



Acute health care among Indigenous patients in Canada: a scoping review

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ABSTRACT

A recent report by the Chief Public Health Officer of Canada demonstrates the inferior health status of Indigenous Peoples in Canada when compared to non-Indigenous populations. This scoping review maps out the available literature concerning acute health care for Indigenous Peoples in Canada in order to better understand the health care issues they face. All existing articles concerning health care provided to Indigenous Peoples in Canada in acute settings were included in this review. The targeted studied outcomes were access to care, health care satisfaction, hospital visit rates, mortality, quality of care, length of stay and cost per hospitalisation. 114 articles were identified. The most studied outcomes were hospitalisation rates (58.8%), length of stay (28.0%), mortality (25.4%) and quality of care (24.6%) Frequently studied topics included pulmonary disease, injuries, cardiovascular disease and mental illness. Indigenous Peoples presented lower levels of satisfaction and access to care although they tend to be over-represented in hospitalisation rates for acute care. Greater inclusion of Indigenous Peoples in the health care system and in the training of health care providers is necessary to ensure a better quality of care that is culturally safe for Indigenous Peoples.

ARTICLE HISTORY

Received 15 March 2021

Revised 14 June 2021

Accepted 17 June 2021

KEYWORDS

Indigenous health; acute health care; Canadians' health; emergency department; hospitalisation

Introduction

In 2016, 1 673,780 Indigenous people were identified in Canada, representing 4.76% of the Canadian population [1]. Indigenous Peoples include three major groups: First Nations (61%), Inuit (4%) and Métis (32%) Peoples [2]. It is important to recognise that within these three groups, there are over fifty different Indigenous nations and over six hundred Indigenous communities, each of them with their own traditions and experiences [3]. Although Indigenous communities are distinct from one another, they share certain common experiences. An example of such experiences is the Residential School Program imposed by the Government of Canada until 1996. This program aimed to assimilate Indigenous Peoples by forcing Indigenous children to attend boarding schools directed by religious authorities and the Canadian government. This program led to significant intergenerational trauma due to the tearing of Indigenous children from their culture and community in addition to the abuse inflicted upon them in these schools [4,5]. The Residential School Program is only one example of many government policies and measures, which aimed to assimilate Indigenous Peoples in Canada. These

policies of cultural assimilation are reflected in the current relations between Indigenous Peoples and government institutions such as health care services.

In Canada, the health care of Indigenous Peoples is mainly managed by the federal government since the adoption of the *Indian Act* in 1985. However, important differences in health care management between Indigenous communities persist. Indigenous communities in the province of Quebec have the authority to manage their own health care services whereas others communities depend on the federal government. The health care coverage and access also differ for Indigenous Peoples living on-reserve and off-reserve and for those who identify as Métis [1]. These differences in health care management have a direct impact on the health care provided to Indigenous Peoples in Canada.

A recent report by the Chief Public Health Officer of Canada establishes that Indigenous Peoples in Canada have a shorter life expectancy at birth than non-Indigenous populations. Indigenous Peoples are also less likely to report a very good or excellent state of health [2]. Additionally, several studies demonstrate significant disparities between Indigenous and non-

Indigenous populations in Canada regarding health status [6–9].

The clear health disparities between Indigenous and non-Indigenous populations in Canada raise questions regarding inequalities in access, use and quality of health care. The primary objective of this scoping review is to map out the available literature on acute health care provided to Indigenous Peoples in Canada. In doing so, it aims to better understand the health care issues Indigenous Peoples face and identify areas that have not been fully explored in the current literature. In this study, acute health care refers to emergency department care, intensive unit care or hospitalisation for acute health problems.

Methods

This scoping review aims to identify all available literature regarding acute health care (emergency care, intensive care or hospitalisation for acute health problems) provided to First Nation, Inuit and Métis Peoples of North America in order to better understand the health care issues they face. The studied outcomes are patient satisfaction, access to care, hospitalisation rates and emergency department visit rates, mortality, quality of care, length of stay and cost. To determine these outcomes, a preliminary exploration of the available literature on health care provided to Indigenous Peoples was conducted by two authors in order to identify recurring themes. We searched Medline,

Embase, Cochrane Library, Web of science and PsycInfo databases up until 1 February, 2021. These databases were selected in collaboration with librarians to ensure a maximum number of studies were found. An example of the research strategy is presented below. In summary, the research strategy focused on three main concepts: Indigenous Peoples, North America and acute health care. An example of the detailed research strategy is presented in Figure 1.

Articles which did not correspond to the objective of the scoping review were excluded from the analysis. This process is described in the flow chart presented below (Figure 2). Articles were excluded based on the fact they did not correspond to the studied population or the type of health care. Articles discussing public health, veterans' health or paramedical health care were therefore excluded from this analysis. Articles that were not in English or in French were also excluded. The selection of articles was assessed by two independent authors (L.P.V., A.P., E.D., C.S.P). Canadian and American articles were divided into separate groups given the major differences between their health care systems.

