health care services, especially because some women may only access health care from a community health centre. Additionally, Maar *et al.* (2013) found several complications relating to health care providers, including the shortage of health care providers who are trained to perform Pap smear tests for cervical cancer screening in rural areas, as well as a vast majority of health care providers being non-Indigenous or male; turnover rates in health care staff are also relatively high in rural areas.

Turnover rates and male providers may exacerbate existing barriers for Indigenous populations in accessing sexual health care services. During semi-structured interviews, Maar *et al.* (2013) found many women indicated that they would be apprehensive if they had a different

health care provider each time they underwent cervical cancer screening. It was suggested that women who have had regular Pap tests in the past may reduce the uptake of the service or stop altogether if there was a turnover in providers (Maar *et al.* 2013). Furthermore, many participants indicated that First Nations women are shy about their bodies during medical examinations and were not comfortable with pelvic examinations performed by male providers (Maar *et al.* 2013). Similarly, although Cerigo *et al.* (2013) were unable to assess gender ratios of providers in Indigenous communities, the presence of male providers may explain their findings surrounding the delay in screening uptake in some women. Previous studies have shown that Inuit women have a strong preference for female over male providers for preventive screening (Cerigo *et al.* 2013).

Barriers Experienced by Visible Minority Populations

Economic Stability

Socioeconomic Status.

Much like what was identified for the Indigenous population in Canada, possible barriers for Visible Minority populations in accessing Pap smear tests and mammography include: socioeconomic barriers, lack of education and understanding, a shortage of appropriate healthcare providers, lack of cultural appropriateness and communication barriers. A population-based study conducted in Ontario by Vahabi *et al.* (2015) found that new immigrants (≤ 5 years in Canada) in their cohort had the highest proportion of women who resided in the lowest two neighbourhood income quintiles. Low socioeconomic status and living in low-income neighbourhoods were identified as major indicators of low breast screening among immigrant women (Ferdous *et al.* 2020). In addition, Ferdous *et al.* (2020) found that many immigrant women are paid hourly wages for employment, making it difficult to attend screening centres

due to loss of time and money. Using the CCHS to identify predictors of mammogram and Pap smear use, and using logistic regression, Abdel-Rahman (2021) reported that participants were more likely to not have a timely mammogram or Pap smear test if they had an annual income of less than \$20,000 CAD. In line with this, a study looking at Canadian cancer screening disparities from 2005 to 2012 suggests that income has a large effect on preventive screening use. Kerner *et al.*(2015) indicate that mammography screening rates amongst the highest income quintile rose from 75% to 80% over the seven-year period, whereas rates in the lowest income quintile decreased from 65% to 62%, suggesting a disparity (18% at the end of the 7-year period) in the prevalence of mammography screening between the highest and lowest income quintile. Similarly, Pap smear tests were between 16% and 18% lower among women in the lowest income quintile compared to women in the highest income quintile (Kerner *et al.* 2015).

In a study concerning cervical cancer screening in Montreal, Datta *et al.* (2018) makes note of possible limitations to their study, indicating that women tend to over-report the receipt of cervical cancer screening within a given time frame, and 74.3% of women who claim having a timely screening may be an overestimate of the actual screening rates. Elaborating on this limitation, Datta *et al.* (2018) state that the tendency to over-report is more pronounced among women from lower-income and Visible Minority ethnic backgrounds, which may distort the data and provide an underestimation of the magnitude of existing inequities within preventive medicine.

Education

Educational Attainment.

Further barriers for Visible Minority women (especially those of new immigrant status) may include lack of education and understanding surrounding preventive medicine and the Canadian healthcare system, including access to services, the process of finding a family physician and navigating the referral process (Vahabi & Lofters 2016). Using focus groups, Vahabi and Lofters (2016) found that Muslim immigrant women were cognizant of the universal healthcare system in Canada, however were unaware of the services that were available or how to access them. In addition, some Muslim women commented on the confusion surrounding specialist referral, indicating that the fee-for-service healthcare model in their home country made self-referral possible (Vahabi & Lofters 2016). Furthermore, in a qualitative study analyzing perceived barriers to breast cancer screening among Asian immigrant populations in Canada, themes for main barriers were derived from selected studies relying on reports from patients, healthcare providers, and stakeholders. In this study, Ferdous *et al.* (2020) found that education surrounding preventive screening was a significant barrier amongst health care providers, stakeholders and patients, with patients stating they did not think it was necessary to screen for breast cancer in the absence of symptoms. Racine *et al.* (2021) found that Visible Minority women were more likely to have a mammogram if they were more formally educated and knowledgeable about breast cancer screening and risk factors. Some studies show that never having a Pap test is significantly associated with having less than a post-secondary education, and not having a time-appropriate Pap test, significantly associated with having only some secondary school education (Amankwah *et al.* 2009; Schoueri-Mychasiw & McDonald 2013)

Many immigrant women do not seek out medical services unless symptoms present themselves, making the concept of preventive screening for cancer unfamiliar to a large proportion of women (Vahabi *et al.* 2015). Through participatory action research, Crawford *et al.* (2015) illustrates the importance of decreasing the knowledge gap surrounding breast cancer screening for Visible Minority women, using a peer health educator program to provide information surrounding breast health. Participants showed a greater understanding of the importance of screening for breast cancer and developing awareness of prevention when exposed to the program; participants also urged the importance of sharing this information with others (Crawford, et al., 2015).

Health and Health Care

Lack of Appropriate Health Care Provider.

