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Osteoarthritis in Indigenous populations in rural British Columbia: Disparities in prevalence and access to care

By better characterizing patient-level barriers to health care in rural Indigenous populations, more effective, culturally appropriate, and accessible care can be provided.

ABSTRACT: Osteoarthritis, a chronic degenerative disease of the joints, is highly prevalent among Canadians. Both the direct and indirect costs of osteoarthritis continue to rise in North America, yet the pathophysiology has not been fully elucidated, nor have the differential treatment and diagnosis outcomes in underserved and remote communities. Indigenous and rural patients are among the most overlooked patient subpopulations. The prevalence of osteoarthritis is greater among Indigenous than non-Indigenous Canadians due to a wide range of structural and colonial barriers that limit access to quality care. These barriers are exacerbated for rural Indigenous patients. As a result, several initiatives have been developed to improve chronic disease diagnosis and management within their communities. For example, the First Nations Health Authority's Medical Transportation Benefit program

assists with travel to a medical facility outside the community. In addition, efforts are being made to address bias within the health care system, provide more supportive and culturally appropriate care, integrate traditional healing practices into health care, develop a better understanding of the social determinants of poor health outcomes, and use technological advancements to improve access to health care in remote communities.

Osteoarthritis is characterized by the chronic degeneration of articular cartilage, combined with periarticular bone remodeling, and is the greatest contributor to disability in older adults.¹⁻⁴ There is no known cure for osteoarthritis; thus, treatment strategies focus on managing the disease and reducing symptoms.^{5,6} However, high clinical variability renders some patients asymptomatic during onset only to present a permanently disabling disorder months later.^{7,8} Osteoarthritis is similar to other chronic conditions in that several risk factors comprise its etiology, including joint injury, age, gender, and ethnicity.^{9,10} Additionally, increases in sedentary lifestyles, rising rates of obesity, and aging populations accelerate the global burden of osteoarthritis.^{4,11,12} Thus, early identification and diagnosis of osteoarthritis is paramount.¹³

A common factor overlooked in the prevalence of osteoarthritis in Canadian populations is the differential treatment and diagnosis outcomes in underserved and remote communities. Literature on these disparities is sparse, and only recently has there been any focus on Indigenous and rural experience regarding osteoarthritis onset and treatment. It is estimated that 18.4% of adults in BC suffer from joint-specific osteoarthritis.¹⁴ Although no research has been conducted on Indigenous morbidity rates in BC, the prevalence of osteoarthritis in the First Nations population in Alberta was reported to be twice that of the non-First Nations population.¹⁵ Historical discrimination, poor social determinants, and resulting poor overall health outcomes in Indigenous populations lead to increased risk of osteoarthritis development and reduced quality of accessible treatment.⁴ The effect of race and geographical remoteness of rural Indigenous patients on the treatment of osteoarthritis has yet to be explored in depth.

Risk factors and treatment barriers

Evaluating socioeconomic status is important in assessing the disparity in osteoarthritis prevalence, diagnosis, and treatment between Indigenous and non-Indigenous communities. Few data about

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BC's Indigenous communities have been collected; however, general trends can be identified in Indigenous populations across Canada. There is a high prevalence of poverty among non-reserve Indigenous Canadians: 11.8% as of 2020.¹⁶ Indigenous Canadians also have significantly higher chronic disease rates and lower self-reported health conditions compared with non-Indigenous Canadians.^{17,18} These disparities can be attributed to several historical factors, including the devastating impacts of the Indian Act, institutionalized marginalization, and systemic barriers to accessing educational and economic opportunities.¹⁹ These are direct results of historical oppression of Indigenous Peoples, which in turn contributes to poor socioeconomic status and poor health outcomes in their communities.

The collective trauma experienced by Indigenous Peoples has also impacted their socioeconomic and health status.²⁰ The destruction of Indigenous culture through system-level discrimination, residential schools, and the child welfare system has resulted in lasting damage to Indigenous identity and heritage.²¹ Emotional, physical, and sexual abuse caused by these institutions adds to the intergenerational trauma experienced by Indigenous communities, which has resulted in higher rates of substance use, depression, and suicide compared with non-Indigenous communities.^{22,23} These mechanisms perpetuate health care disparities and are amplified by present-day racism and marginalization of Indigenous Peoples.²⁰