Data from each article were collected by three independent readers, every article being reviewed by two readers (L.P.V., E.D., C.S.P). The data was entered independently in a data collection form and two readers then discussed the results to ensure an objective data extraction process. To assess the quality of the different articles retrieved, we used the STROBE Statement

Indigenous Peoples	"Health Services, Indigenous" [Mesh] OR "United States Indian Health Service" [Mesh] OR "Continental Population Groups" [Mesh:NoExp] OR "American Native Continental Ancestry Group" [Mesh:NoExp] OR "Indians, North American" [Mesh] OR "Alaska Natives" [Mesh] OR Indigenous[TIAB] OR American Indian*[TIAB] OR First Nation*[TIAB] OR Native American* [TIAB] OR Aborigin*[TIAB] OR "Inuits" [Mesh] OR Inuit*[TIAB] OR Eskimo*[TIAB]
Geographical location	"Canada" [Mesh] OR Canada [TIAB] OR "United States" [Mesh] OR "United States" [TIAB] OR "Arctic Regions" [Mesh] OR "North America" [Mesh:NoExp] OR "North America" [TIAB]
Health care and outcomes	"Mortality" [Subheading] OR "Outcome Assessment (Health Care)" [Mesh] OR "Outcome and Process Assessment (Health Care)" [Mesh] OR "Patient Reported Outcome Measures" [Mesh] OR "Patient Outcome Assessment" [Mesh] OR "Quality-Adjusted Life Years" [Mesh] OR "Fatal Outcome" [Mesh] OR "Hospital Mortality" [Mesh] OR "Death"[Mesh:NoExp] OR "Long Term Adverse Effects" [Mesh] OR "Patient Satisfaction" [Mesh] OR "Health Services Accessibility" [Mesh] OR "Culturally Competent Care" [Mesh] OR "Clinical Audit" [Mesh :NoExp] OR "Medical Audit" [Mesh] OR "Quality Assurance, Health Care" [Mesh] OR "Health Care Quality, Access, and Evaluation" [Mesh] OR "Quality of Health Care" [Mesh] OR "Health Care Costs" [Mesh] OR "Health Expenditures" [Mesh] OR "Treatment Outcome" [Mesh] OR "Patient Acceptance of Health Care" [Mesh] OR "Healthcare Disparities" [Mesh] OR "Health Services Needs and Demand" [Mesh] OR Outcomes [TIAB] OR Intervention* [TIAB] OR "Critical Care Outcomes" [Mesh] OR "Emergency Treatment"[Mesh] OR "Emergency Service, Hospital" [Mesh] OR "Emergency Medical Services" [Mesh] OR "Ambulatory Care" [Mesh] OR "Critical Care" [Mesh] OR "Episode of Care" [Mesh] OR "Hospitalization" [Mesh:NoExp] OR "Length of stay"[Mesh] OR "Patient admission" [Mesh] OR Patient care [Mesh:NoExp] OR "Healthcare" [TIAB] OR "Primary health care"[Mesh] OR Health [TIAB] OR "Delivery of Health Care, Integrated" [Mesh] OR "Mortality" [Mesh:NoExp] OR "Mortality, Premature" [Mesh] OR "Morbidity" [Mesh] OR "Long-Term Care" [Mesh] OR "Patient Satisfaction" [TIAB] OR "Program Evaluation" [Mesh]

Figure 1. Research strategy for medline.