A Canada-wide study (Crawford et al., 2015) conducted on immigrant and Visible Minority women's perspectives on mammography stressed the importance of family physicians in promoting preventive medicine. Crawford and colleagues (2015) found that Visible Minority women viewed their family physicians as having responsibility for providing information about breast cancer screening, and would be more inclined to participate in screening if it was recommended by their family physician. Similar to these findings, Vahabi *et al.* (2015) found that frequent contact with the health care system and having regular physical health checkups significantly increased screening participation rates. More contact provides ample opportunity for providers to educate and inform women of the benefits of screening and the potential risks of time-inappropriate screening (Vahabi *et al.* 2015). In a study conducted by Sun *et al.* (2010), non-immigrant women were less likely to have had a mammogram if they had no physician

contact within the previous 12-month period. In further illustration, Amankwah *et al.*, (2009) found that among Visible Minority women in Canada, those who did not have a regular physician had the highest risk for not having a Pap smear. Among women who did have a family physician, Crawford *et al.* (2015) discovered that women were often reluctant to discuss female reproductive health issues when they encountered a male physician, and some physicians did not offer to provide preventive screening assessments for information, further exacerbating accessibility barriers.

Social and Community Context

Culture and Communication.

Cultural and linguistic factors appear to play a role in how women perceive and respond to cancer, as well as how they access services related to cancer screening and sexual health. Research shows that cultural beliefs can shape cancer perspectives and influence lifelong health promotion and preventive strategies (Racine *et al.* 2021). A study by Vahabi and Lofters (2016) examined Muslim women's views on cervical cancer screening and HPV self-sampling, and the importance of culture in shaping screening decisions and overall healthcare experiences. Vahabi and Lofters (2016) found that women had difficulty explaining complex and sensitive healthcare issues relating to female reproductive organs, and felt that sharing a similar cultural background as their physician would allow for easier conversation on women's health topics (Vahabi & Lofters, 2016).

A study examining breast cancer screening in Muslim Syrian refugee women illustrated the importance of religion and culture in determining mammography use (Racine, et al., 2021). The authors found that ethnocultural minority women were more likely to have a clinical breast

examination if they had relatively fewer or weaker religious beliefs, whereas women with strong religious beliefs were less likely to have a mammogram. Furthermore, social stigmatization influenced by differing cultural and religious beliefs may be a major barrier to breast cancer screening for Visible Minority women (Ferdous *et al.* 2020). Ferdous *et al.* (2020) found that the Canadian healthcare system failed to respect or accommodate cultural and traditional concepts of healthcare among the Visible Minority population, limiting accessibility to services for many women. Furthermore, healthcare providers have reported difficulty in discussing and performing breast cancer screening with Visible Minority patients due to the patients' cultural beliefs; providers often avoided the topic of screening due to issues surrounding modesty and cultural sensitivity (Ferdous *et al.* 2020).

Communication and English-language proficiency is another barrier to accessing screening. Language diversities in the Visible Minority population reduce women's ability to communicate effectively with their primary care provider, while hindering the ability of the physician to communicate effectively with their patients (Ferdous *et al.* 2020). In a study on Muslim women's views on cervical cancer screening in Ontario, women discussed both individual and structural barriers in accessing services, including language and ethnic mismatch encounters (Vahabi & Lofters 2016). In addition, English-language proficiency also obstructs the level of exposure of information surrounding cancer screening, and limited access to translated material may discourage women from taking part in screening (Ferdous *et al.* 2020).

Possible Interventions to Improve Uptake

Access to health care services is often seen as an attribute of services and determined by factors including the availability, price and quality of healthcare resources and services

(Levesque *et al.*, 2013). Levesque *et al.* (2013) proposed a more comprehensive model on how access should include structural features of the healthcare system, features of individuals, as well as process features that pertain to the five dimensions of access to care, including approachability, acceptability, availability and accommodation, affordability, and appropriateness. This proposed model illustrated in Figure 2 has five corresponding abilities of populations, including the ability to perceive, ability to seek, ability to reach, ability to pay and the ability to engage that interact with the dimensions of accessibility to achieve access (Adams *et al.*, 2021). In this conceptual framework, acceptability relates to cultural and social factors suggesting personal and social values, as well as culture and autonomy that should be highlighted during care that determine how people will accept the service being offered (Levesque *et al.*, 2013). Approachability relates to people requiring health services being able to identify that services exist and can be accessed; various factors including information, outreach initiatives and transparency affects the approachability of a health service (Levesque *et al.* 2013). Availability and accommodation refer to how health services can be reached both physically and in a timely fashion, emphasizing the importance of geographic location, transportation and social support (Levesque, et al., 2013). Affordability refers to the financial capacity in regard to both the time and resources spent by individuals in accessing the appropriate services (Levesque, et al., 2013). Finally, Levesque and colleagues (2013) include appropriateness, referring to the assessment, treatment and quality of services provided.