Historical systemic discrimination of Indigenous Peoples has had numerous negative and lasting consequences, including a greater incidence of food insecurity than for non-Indigenous populations, loss of support systems, loss of traditional land, and poorer health outcomes than in non-Indigenous populations.²⁴ The combination of these outcomes has resulted in lower educational attainment, lower annual income, and greater distrust in institutions such as health care.²⁵ All these factors contribute to individual health, both directly and indirectly,

and to the development of chronic conditions such as osteoarthritis. For example, Indigenous and rural communities have disproportionate incidences of obesity due to a combination of food insecurity, limited physical activity, and social factors.^{5,26,27} Obesity and diabetes have been linked to osteoarthritis development, which may contribute to the disparities in occurrence between Indigenous and non-Indigenous communities.²⁶

Barriers to accessing health care services pose a serious challenge for Indigenous people who reside in remote and rural areas. In some cases, hours or days of travel are required to visit a physician, which greatly impedes an individual's ability to access timely health care. As a result, rural residents have less contact with physicians and specialists and are less likely to report their health needs than are urban residents.⁵ This type of delay, and in some cases complete inability to access diagnosis and treatment, may exacerbate the progression of diseases such as osteoarthritis. Furthermore, fears of judgment, government intervention, racism, and disrespect are significant barriers for Indigenous patients in accessing quality health care services.²⁸ Not surprisingly, then, Indigenous Canadians have been reported to access orthopaedic consults, specialists, and joint replacements at significantly lower rates than non-Indigenous Canadians.¹⁵ Indigenous patients who receive osteoarthritis treatment may experience a series of challenges related to lack of culturally sensitive care and unbiased medical treatment in health care settings. Lack of cultural safety may also worsen health disparities between Indigenous and non-Indigenous populations.²⁹

A patient's journey from Takla Nation

For members of Takla Nation, situated 5 hours from Prince George, the nearest city with orthopaedic care, accessing the health care pathway is complex and multifaceted. The process begins with a doctor's notification and necessitates arranging travel support via Carrier Sekani Family

Services and the First Nations Health Authority and adhering to specific criteria for transportation approval. The long drive to Prince George, on bumpy gravel roads, can be difficult at the best of times, even for experienced travelers. The weather can be bad, and the drive uncomfortable. For those with health conditions, the journey can be anything but easy.

Then there is the flight to an urban centre—a new experience for many residents. This can be particularly intimidating and overwhelming, especially for those such as Elders who have never ventured far beyond Takla or Fort St. James.

Upon arrival at urban centres such as Surrey, Langley, or Vancouver, patients often find themselves with minimal or no social support, which adds to the stress of navigating an unfamiliar environment. The challenges are compounded by the anxiety of reaching medical appointments on time and coping with the underlying health concerns that necessitated the travel. This anxiety may be worsened by past trauma or distrust of the medical system. An additional concern arises for long-term patients or those requiring follow-up, who may need to stay in hotel rooms without kitchen facilities. This forces them to rely on takeout food, which deprives them of home-cooked meals and traditional foods. In some instances, traditional foods have been confiscated at the airport, which further disconnects patients from their cultural dietary practices. Overall, the journey for Takla Nation members to obtain medical support is fraught with logistical, emotional, and cultural challenges, which highlights the need for more tailored and sensitive health care support systems for Indigenous communities. Having to travel challenging roads and navigate flights, new places, and large, unfamiliar hospitals would be difficult for all people, not just those from Takla.

Current policies and solutions

Despite the challenges faced by rural Indigenous patients in accessing health care services, several initiatives have been developed to improve chronic disease

diagnosis and management within their communities.

First Nations Health Authority

The First Nations Health Authority was created to serve the diverse health needs of BC's Indigenous populations. Its most noteworthy program for rural residents is the Medical Transportation Benefit program, which provides Indigenous patients with meals, accommodation, and transportation to assist with travel to a medical facility outside the community.³⁰ The program also provides access to traditional healers.³⁰ However, treatment facility proximity is paramount in the approval process for the program. Based on our clinical experience, the Medical Transportation Benefit accounts minimally for the quality of care and timeliness with which it is received. A closer facility with a longer wait time and less specialized medical team may take precedence in approval, thereby reducing the quality of specialized care that remote Indigenous patients may be able to access.