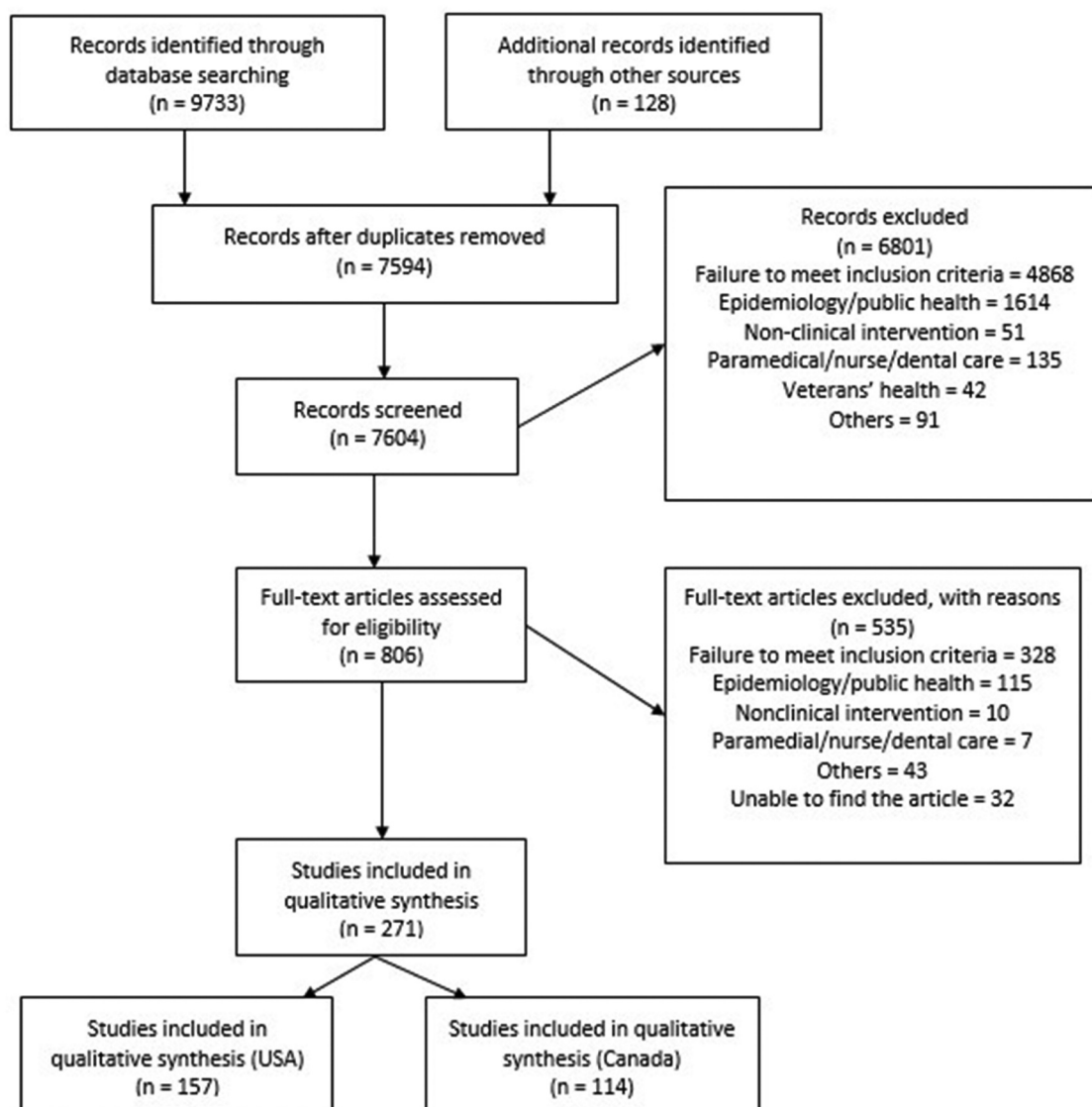


Figure 2. Flow diagram.

checklist for cohort studies, cross-sectional studies and case-control studies [10]. These checklists provide a score based off of a total of 22 items. We also used a STROBE checklist for abstracts [10] which provides a score out of 11. The checklist to assess the quality of qualitative studies [11] provides a score out of 32 and the checklist for case reports provides a score out of 13 [12]. For each of these checklists, a criterion was considered not fulfilled if one of its sub-items was missing. Two independent readers (L.P.V., C.S.P., E.D.) completed the quality analysis for each article.

Results

114 articles studying the Indigenous Peoples in Canada and acute health care were retrieved. Figure 3 presents

the distribution of articles according to the studied province although articles often collected data from more than one province or territory. Acute care provided to Indigenous Peoples has been most studied in the provinces of Alberta, Manitoba and Ontario. As indicated in Figure 4, most studies were retrospective ($n = 86$) and 14 articles were prospective. The rest of the articles were either case reports ($n = 4$), qualitative ($n = 6$), descriptive ($n = 2$), cross-sectional ($n = 1$) or comparative studies ($n = 1$).

The general characteristics of the articles are presented in Table 1. Most articles studied hospitalisation (73,7%) and the most frequently studied population were First Nations (47,3%). Figure 5 illustrates the distribution of articles by year of publication. The number of studies discussing acute health care for Indigenous



Figure 3. Distribution of articles by province.

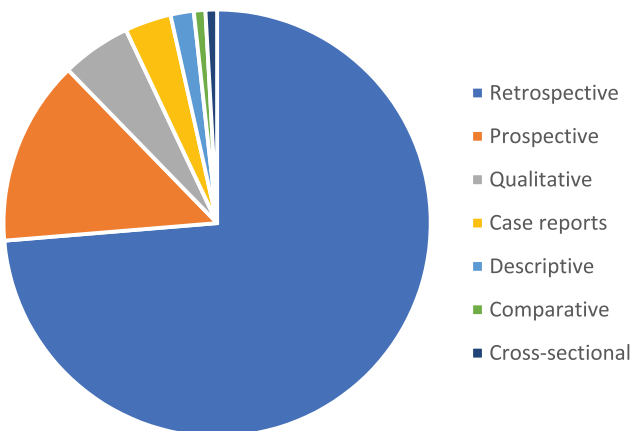


Figure 4. Studies' design.

Peoples exponentially increased in the 2000's as only 17 studies were published before 2000. Table 2 shows the distribution of articles according to their studied outcomes. The most frequently studied outcome was hospitalisation rates (58,8%), followed by length of stay (28.0%), mortality (25.4%) and quality of care (24.6%). The most studied health conditions are pulmonary diseases (n = 27), injuries and poisonings (n = 16), cardiovascular diseases (n = 9) and psychiatric illnesses (n = 8) as presented in Table 3.

The complete tables for each of the 114 studies are presented in Appendix 1. Studies are distributed according to their health condition of interest.