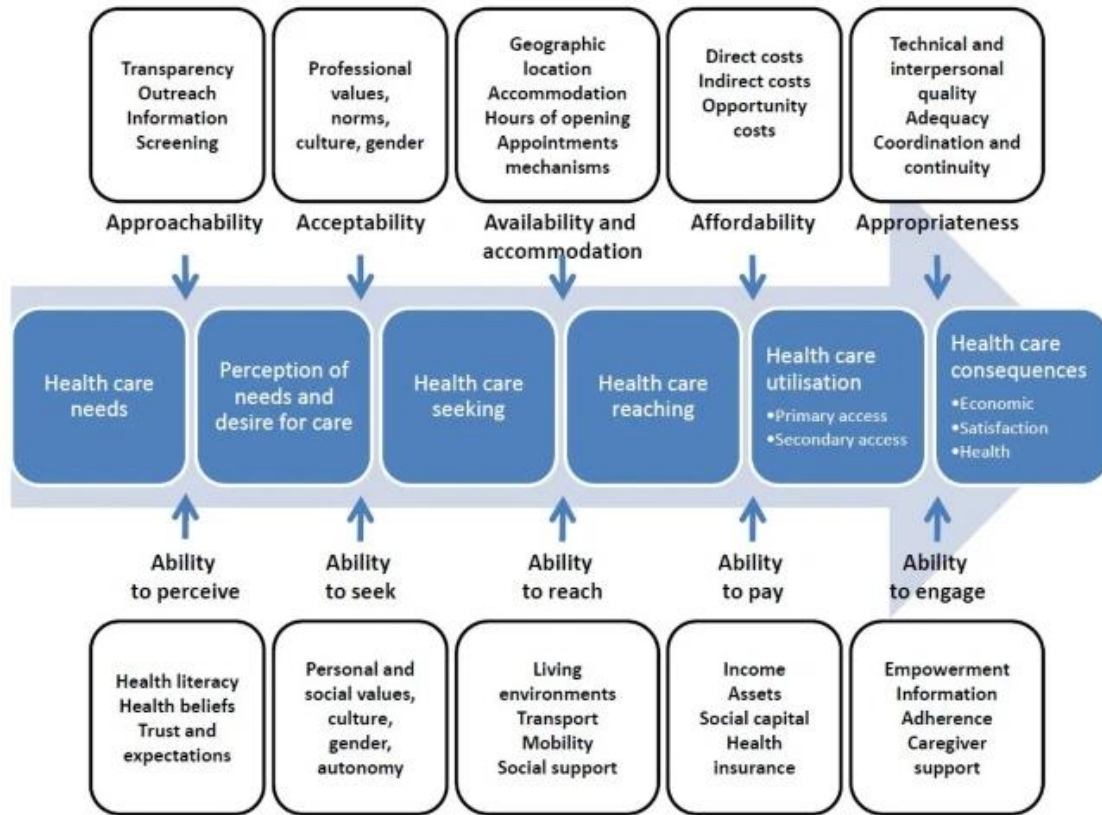


Figure 2. Conceptual framework for the access to healthcare (Levesque *et al.*, 2013)

By incorporating the Five Dimensions of Accessibility of Healthcare Services Framework (Levesque, et al., 2013) with the Commissions of Social Determinants of Health Framework (World Health Organization 2010) that guided the review of the literature for the current paper, possible interventions and recommendations can be proposed to improve the uptake of screening amongst Indigenous and Visible Minority women across Canada. Through thematic analysis of the literature, the generalized themes suggested to improve uptake of Pap smears and mammography and decrease barriers to access included: Acceptability, Appropriateness, Approachability and Availability and Accommodation. Within these themes, the concepts developed included: empowering women and promoting autonomy, ensuring

cultural and linguistic appropriateness, improving physician retention, and increased community partnerships.

Appropriateness & Acceptability

Empowering Women and Promoting Autonomy.

Empowering women and promoting autonomy within the healthcare system has the potential to increase the uptake in both cervical cancer and breast cancer screening programs in Canada. Focusing on the Approachability, Acceptability and Appropriateness factors of the five dimensions of access to healthcare, Levesque, et al. (2013) emphasize the importance of health literacy, trust, culture and autonomy, as well as empowerment in order to optimize access to healthcare. Empowering women to be advocates about their health and take part in preventive health initiatives requires knowledge and education about the benefits of mammography and Pap screening. Personal autonomy within the healthcare system allows patients to have the capacity to seek care, have knowledge about all options pertaining to their care, and the right to express their intentions to receive appropriate health care (Levesque *et al.*, 2013). Human Papillomavirus (HPV) self-sampling and breast self-examination (BSE) promotes autonomy and empowerment, as well as provides culturally sensitive alternatives to invasive standard-of-care Pap testing and mammography.

Two tests can be used for primary cervical cancer screening: the Papanicolaou (Pap) and the HPV DNA test. The Pap test detects morphological changes indicative of invasive or precursor lesions by collecting cells from the cervix, and has a 51% – 70% sensitivity rate in detecting high-grade lesions (Maar *et al.* 2016). The HPV DNA test detects the presence of HPV responsible for the development of genital warts, abnormal cell growth and cervical cancer. The HPV DNA test has a sensitivity of more than 95%, a high negative predictive value and a

specificity of more than 90% for detecting high-grade lesions in women aged 30 years and older, allowing for an overall greater sensitivity than traditional Pap tests for detecting lesions classified as cervical dysplasia grade 2 or higher (Maar *et al.* 2016; Zehbe *et al.* 2016). The HPV test can be performed via self-collection, enabling privacy and adding alternatives to cervical cancer screening that promotes cultural sensitivity (Maar *et al.* 2013; Maar *et al.* 2016; Datta *et al.* 2017; Zehbe *et al.* 2016).

Although the HPV method may positively influence screening participation rates in under-screened populations by privately and conveniently administering the test at home, self-collection via HPV testing is not the standard of care in Canada (Maar *et al.* 2016). HPV self-sampling is not currently covered by provincial plans, making women who use this service pay out of pocket, which may further the gap in accessibility for Indigenous and Visible Minority women (Maar *et al.* 2013; Fedyanova 2018). Furthermore, a study performed by Zehbe *et al.* (2016) showed that although HPV self-sampling is less accurate than Pap testing performed by a physician, DNA integrity from the samples were 96.3% adequate for analysis, and 19.2% of women tested positive for high-risk HPV associated with dysplasia. DNA integrity is thus an important factor to consider when promoting the Human Papillomavirus DNA screening method as an alternative for underserved populations.