Additionally, the loss of autonomy to choose a provider is especially concerning given the history Indigenous Peoples have had with Canadian health care. The inability to select a provider who understands and respects Indigenous cultures perpetuates the cycle of mistrust and dissatisfaction. Furthermore, funding is unlikely to be allocated for visits if an Indigenous patient prefers to see a doctor they have an established relationship with, if that doctor is not the nearest option available. An approval process that gives greater consideration to these variables would improve the quality of health care available to remote Indigenous communities.

Culturally sensitive care framework

The culturally sensitive care framework in Canada was proposed more than 15 years ago to draw attention to social, political, and historical factors that underlie the health care of Indigenous patients. The framework seeks to shift the attitude of practitioners from the status quo to a more

supportive and culturally appropriate form for minority populations.²⁹ However, much of the research on culturally sensitive care has been theoretical, and we have yet to see pragmatic applications of the system in BC.²⁹ The Declaration on the Rights of Indigenous Peoples Act and the BC Cultural Safety and Humility Standard outline additional cultural awareness principles and insight on how to implement best practices in provincial institutions.³¹ Further investigation into the implementation of culturally sensitive care frameworks will better establish their effectiveness and methods to maximize patient comfort.

Addressing bias

Addressing bias and practices that perpetuate negative perceptions of Indigenous Peoples is imperative to improving the quality of care provided to remote Indigenous communities. Emphasis is placed on fostering self-awareness, empathy, and respect from health care providers who interact with Indigenous patients. The *In Plain Sight* report highlights the need for systemic change in health care and advocates for training in cultural safety and humility.³² The report emphasizes the importance of health care providers being culturally competent and respecting Indigenous patients' unique needs, which is crucial for dismantling systemic racism and improving health outcomes.³² Thus, addressing bias deserves recognition as a pillar to equitable care.

Traditional healing

The integration of traditional healing into the treatment of osteoarthritis may improve long-term care outcomes and patient comfort. In the Prince George area, the Takla Nation Health Clinic has integrated land-based healing into the treatment of chronic conditions such as addiction and osteoarthritis. This method involves reconnecting Indigenous patients with their heritage rather than employing a narrow focus on pharmacological and Western medicines.³³ This holistic approach increases patient engagement and links physical,

emotional, and spiritual access to health care. More research is needed on these integrative approaches.

Social determinants

The social determinants of health approach and awareness of this approach are fundamental to understanding how poor health outcomes in remote Indigenous populations arise from poor social determinants. Recognizing that Indigenous community health reflects the impact of larger social, economic, and colonial structures allows for more robust interventions that address the intersecting factors that influence one another and produce vast health inequities in osteoarthritis diagnosis and treatment. Adequately addressing these social determinants requires fundamental changes in the policies, funding, jurisdiction, education, service delivery, and infrastructure that are available to and impact Indigenous and rural communities.

Technological advancement

Attention to technological advancement in health care, such as the integration of telehealth, may significantly improve osteoarthritis care for rural Indigenous patients. Telehealth can connect health care providers across the province. However, challenges involving limited Internet connectivity in remote areas and loss of the physician-patient relationship should be kept in mind. A reasonable balance may be to monitor osteoarthritis symptoms via telehealth during provider shortages but opt for regular in-person consultations otherwise. Depending on the visit, having a nurse physically present to assist and evaluate the patient during a telehealth visit with the physician may be beneficial. Additionally, the role of electronic medical records should be evaluated. Given that remote patients are more likely to travel to disparate sites to receive care, there is an increased likelihood of fragmentation of patient data across different sites. Without having the full context of a patient's health history, providers may be unable to optimize treatment to the fullest extent. Therefore, electronic medical records

with interoperability infrastructure may be beneficial for these patients. More research is required to investigate the role of electronic medical records in remote patient care.

Summary

Osteoarthritis is a complex and debilitating condition that remains poorly characterized. The understanding of its presentation and treatment is limited, particularly in Indigenous and rural populations. We have highlighted the epidemiology and risk factors of osteoarthritis and the unique challenges faced by remote Indigenous populations in BC. The multifactorial etiology of osteoarthritis extends into social and historical domains that must also be addressed. The scarcity of osteoarthritis research for these populations makes it difficult to build effective and holistic solutions to their care. We recommend that future research focus on better characterizing the patient-level barriers that rural Indigenous populations face. By increasing our knowledge and awareness of osteoarthritis in these communities, we can work toward more effective, culturally appropriate, and accessible care for all British Columbians. ■

Competing interests

None declared.

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