Table 1. Main features of articles.

Indigenous Peoples by group:	54
First Nations	14
Métis	21
Inuit	45
Non specified Indigenous peoples	
Age of population cohorts	All ages: 57 Paediatric*: 29 Adults*: 28
Type of acute health care	84
Hospitalisation	29
Emergency department visits	8
Intensive care unit admissions	6
Surgical intervention	5
Other/Non defined	
Journals which published >1 retrieved articles	Am J Public Health: 4 Am J Resp Crit Care: 2 BMC Public Health: 2 C J Public Health: 4 Can J of Cardiol: 3 Can J of Psychiat: 2 Chest: 2 CJEM: 3 CMAJ: 6 CMAJ Open: 2 Chron Dis Inj Can: 2 Ethnic Health: 2 Health Rep: 4 Int J Infect Dis: 2 Int J Circumpol Heal: 7 J Pediatr: 2 J Rheumatol: 2 Pediatr Infect Dis J: 3 Pediatr Pulm: 2 PLoS One: 3

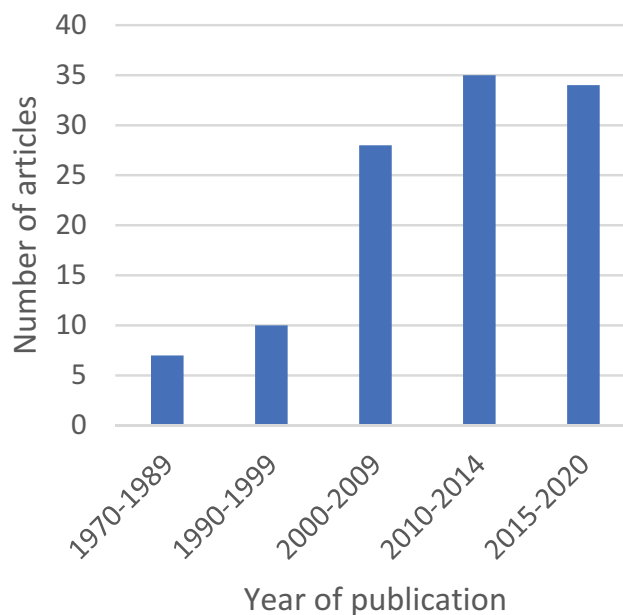
* Given that the age of majority differs between provinces, the distinction between paediatric and adult patients was adjusted according to the province of origin of the studies. The age of majority is 18 years old in Alberta, Prince-Edward-Island, Manitoba, Ontario, Quebec and Saskatchewan and is 19 years old in British Columbia, New-Brunswick, Nova-Scotia, Nunavut, Newfoundland and Labrador, Northwest territory and Yukon.

Table 2. Distribution of articles by studied outcomes.

Outcomes	Number of articles (%)
Health care satisfaction	9 (7.9%)
Access to care	14 (12.3%)
Hospitalisation rate	67 (58.8%)
Emergency department visit rate	26 (22.8%)
Mortality	29 (25.4%)
Quality of care	28 (24.6%)
Length of stay	32 (28.0%)
Cost	7 (6.1%)

Table 3. Studied health conditions.

Illness	Number of articles
Pulmonary diseases	27
Injuries and poisonings	16
Cardiovascular diseases	9
Psychiatric diseases	8
Rheumatologic diseases	5
Neurological diseases	5
Endocrine-related conditions	5
Paediatric-related diseases	5
Gastrointestinal diseases	4
Infectiology-related diseases	4
Obstetrical and gynaecological conditions	4
Nephrological-related conditions	1

**Figure 5.** Distribution of articles by year of publication.

Health care satisfaction

Nine articles collected information concerning Indigenous Peoples' health care satisfaction. One article reported great satisfaction of Indigenous Peoples while consulting through telemedicine [13]. Another article concluded that the health care satisfaction is inferior for Indigenous patients suffering from mental illness when compared to non-Indigenous patients [14]. The other seven studies reported several cases of stigmatisation and racism in the health care system. Study participants evoked certain barriers in their access to health care such as long wait times, trouble communicating and difficult interactions with health care professionals. Most of these issues were attributed to cultural differences and misinterpretations, often exacerbated in a bustling hospital setting [15,16]. Another important problem reported was the misperception by many health care professionals that Indigenous patients are seeking health care in order to receive drugs [17,18]. Others mentioned that health care providers tend to attribute illnesses to alcohol or drug consumption without completing a thorough history with the patient [17]. An Indigenous patient also stated not always inquiring about illness or treatment options due to communication barriers and subsequent difficulties understanding the information provided [15]. It has also been mentioned that some Indigenous patients are afraid of visiting hospitals and will avoid them by all means [17,19]. Many Indigenous patients felt they

were treated differently and appreciated when health care professionals treated them as they would any other patient while also recognising and respecting their Indigenous identity [15,18].