Illustrating the need for improved cervical cancer screening in Canada, the Anishinaabek Cervical Cancer Screening Study conducted in Northwestern Ontario revealed that up to 90% of women would prefer self-sampling over regular Pap testing (Wakewich *et al.* 2015). Members of the focus groups comprised of Indigenous community members for this pilot project discussed how this alternative method for cervical cancer screening allowed for more control over the privacy and comfort of the procedure, indicating that it would be a feasible alternative

(Wakewich *et al.* 2015; Zehbe *et al.* 2015). Similarly, a pilot study in Toronto, Ontario found that HPV self-sampling provided a form of preventive care that was tailored to cultural sensitivity surrounding sexuality and sexual activity for Visible Minority women. Focus groups exploring Muslim immigrant women's knowledge, beliefs and attitudes towards cervical cancer and screening, and the cultural relevance, appropriateness and acceptability of self-sampling for HPV illustrated that premarital sex in some Muslim communities is a cultural taboo with severe consequences, making some women reluctant to be screened for cervical cancer (Vahabi & Lofters 2016). However, participants noted that HPV self-sampling allows sexually active unmarried Muslim women to be screened for cervical cancer without their family's knowledge, reaching a larger population by breaking down possible access issues due to cultural barriers surrounding sexuality and sexual activity (Vahabi & Lofters 2016).

Encouraging regular BSE also allows women to keep track of potential changes in breast tissue with privacy. Racine *et al.* (2021) found that Muslim refugee women were more likely to perform BSE if they were aware of breast cancer screening and risk factors. In their study, Muslim women who performed BSE were more likely to undergo mammograms (Racine *et al.* 2021), indicating that promoting BSE in these populations could have the potential to empower women to seek screening. Overall, HPV self-sampling and BSE offer favourable alternative methods to preventive care with the potential to empower women and influence behavioural changes, which can lead to increased participation in screening for vulnerable populations (Vahabi & Lofters 2016).

Approachability & Acceptability

Cultural and Linguistic Appropriateness

Improving screening programs across Canada requires a multifaceted and interdisciplinary approach from policy developers, public health officials, health care providers, and patients (Decker *et al.* 2014). According to the five-dimensions of access to healthcare, the ability to seek healthcare relates to the concepts of autonomy, capacity to choose care, knowledge about options, and individual rights (Levesque, et al., 2013). Using the framework, culturally and linguistically appropriate initiatives should be considered when improving screening, including appropriate education and training, inclusion of community members and organizations, as well as providing a culturally safe space for all persons. Recommendations have been made for health practices to incorporate holistic solutions rooted in traditional cultural practices and understandings with respect to health and wellness (Bourassa *et al.*, 2005), however, cultural barriers continue to persist for both Indigenous and Visible Minority women in Canada.

Barriers associated with low-educational attainment and lack of knowledge surrounding the benefits of screening can be mitigated through appropriate education relating to sexual health, screening and immunization in Canada for both Indigenous and Visible Minority communities (Maar *et al.* 2013). In many developing countries, the concept of preventive care and early detection is alien (Vahabi *et al.* 2015). Vahabi and Lofters (2016) found that Muslim immigrant women's views on cervical cancer screening showed an overall perceived lack of cure or treatment relating to the disease, and lack of awareness surrounding cervical cancer screening. In the same qualitative study, women expressed the importance of receiving information from their physicians regarding the uptake of cancer screening in Canada (Vahabi & Lofters 2016).

Similarly, Indigenous communities require culturally appropriate education to raise awareness on regular screening and the prevention of cervical cancer (Demers *et al.* 2012; Maar *et al.* 2013; Zehbe *et al.* 2018).

In addition, incorporating cultural awareness training for providers within the medical education curricula and through continued education may mitigate barriers associated with differences in culture and historical trauma (Ferdous *et al.* 2020). For example, to illustrate the Appropriateness factor in the Five Dimension model, the ‘Healthy Immigrant Effect’ suggests that recent immigrants are healthier than Canadian-born citizens; studies have shown that because of this supposed phenomenon, physicians often fail to recommend preventive screening in this population, illustrating poor quality of service and assessment (Constant *et al.* 2015). Health care providers and health education should recognize this bias in order to provide optimal preventive care to all persons regardless of immigration status or race/ethnicity. Furthermore, establishing a trusting relationship with healthcare providers is essential for vulnerable populations. Using questionnaires and focus groups, Vahabi and Lofters (2016) found that immigrant women considered physicians as trustworthy and authoritative, whose recommendations they would adhere to, and if a test was not recommended it was perceived as not necessary by the patient. This study emphasized the need for increased attention to improving patient-physician relationships, as well as ensuring appropriate cultural education for healthcare providers regardless of the “Healthy Immigrant” ideology. Analogously, Maar *et al.* (2013) recognize the effects of Canadian government assimilation policies and how they have contributed to power imbalances resulting in the lack of access to health information and healthcare services.

These cultural and education barriers could be further alleviated through the use of culturally sensitive intervention programs involving community members and organizations who can be trained to participate in outreach work and facilitate communication on health care issues, highlighting the importance of mammography and Pap screening (Amankwah *et al.*, 2009). For example, Adams and colleagues (2021) illustrate the importance of cultural sensitivity in the success of a mobile mammography unit visiting the northern Indigenous community of Pelican Narrows in Saskatchewan. Approximately 50% of all eligible women in the community were screened, including women who had never had a prior mammogram. The considered success of the work was attributed to cultural sensitivity during the screening period, including a community feast and snacks to celebrate women's health, and a video titled *Nanakatawithimiso*, meaning "take care of yourself" in the Cree language (Adams *et al.*, 2021). This video showed First Nations women talking about the importance of regular mammograms and Pap smear tests (Adams *et al.*, 2021).

Another approach to improving cultural and linguistic appropriateness mentioned in the literature used in this review was the use of peer health educators, navigators and interpreters. Crawford *et al.* (2015) indicated that the use of peer health educators who share the same culture and ethnicity creates ease and comfortability for patients undergoing breast cancer screening, and provides knowledge translation in a culturally sensitive manner. Similar approaches proposed by Kerner *et al.* (2015) to mitigate cancer screening disparities, including patient navigators and outreach workers, can help overcome language and cultural barriers between healthcare professionals and patients. Language proficiency has been shown to have a significant impact on a patient's ability to identify services, secure appointments and engage with healthcare providers (Pandey *et al.* 2021). Although there are many benefits to incorporating educators, navigators

and interpreters that are culturally and linguistically appropriate into the healthcare setting to address cultural and language barriers, this may pose confidentiality and privacy issues and should therefore be cautioned (Pandey *et al.* 2021).