Tang published two articles in which he interviewed health care professionals working in an urban emergency department in Canada as well as Indigenous patients. In his study published in 2008, Indigenous patients expressed often experiencing discrimination in the emergency department setting. Four health care providers were questioned on this subject and presented similar answers. They maintained that they provide the same quality of care to all patients including Indigenous patients, however, certain contradictions were raised in the testimonies of different health professionals. A health care provider said: "As an ED staff person, you tend to have a vision of every Aboriginal person having a drug and alcohol issue [...]" [20]. This same provider later admitted to being more guarded when meeting an Indigenous patient. In Tang's study published in 2015, health care providers were asked to describe their perception of Indigenous patients. A few health care providers provided similar answers which can be summarised by the following statement by health care provider 11: "A lot of them are on welfare or drug pushers [...]. They don't seem to have jobs, not well dressed, dirty, unkempt, using drugs, not taking care of themselves". [21] Another health care provider explained why, in his opinion, Indigenous patients are dissatisfied with the health care they receive: "We'll meet all of their needs, and when that doesn't happen, there is a great deal of frustration of their part which makes it almost confrontational at times, it can be incredibly challenging to remain compassionate and non-judgemental about patients we see, when that kind of situation arises". [21]

Access to health care

Articles discussing access to care presented data that for the most part cannot be grouped given the great diversity of studied outcomes. Four articles reported an inferior access to care when compared to non-Indigenous Canadians. This decreased access is characterised by a longer time between onset of symptoms and hospital presentation [22,23], a lower proportion of patients with access to prenatal care [24] and a lower satisfaction towards health care in general [16]. Five articles reported no difference in access to care for Indigenous Peoples when compared to other Canadians [25–29]. One study reported that specialist follow-up visits after an episode of arrhythmia occurs approximately 80 days earlier for Indigenous patients

[30]. Firestone reported that 60% of questioned Indigenous patients consider their access to care to be excellent or good whereas 11% of them consider it to be poor [31]. A study reported that Indigenous patients mainly use the emergency department to access health care [19]. Another study reported that, for psychiatric patients, hospitalisation rates are higher if the primary source of health care is an hospital rather than a nursing centre [32]. Finally, one study was a case report and no conclusions can therefore be drawn [33].

Hospitalisation rates

67 articles studied hospitalisation rates. 48 studies found higher hospitalisation rates for Indigenous patients. 16 studies mentioned no difference whereas 3 articles mentioned reduced hospitalisation rates for Indigenous patients. 6 articles did not provide any comparison between hospitalisation rates for Indigenous and non-Indigenous patients [34–39]. For articles concerning multiple health issues, 10 articles concluded to higher hospitalisation rates for Indigenous patients [31,40–48]. With regards to pulmonary diseases, seven articles concerning pneumonia [22,49,50], LRTI (lower respiratory tract infection) [51], bronchiolitis [52] or H1N1 Influenza A [23,53] showed increased hospitalisation rates. 4 articles showed no difference in hospitalisation rates for asthma and COPD (chronic obstructive pulmonary disease) [40], LRTI [54,55] and aspiration pneumonia [22]. Senthilselvan's study on asthma presented increased hospitalisation rates for age groups ranging from 0–4 and 35–64 years old. Meanwhile the group aged from 15 to 34 years old showed no difference in hospitalisation rates and the group aged from 5 to 14 years old had decreased hospitalisation rates [56]. As for unintentional injuries, 8 articles presented higher hospitalisation rates [57–64] whereas two articles mentioned no difference [65,66]. Three articles studied intentional injuries, two of which showed an increased hospitalisation rate for Indigenous patients [64, 67] while the other showed no difference [60]. With regards to poisonings, two articles published in 2007 by Myers mentioned a risk ratio for hospitalisation for acetaminophen overdose of approximately 4 [68,69]. For cardiovascular diseases, three articles provided results of increased hospitalisation rates [70–72] and one article mentioned decreased hospitalisation rates [73]. Atzema reported increased hospitalisation rates related to hypertension and congestive heart failure and found no difference for acute coronary syndromes, strokes and atrial fibrillation [74]. Kapral also found no difference in hospitalisation rates for strokes [75]. Increased hospitalisation rates

were reported for pyelonephritis [76], acute complications of dialysis [77], epilepsy [78] and traumatic brain injury [79] and for all types of arthritis except ankylosing spondylitis [80]. One article found no difference in hospitalisation rates for cancer-related complications [81]. For mental health issues, five articles presented increased hospitalisation rates [32,82–85]. Carrière's article showed increased hospitalisation rates for all mental illnesses except for personality disorders [82] and Soleimani's article mentioned increased hospitalisation rates for women but decreased rates for men [85]. Articles about paediatric-related illnesses concluded to increased hospitalisation rates for acute otitis media [86], as well as for infections, congenital anomalies, respiratory, cutaneous, neurological and endocrine diseases and found no difference in hospitalisation rates for other health problems [87]. Finally, three articles showed higher hospitalisation rates for diabetes-related complications [88–90] and one article showed no difference between Indigenous and non-Indigenous patients [91].