Availability & Accommodation

Improving Physician Retention.

A recurring theme found within the literature was a lack of access to physicians, and the lack of physician retention in areas where underserved populations reside. In line with the Availability and Accommodation of services set out in the accessibility of healthcare framework, access is restricted if available resources are distributed unevenly across the country or across levels of care (Levesque *et al.*, 2013). Canada's healthcare system is provincially regulated, varying in screening strategies across territories and provinces. This becomes problematic when some screening programs, such as those in Alberta, are offered in collaboration with family physicians, which furthers the gap for those who lack a family physician (Amankwah *et al.*, 2009). Amankwah *et al.* (2009) offer a potential solution for women who are unable to secure a regular practitioner by suggesting that physicians who offer services through walk-in clinics and emergency rooms are provided with culturally appropriate training and material to recommend Pap testing to minority women.

Furthermore, high rates of physician turnover and lack of retention play a major role in long wait times and insufficient physician to patient ratios, which often leaves patients without a family healthcare provider (Cerigo *et al.*, 2013; Maar *et al.* 2016; Amankwah *et al.* 2009; Datta *et al.* 2018; Vahabi and Lofters 2016). For cervical cancer screening, Maar *et al.* (2013) have indicated that a shortage of healthcare providers who are trained in providing Pap smear tests

acts as a barrier to screening in rural areas, drastically impacting Indigenous communities. In the same study, provider interviewers stressed the importance of a trusting relationship between the patient and the provider, stating that physician turnover may hinder the development of trusting relationships, which may prevent patients from seeking regular screening (Maar *et al.* 2013). Further stressing this factor, Amankwah, et al., (2009) found that the highest risk group in their analysis for never having a Pap test was Visible Minority women who have resided in Canada for over 10 years and have not acquired a regular physician. Datta *et al.* (2018) suggests expanding training to non-physicians to conduct screening in order to reduce the burden on providers and improve access to services for patients. This could also reduce wait times for screening services and improve time-appropriate follow-up appointments. In rural and northern regions where physician turnover may be amplified, telehealth and itinerant screening clinics offer promise in reducing some barriers to preventive medicine (Kerner *et al.* 2015).

Increased Collaboration Between Communities and Providers

Another possible initiative found throughout the literature to improve low screening rates amongst vulnerable populations, is to increase collaboration between community partners, providers and patients to provide these services. The idea of interprofessional collaboration for health promotion is not a new concept in medicine, however, barriers persist despite such collaborative efforts amongst healthcare professionals. Analysing Pap test use and cervical cancer incidence of First Nations women living in Manitoba, Decker *et al.* (2016) indicated that their results emphasize the importance for improved collaboration with FN communities in order to reduce barriers to screening. Aligned with the concept of cultural and linguistic appropriateness, Zehbe *et al.* (2016) stated that more collaborative work between health officials

and FN communities grounded in innovative, community shaped health promotion and Indigenous knowledge translation is essential to discovering ways to reach FN women who still remain under-screened. Consistent with this, using focus groups and one-on-one semi-structured interviews with immigrant women to determine their perspectives on the promotion of breast cancer screening, Chinese immigrant women suggested expanding collaboration with other organizations who share common outreach goals (Crawford *et al.* 2015). Similarly, Vahabi and Lofters (2016) found that including Muslim women as equal partners in the decision-making process related to their health was considered to be highly important to their sample and was a potential facilitator in increasing cervical cancer screening.

Increased Education for Providers and Patients

Throughout the literature, lack of awareness has been identified as a barrier for both Visible Minority and Indigenous populations in accessing preventive screening, as well as for practitioners in providing services and education related to preventive screening (e.g. Hutchison *et al.* 2018, Vahabi & Lofters 2016, Racine *et al.* 2021). To reduce barriers associated with lack of education or understanding surrounding mammograms and Pap smears, empowering patients through culturally-specific knowledge-based education and incorporating various dissemination models that are linguistically and culturally appropriate is essential (Zehbe *et al.* 2016). In addition to patients, physicians and other healthcare providers need to play an active role in dissemination and education and understand that a trusting provider-patient relationship is fundamental in providing optimal care (Vahabi & Lofters 2016).

Through participatory action research (PAR) involving 11 First Nations communities in Northeastern Ontario, many participants indicated that cancer and screening education was the

biggest factor in facilitating a woman's decision to undergo cancer screening (Maar *et al.* 2013). According to Maar *et al.* (2013), many Indigenous participants felt disadvantaged in areas of health literacy, including specific knowledge on HPV, the use and access of health services, navigation of the healthcare system, and in cancer prevention. Different dissemination models are suggested to improve health literacy, including one-on-one consultation with female health care providers, and workshops for women only led by community partners or medically trained sources (Vahabi & Lofters 2016). In addition, the fear surrounding breast and cervical cancer has been reported to be a major hindrance to undergo cervical or breast cancer screening for immigrant women (Vahabi & Lofters 2016). In order to mitigate such fears, cancer screening information provided by healthcare professionals and community partners needs to be communicated and framed in a culturally sensitive, non-threatening manner that is clear and effective (Vahabi & Lofters 2016).

Additional information surrounding the inner workings of the Canadian and provincial healthcare systems should also be made available to immigrant and Indigenous women. In the study conducted by Vahabi and Lofters (2016), immigrant Muslim women sought medical specialists through self-referral in their respective countries, which differs greatly from the required physician referral to access specialists in Canada. To improve health literacy, migrants should be provided with information on the Canadian healthcare system upon entry, including universal coverage, delay in universal coverage upon entry, physician-required referrals, and how to acquire a family physician. Similarly, Indigenous communities should be provided with information on access and use of preventive services provided in their respective provinces to assist in navigation of the healthcare system.

Furthermore, income disparities are prominent among Visible Minority and Indigenous women compared to the remaining Canadian population (e.g. Datta *et al.* 2018, McGahan *et al.* 2017, Kerner *et al.* 2015), therefore information regarding dissemination models geared towards low-income populations was also taken into consideration for the current review. Similarly, some recommendations as outlined by Kerner *et al.* (2015) include, the development of additional education materials designed for individuals with low literacy level, increasing patient engagement to improve patients' knowledge, skills and confidence to self-manage one's health, and the use of peer navigators or health educators.

Education programs are also essential for improving awareness among health care practitioners of barriers unique to Indigenous and VM women, in order to help ameliorate them. According to Ferdous *et al.* (2020), incorporating extensive cultural competency or cultural safety training into medical curricula and continued education programs would be beneficial to help patients overcome cultural barriers and increase practitioner awareness surrounding accessibility issues. In the Vahabi and Lofters (2016) study concerning Muslim women's perspectives on cervical cancer screening, these authors illustrate poor sexual health communication amongst this population, which suggests a need for health care professional education about the sexual health needs of vulnerable populations. Moreover, it is proposed that other healthcare professionals be provided with the necessary training and resources to recommend cancer screening to their regular or new minority patients (Amankwah *et al.* 2009). By incorporating both recommendations into practice, providers will be better equipped to provide information opportunistically during encounters, refer patients to medical specialists, and notify women when they are due for annual check-ups (Vahabi & Lofters 2016), which could

increase screening among Indigenous and Visible Minority women, while reducing health disparities.

Discussion

Despite the prominence of screening programs in most provinces and territories, breast and cervical cancer remain a serious problem for Canadians, accounting for 13% and 1.1% of cancer deaths in women, respectively (Public Health Agency of Canada 2019). These statistics are further exacerbated for women who identify as Indigenous, or for ethnic/racial minorities; and differ depending on the social determinants of health and their intersectionality.

This review sought to identify differences in both breast and cervical cancer incidence for Indigenous and Visible Minority women, barriers associated with the uptake of preventive screening, and possible recommendations to increase screening rates amongst these populations in Canada. Literature focused on the current review objectives for the populations were found for four of the 13 provinces and territories in Canada, and the remaining literature concerned Canada as a whole. Overall, literature was scarce in the areas of interest. Most literature noted the difference in cancer incidence rates between either immigrant, VM or Indigenous women compared to Canadian-born White women, however, failed to note the *why* and possible ways in which these discrepancies can be mitigated. In the United States, data has shown that racial and ethnic minority groups experience higher rates of illness, death, and have a lower life expectancy compared to White Americans (Centers for Disease Control and Prevention 2021). Unlike the U.S., there are few Canadian studies that look at preventive healthcare and cancer inequities on a racial level. The American Cancer Society published various reports in the early 1980s identifying disparities in cancer burden and also identified socioeconomic characteristics, including poverty, lack of education, and lack of insurance that play a role in amplifying cancer

disparities based on race and ethnicity (Ward *et al.* 2004). In Canada, recent trends surfaced concerning the disproportionate effect of COVID-19 on different ethnic and racial groups, that when combined with other factors like low socioeconomic status, rurality and education, exacerbated the negative effects of the pandemic for these individuals. This revealed the health disparities experienced by racial and ethnic minority populations in a Canadian context and illustrated the dire need for ethnic – and race – based data in health research.

Contrary to the United States, Canada has a provincially-regulated, universal healthcare system in which health services are accessible for all persons, regardless of socioeconomic status. In Canada, 12 out of 13 provinces and territories have a breast cancer screening program that is regulated by provincial health plans, with Nunavut being the least populous territory in Canada and the only region without a screening program in place (Canadian Cancer Society 2014). Despite the presence of these preventive screening programs and the universality of healthcare in Canada, Indigenous and Visible Minority women tend to have a higher incidence of breast cancer, later stage at diagnosis, and a lower rate of uptake in mammography use as compared to the rest of the Canadian population.

Both breast and cervical cancer incidence rates differed in each study examined depending on geographic region, cancer type, race and ethnicity, as well as study methods. In a study concerning British Columbia residents (McGahan *et al.* 2017), there was no difference in incidence of breast cancer between Indigenous and non-Indigenous women, whereas incidence and mortality rates have been steadily increasing in Manitoba for First Nations women compared to all other Manitoban women (Decker *et al.* 2016). For cervical cancer however, the British Columbia age-standardized incidence rates continue to rise for Indigenous women, whereas non-Indigenous women's rates remained constant over time (McGahan *et al.* 2017). Similarly,

survival deficits and stage at diagnosis were found to be different in Ontario, with more First Nations women being diagnosed with breast cancer at a later stage and having a survival deficit of 10 to 20 points higher compared to non-Indigenous Ontarian women (Withrow *et al.* 2020). Comparable trends exist throughout the literature for Visible Minority women as well, indicating that recent immigrants and women from minority ethnic backgrounds have higher cancer incidence compared to White women in Canada. For example, immigrant women in Ontario have been more likely than Canadian-born women to be diagnosed with late-stage breast cancer, but less likely to undergo mammography screening (Iqbal *et al.* 2017). Geographical variation in health status however, is not a new phenomenon. The Canadian Cancer Statistics report of 2019 indicates that cancer incidence differs across the country, with Ontario and Manitoba having a higher incidence rate than British Columbia, and the Maritime provinces having comparable rates to Ontario (Canadian Cancer Society 2019). Similar trends can be found across other countries (e.g. Fillha *et al.* 2016) and are typically attributed to resource allocation and environmental factors.