Emergency department visit rates

26 articles presented results regarding emergency department visit rates. 17 studies found higher emergency department visit rates for Indigenous patients. 6 articles showed increased emergency visit rates for Indigenous patients with asthma or COPD [92–97] while one article reported no difference [40]. Two articles reported higher visit rates for LRTI [98,99]. Ospina's article showed increased visit rates for all Indigenous communities except for Métis people for whom no difference was reported [92]. In articles discussing multiple acute health conditions, 2 articles found higher visit rates [31,40] while 4 articles reported no difference [26,27,43,100]. Most articles found higher emergency department visit rates for cardiovascular problems [30,70,74] with the exception of Atzema's study which reported higher visit rates for all illnesses except for hypertension [74]. One article found higher visit rates for epilepsy [78]. For diabetes-related complications, one study found higher emergency department visit rates for all Indigenous patients [88] whereas another study found that only First Nation patients living off-reserve had higher visit rates [101]. Only one study found lower emergency department rates for Indigenous patients [94]. Four studies did not present a comparison with non-Indigenous patients and conclusions could therefore not be drawn [102–105]. Finally, Newton found that Indigenous patients had double the rate of emergency visits for self-harm [106]

and for psychiatric illnesses [107] when compared to non-Indigenous patients.

Mortality

Mortality was studied as an outcome in 29 studies. 8 articles reported an increased mortality, 10 articles found no difference in mortality rates and 5 articles reported a decreased mortality for Indigenous patients. 7 articles provided mortality data without providing comparison to non-Indigenous patients and therefore no conclusion can be drawn for these results [105,108–113]. With regards to pulmonary diseases, two articles mentioned increased mortality for Indigenous patients hospitalised for pneumonia [114] and COPD [40], two studies revealed no difference in mortality for H1N1 Influenza A and asthma [40,115] and three studies showed decreased mortality for Indigenous patients hospitalised for pneumonia [22,49,50]. For injuries and poisonings, two studies reported a higher mortality rate for Indigenous patients [57,60] and one study found no significant difference [116]. Studies reported no difference in mortality rates caused by strokes [75] or obstetrical diseases [24]. As for cardiovascular diseases, most articles reported an increased mortality rate for Indigenous patients [70,71,73,117] although some articles did not report any difference in mortality rates [74,118]. For articles discussing multiple health problems, three studies reported increased mortality for Indigenous patients [46,47,119] and one article reported no change in mortality [45]. Finally, Oppenheimer's study in 2007 found an increased mortality rate for Indigenous patients hospitalised for blastomycosis of joints and bones [28].

Quality of care

A total of 28 studies discussed the quality of care in their results. Quality of care was often studied for cardiovascular diseases. Atzema found no difference between Indigenous and non-Indigenous patients regarding the use of beta-blockers after an acute coronary syndrome or echocardiography in follow-up of atrial fibrillation [74]. Three studies found no difference in the use or percutaneous coronary intervention (PCI) and coronary artery bypass grafting (CABG) [25,71,117] whereas one study found no difference for CABG but a decreased rate of Indigenous patients receiving PCI [72]. Two studies found Indigenous patients less likely to undergo a coronary angiogram [72,117] and one study mentioned that Indigenous patients tend to wait longer before their coronary angiogram [25]. For pulmonary diseases, two studies found no difference in

the quality of care for people with lower respiratory tract infections [55,115] and one study concluded that Indigenous patients with asthma or COPD were 55% less likely to see a specialist and 66% less likely to have a spirometry [96]. For injuries, one study found that Indigenous patients wait longer for their follow-up [106], are less likely to opt for palliative health care and undergo more surgeries [116]. Two studies showed a decreased chance for Indigenous patients to consult a specialist for their health problem [48,120]. For neurological illnesses, Indigenous patients tend to have fewer surgeries for spinal cord trauma [121] and longer wait times before follow-up after a traumatic brain injury [122]. As for strokes, the only difference found was that Indigenous patients were less likely to receive thrombolysis [75]. No difference in health care quality was noted for rheumatological diseases [28] or in neonatal intensive care [24]. Two studies by Newton demonstrated that Indigenous patients receive less follow-up after a visit to the emergency department for mental illness [103,107]. A study found that Indigenous patients presenting with appendicitis underwent more open surgeries and waited longer between their time of presentation at hospital and the beginning of their surgery [123]. Rose's study found that Indigenous patients underwent more forefoot and below the knee amputations and fewer toe or above the knee amputations for diabetes-related complications [90]. Finally, seven articles did not provide any comparison with non-Indigenous patients [33,109–112,124].

Length of stay

For Indigenous patients with pneumonia or COPD, three studies revealed an increased length of hospital stay [55,56,114], two studies found no difference [54,115] and five studies showed decreased length of stay when compared to non-Indigenous patients [22,49,50,92,93]. Two articles mentioned longer hospitalisations for burn injuries [58,116]. For articles discussing multiple acute health problems, two studies showed a longer length of stay for Indigenous patients [42,46], one study reported a shorter length of stay [119] and four studies showed no difference [26,27,45,104]. Although no statistically significant difference was noted, Laupland found that over 17% of Indigenous patients were delayed in their discharge because of transportation issues or lack of resources in their community [45]. For psychiatric diseases, length of stay was found to be longer in one study [14] and shorter in two other studies [32,84]. One article found no difference between the length of stay in the emergency department for Indigenous and non-Indigenous patients [103]. Six studies did not provide

any comparison with non-Indigenous patients [33,36,37,52,108,112]. There was no difference in length of stay for Indigenous patients with traumatic brain injury [122], blastomycosis of bones [28] or appendicitis [123]. Finally, Indigenous neonates stayed longer in the intensive care unit when hospitalised [24].