The barriers to accessing mammograms and Pap smears in the current review are rooted in the WHO Social Determinants of Health (CSDH) framework (World Health Organization 2010). When race and other provisions of the social determinants of health, including socioeconomic status, geography and education overlap in nature, access to preventive services and overall health status appear to decrease. To elucidate this, in a study analyzing the uptake of mammograms for Indigenous women living on reserve compared to Indigenous women and non-Indigenous women living off reserve, women living on reserve had low mammogram uptake compared to those living off reserve. Maar *et al.* (2013) and Withrow *et al.* (2016) offer an explanation for this, indicating that FN people are more likely than non-Indigenous people to fall

within the lowest income quintile, live in rural regions, and live in poverty. Many on-reserve families in the study explained their perception that these factors have a negative effect on their overall health (Maar *et al.* 2013). Similarly, Vahabi *et al.* (2015) found that recent immigrant women in their cohort had the highest proportion of women living in the lowest neighbourhood income quintiles. Ferdous *et al.* (2020) further explains that for these Visible Minority populations, low socioeconomic status and living in low-income neighbourhoods were major predictors of low mammography uptake.

In this literature review, race has been identified as a predictor for both cervical and breast cancer incidence, screening access and uptake. According to the Canadian Institute for Health Information (2022), the reporting of race-based and Indigenous data is essential for measuring health inequities and identifying disparities that stem from racism, bias or discrimination. The collection and dissemination of this data can help inform and design systemic changes to improve healthcare for marginalized populations. However, Canadian census reports generally fail to address demographic specificities regarding race and ethnicity, making it difficult to understand the depths of health disparities. Further research and data collection is required to get a good understanding of the depth of cancer disparities within ethnic and racial groups in Canada, with a focus on Indigenous and Visible Minority women. More research and race-based data collection will be beneficial in discovering and mitigating barriers to healthcare services and reducing the health disparities experienced by these populations.

The final portion of this review sought to illustrate possible interventions to improve the uptake of preventive screening for Indigenous and Visible Minority women in Canada. Using the Five Dimensions of Accessibility of Healthcare Services (Levesque *et al.* 2013), recommendations were categorized according to approachability, acceptability, availability and

accommodation, affordability and appropriateness. A key recommendation that was suggested throughout the literature was the use of HPV self-sampling to empower women and deliver an alternative to accessible services (e.g. Serrano et al., 2022), and the use of culturally appropriate initiatives to encourage both mammography and cervical cancer screening (e.g. Kreuter, 2003).

HPV self-sampling is not a new concept for cervical cancer screening. There is an increasing body of evidence that supports the use of self-sampling methods for cervical cancer screening, particularly in underscreened and hard-to-reach women. In their publication, Serrano *et al.* (2022) illustrate the different methods of cervical cancer screening worldwide, with 17 countries recommending the use of the HPV self-screening technique. Of these countries, eight of them located in northern Europe, South America and Asia, recommend self-screening as a way of reaching their underserved populations, and the remaining nine located in southern Europe, Africa and Central America, recommend self-sampling as the primary screening technique (Serrano *et al.* 2022). In an Australian study, Sultana *et al.* (2016) found an increase in participation rate when self-screening was offered compared to invitation or reminders for regular Pap screening. Many other international studies illustrate a range in uptake of HPV self-sampling, from 10% uptake in the United Kingdom to 39% in the Netherlands (Decker *et al.* 2014). In addition to improving screening uptake, HPV self-sampling has adequate DNA integrity to detect HPV. Despite self-sampling kits being available in Canada, they are currently not covered by provincial government health plans (Maar *et al.* 2013), creating an inaccessibility to those already underserved and hard-to-reach women. Improving cervical cancer screening should include incorporating self-sampling methods into provincial screening programs to better reach these populations.

Cultural appropriateness and cultural competency were other themes identified in the literature review. Recommendations for both Indigenous and Visible Minority women encouraged the idea of cultural training for physicians and other healthcare providers, as well as incorporating culturally specific programs and initiatives to increase screening participation. For example, Kreuter *et al.* (2003) demonstrate five strategies to make health programs and materials more culturally appropriate: peripheral, evidential, linguistic, constituent-evolving and sociocultural. Peripheral strategies to enhance cultural appropriateness include giving the appearance of materials or programs in culturally appropriate packaging that conveys relevance to the target audience (Kreuter *et al.* 2003). Evidential strategies seek to enhance and enlighten the group of the importance of the health issue, the programming and the material on the group of interest, including statements to raise awareness of the particular health issue (Kreuter *et al.* 2003).

In the current literature review, the main items discussed in terms of cultural appropriateness and competency relate to Kreuter's last three strategies. Linguistic strategies to improve cultural appropriateness are rooted in the power of effective communication (Kreuter *et al.* 2003). This includes relaying information about programming and educational material in the target group's native language. Kreuter *et al.* (2003) warn their readers, however, that incorporating linguistic strategies alone could give patients the idea that access has been enhanced, while, in fact, cultural appropriateness within the program has not. Constituent-evolving strategies look to incorporate lived experiences within the healthcare program (Kreuter *et al.* 2003). For example, the use or suggested use of peer navigators and peer educators of the same culture as the target population for mammography and Pap screening was very prominent in the literature (e.g. Crawford *et al.* 2015; Kerner *et al.* 2015; Ahmad *et al.* 2016), referring to

the current benefit and wide-use of constituent-evolving strategies. Finally, sociocultural strategies look to define the health-related issue in a broad social or cultural context that incorporates the target population's values and beliefs (Kreuger *et al.* 2003).