Cost

Seven studies discussed cost of health care for Indigenous patients. Five articles concluded to increased health care cost for Indigenous patients living in remote areas [36,51] as well as for Indigenous patients in general [22,91,125]. One study showed no statistically significant difference in health care cost [126] and one article provided no comparison with non-Indigenous patients [37].

Discussion

In this study, we found 114 articles that studied acute health care provided to Indigenous patients. Most studies presented results for Indigenous patients of all ages, focused on hospitalisation rates and were mainly retrospective. Only six articles out of 114 were qualitative, which is surprising considering the importance of qualitative studies in understanding the perception of health care of Indigenous patients. All provinces and territories of Canada were represented in the retrieved articles. Hospitalisation rates was the most studied outcome as it was analysed in more than half of all articles. 48 articles out of 67 reported higher hospitalisation rates for Indigenous patients when compared to non-Indigenous patients and 17 articles out of 26 found higher emergency department visit rates. Access to care was studied in 14 articles from which four articles noted a decreased access to care, five reported no difference and one reported a better access for Indigenous patients. For mortality, it is difficult to draw conclusions as eight articles reported an increased mortality, 10 articles reported no difference and five articles reported a decreased mortality for Indigenous patients. As for quality of care, care for cardiovascular diseases was similar for major interventions. The main difference in access to care was that Indigenous patients had less follow-up with specialists or longer wait times than non-Indigenous patients [48,96,103,107,120,122]. Studies discussing length of stay provided diverging results and no clear conclusion can be drawn seeing as nine studies showed increased length of stay, nine showed no difference and eight showed a decreased length of stay. Cost for health care seems to be higher for Indigenous patients since

out of 6 studies, 5 articles reported higher costs. Finally, nine articles discussed satisfaction with health care. Most of them reported cases of miscommunication and misinterpretation between Indigenous patients and health care professionals that had an impact on satisfaction with care [15,16]. Throughout these studies, Indigenous patients often mentioned not being satisfied with their access to health care and encountering multiple barriers in the health care system. These barriers include long wait times [15,16], difficulty communicating [15] as well as prejudices and discrimination [17,19–21]. Indigenous patients mentioned simply wanting to be treated like any other patient by practitioners who respect their Indigenous identity [15,18].

According to our research, no previous review has gathered all articles dealing with disparities in health care between Indigenous and non-Indigenous patients all illnesses combined. Our scoping review highlights important disparities between Indigenous and non-Indigenous patients in Canada, especially with regards to access to care, satisfaction with health care and hospitalisation or emergency department visit rates.

A systematic review on the experiences of Indigenous patients during hospitalisation for acute care was published in 2017 [127]. This review found 21 qualitative articles which provided three themes characterising the experience of Indigenous patients. Firstly, Indigenous patients reported feeling like they were going into a foreign land when they were hospitalised as health care practitioners are not always accustomed to their culture and traditions [128,129]. Furthermore, communication difficulties were frequent because of language barriers and/or cultural differences [130–132]. Finally, relationships with practitioners were sometimes difficult because of diverging views of health care and prejudices they may have had. This review is consistent with our findings which tend to confirm that many Indigenous patients have experienced negative encounters with health care professionals. As for access to care, our study did not provide any clear conclusions but some important elements have nonetheless emerged. A study published in 2018 aimed to identify barriers to health care access and presents similar results as our review. In this study, the most important barriers for Indigenous patients were long wait times, substandard quality of care and discrimination. This article provides an interesting perspective, especially regarding long wait times. Indeed, long wait times are experienced by all patients seeking health care in Canada. However, this article underlines the way in which different cultures and past experiences lead to different interpretations of certain events

and these differences must be recognised in order to provide culturally safe care [132].

The use of health services by Indigenous Peoples has been studied for various health conditions in Australia over the past years. A review published in 2016 discussed the use of the emergency room by Indigenous Peoples living on Torres Island. Indigenous patients consulted at the emergency department more often than other Australians [133]. An article studying visits to the emergency department by Indigenous patients in 2004–2005 arrived to the same conclusion but also found that Indigenous patients were more likely to leave the emergency department before being seen by a health care practitioner [134]. A study with the same aim has recently been published in Canada and the results are very similar to those found in Australia [135]. Another study published in Australia about intensive care unit admissions also obtained similar results. Indigenous patients were over-represented in the ICU and more frequently required emergency admissions although no difference was found in mortality [136].

Some authors have suggested solutions to improve the quality of health services provided to Indigenous patients. A study in Australia suggested that health care services managed by Indigenous patients are the best way to maximise their access to care [137]. A scoping review published in 2009 grouped articles regarding Indigenous patients' experience within emergency departments in Canada [138]. The author's concluded that developing cultural competency is essential in order to upgrade the quality of health care. In order to achieve this, it is necessary to have a shared understanding of Indigenous communities and to collaborate with them. It is also essential to prevent discrimination by providing appropriate training to professionals and by promoting access to health care services [138]. A systematic review published in 2015 obtained the same conclusions. It identified training health care workers and recruiting Indigenous workers as the most effective interventions to improve cultural competency. These interventions improve patient's satisfaction of care [139]. Another strategy for improving quality of care is integrated care [140]. Health care provided in a multidisciplinary approach, which encompasses all aspects of health can reduce disparities in health care and help communities achieve a better state of health. This approach involves the patient as an active partner in his health care and aims to include psychological and spiritual aspects of health care [140].

Changes in the health care system must be made to improve the quality of health care provided to Indigenous Peoples in Canada. Solutions to reconcile

Indigenous cultures with hospital practices to provide health care in a culturally safe organisation should be explored. Future health care workers must be taught about the cultures and traditions of Indigenous Peoples in regard to health care. To increase cultural competency and prevent racism, future health care providers must recognise and understand cultural differences, in order to adapt their practice to each patient. Furthermore, no studies have focused on understanding the fundamental causes behind the differences in the prevalence of health problems disproportionately affecting Indigenous Peoples. Interventions to reduce the disproportionately high prevalence of certain diseases affecting Indigenous Peoples need to be explored. Finally, very few qualitative studies were performed with Indigenous Peoples in Canada. Studies examining ways in which health care could be improved with Indigenous communities would be important. Indeed, it is essential to include Indigenous communities in the discussions about health care to ensure their perspectives and traditions are respected.

Given that our study is a literature review, its quality depends of the quality of the articles included. The articles retrieved are mostly retrospective or prospective cohort studies (median STROBE score = 15/22). The quality scores differ for qualitative studies (median = 21/32), case reports (Median = 7/13) and abstracts (median = 7/11). No randomised control trials have been published about health care issues of Indigenous Peoples in Canada in an acute care setting. 18 articles were published before 2000 and the quality of their evidence may therefore differ from current standards. It is important to mention that although all included Indigenous Peoples live in Canada, important differences exist between each community. Indeed, access to care may vary depending on the location of the community. Furthermore, every community has a unique history and traditions as well as a unique perspective on health care. The health care system in Canada also varies depending on the territory and nation of Indigenous Peoples. This thus limits the generalisation of our results as data retrieved from a specific community may not apply to others. Our study is at risk of a publication bias since articles with positive results are more likely to be published than negative studies. To minimise this bias, incomplete articles were included in the analysis and available data was used. A publication bias would increase the proportion of articles showing disparities between health care provided to Indigenous and non-Indigenous Canadians. Studies regarding Indigenous Peoples completed by non-Indigenous authors are at risk of interpretation bias which is difficult to estimate. This review

presents the same risk since the authors are non-Indigenous. To diminish the importance of this bias, articles were included with objective inclusion criteria and studied outcomes were clearly defined. Also, subjective data was drawn directly from published data and does not reflect personal opinions. To prevent subjectivity in data interpretation, at least two different authors were involved in the reading of articles and extraction of data. Another limit of this article is the small number of articles that exist relative to certain specific topics such as health care costs making it impossible to draw conclusions about their impact on Indigenous Peoples. Finally, the small number of existing qualitative studies may affect the generalisability of conclusions about satisfaction with health care since only a small proportion of Indigenous patients and communities were questioned on this particular topic.

Conclusion

Indigenous Peoples in Canada still face significant inequalities in their access to health care when compared to non-Indigenous Canadians. They also carry a greater burden of health problems requiring acute health care, particularly in regards to pulmonary, cardiovascular, traumatic and psychiatric illnesses. Furthermore, their satisfaction with health care is lower than that of other Canadians which in turn limits their use of health care services. Given the historical context of colonialism in Canada and the persistence of significant disparities between Indigenous and non-Indigenous populations, it is essential to include Indigenous communities in the organisation of health care. Indigenous Peoples are most well informed of their reality and are best suited to identify their needs. It is essential to ensure that Indigenous Peoples in Canada have access to culturally safe health care, which embraces their unique perspective on health.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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LRTI: Lower respiratory tract infection, ED: Emergency department, y.o.: years old, F/M: Female/Male, Gr: Group, COPD: Chronic obstructive pulmonary disease, ICU: Intensive care unit, AECOPD: Acute exacerbation of chronic obstructive pulmonary disease

ACS: Acute coronary syndrome, CHF: Congestive heart failure, AF: Atrial fibrillation, HTN: Hypertension, AMI: Acute myocardial infarction, PCI: Percutaneous coronary intervention, CABG: Coronary artery bypass grafting, IHD: Ischaemic heart disease

RA: Rheumatoid arthritis, AS: Ankylosis spondylitis, PsD: Psoriatic disease, CRA: Crystal-related arthritis, SLE: Systemic lupus erythematosus