Cultural safety training was another key theme illustrated throughout this narrative review. Cultural competency training for healthcare professionals not only benefits the patient in feeling more comfortable and respected, but can also help the provider feel more confident in delivering information to the patient (Tobias *et al.* 2020; Ferdous *et al.* 2020; Kerner *et al.* 2015). A literature review conducted by Beach *et al.* (2005) illustrates the benefits of cultural competence training for health care providers, indicating a beneficial effect for provider knowledge, skills and attitudes. Beach *et al.* (2005) noted that patients rated their providers as more trustworthy and empathetic, and indicated that they felt their physicians saw them as individual people after the intervention of competence training. Similarly, Ferdous *et al.* (2020) states that by incorporating cultural competency training into both medical and continuing education curricula, health care providers will be better prepared for practice and help immigrant women overcome cultural barriers.

Strengths of the Review

This review enabled the identification of barriers relating to preventive medicine for racial and ethnic minority women in Canada, and enhances understanding for breast and cervical cancer screening services in particular. By understanding the commonalities between Indigenous and Visible Minority populations in terms of rates and screening uptake, the review presents generalized interventions that can be further specified for Indigenous and Visible Minority women to potentially inform health policy tailored to enhancing accessibility to breast and

cervical cancer screening services. This study also takes the provincialized healthcare system into consideration when identifying disparities and offering possible interventions to improve overall health equity.

Limitations of the Review

The current review fails to specify differences in incidence, barriers and recommendations within different ethnic/racial populations of women, leaving it to the audience to use generalizations to inform best practices. For example, not all immigrant women in a study may be Visible Minorities, thus it is possible that there are differences in rates amongst individual groups of immigrant women. Moreover, Canada relies on the Federal Indian Registry to denote Indigenous status, therefore not all Indigenous women are considered in this review, which may alter trends and key findings (Demers *et al.* 2015). This also affects studies where Indigenous populations were compared to ‘all other women’, signifying that non-registered Indigenous women may be included in this population. Although race-based data have become increasingly important due to evidence of racialized communities having experienced disproportionate health outcomes internationally and across Canada, Canadian information systems infrequently report sociodemographic characteristics other than age and sex (CIHI 2020). This makes it difficult for researchers to report on specific racial inequalities within the healthcare system and have to defer to aggregating racial groups. In addition, literature that covered Canada as a whole was relatively broad, and only four of 13 provinces and territories have set forth literature concerning the review topic. Therefore, the current review may not be appropriately representative of all of Canada due to a lack of studies from the remaining provinces and territories. Furthermore, some of the publications used in this review were written

by the same authors. Out of 34 studies, 11 were written by six different authors and co-authors whose publications were also used in the review. This could have potentially created bias or skewed the results of this review.

Conclusion

This narrative review sought to answer the following questions: (1) what is the incidence of breast and cervical cancer in Indigenous and Visible Minority women in Canada compared to other Canadian women? (2) what are the barriers to accessing preventive screening for breast and cervical cancer in Indigenous and Visible Minority women in Canada?; and (3) what are possible achievable interventions to improve access and uptake of cervical and breast cancer screening for Indigenous and Visible Minority women in Canada? To address these questions, a literature search was conducted using Google Scholar and Science Direct databases for peer-reviewed articles published between 2000 and 2022, yielding 8,462 articles. The literature search was performed in January-February 2022. Of these publications, a total of 26 articles fit the inclusion criteria, and an additional 8 articles were included through a manual search of the literature. Information regarding incidence, barriers and recommendations for improved uptake along with the identifying information for each article were recorded on an excel spreadsheet to be used for analyses. Using the Social Determinants of Health Framework (CSDH) (World Health Organization 2010), barriers to breast and cervical cancer screening were categorized for both Indigenous and Visible Minority populations. The Five Dimensions of Accessibility of Healthcare Services Framework (Levesque *et al.* 2013) was then applied in an analysis of recommendations from each literary source, to categorize them based on common themes and best practices outlined within the Framework.

The literature indicated that the incidence of both cervical and breast cancer differ based on geographic location (e.g. Zehbe *et al.* 2016; Withrow *et al.* 2017). Furthermore, when indicators aligned with the CSDH Framework intersect (overlap), incidence increases for both Indigenous and Visible Minority populations. Overall, the results showed race and ethnicity to be a predictor of both cancers in these populations in Canada. Barriers to accessing preventive screening for Indigenous and Visible Minority women also differed in some ways. Although barriers shared commonalities such as those rooted in social and community contexts, barriers for Indigenous women were largely grounded in the trauma surrounding colonialism and sexual health stigmatization, whereas more commonly found barriers for Visible Minority women related to communication issues and lack of cultural awareness on the part of healthcare providers. This indicates that some barriers experienced by each population are unique to the population of interest, suggesting that no one-size-fits-all intervention will mitigate these barriers for all vulnerable populations, and thus must instead be tailored to the specific needs of the group of interest.

This narrative review has some limitations. The incorporation of race-based data in healthcare, although not a recent phenomenon, is generally lacking in Canadian statistics and literature, therefore studies concerning race and ethnic groups were limited in number and scope. In addition, the literature that was identified to fit the review criteria only covered four Canadian provinces and Canada as a whole, which may not be representative of the entire country. In order to provide a more comprehensive overview and inform best practices, further research that incorporates ethnic/race data elements in meaningful ways, to broaden population-based cancer and screening uptake studies, should be conducted.

Promoting women empowerment and autonomy through self-sampling, cultural and linguistic appropriateness, improving physician retention in smaller communities, increased collaboration and increased education for providers and patients are achievable interventions that were found within the context of the current review. These strategies may facilitate improved screening uptake in both populations of interest. Again, this current paper suggests broad interventions which must be further specified and tailored to the appropriate population. By understanding commonalities between these two underrepresented populations however, further research to inform best practices on a more specific level can be made to work towards creating more equitable access to preventive healthcare services tailored to Canada's multicultural population.

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