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Social determinants of unmet need for primary care: a systematic review

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Abstract

Background Despite primary care being largely free at the point of delivery, many Canadians experience challenges in accessing the services they need. A systematic review was conducted to summarize the evidence on the level of unmet need for primary care in Canada and its social determinants.

Methods MEDLINE, Embase, Cochrane, and Web of Science databases were screened from inception to December 2023 using relevant search terms for primary care and unmet healthcare needs. Quantitative observational studies in the English language that included Canadian adults aged 18 years and older and focused on unmet needs for primary care were included. The risk of bias in the studies was assessed using either the Joanna Briggs Institute (JBI) critical appraisal checklist or the Newcastle–Ottawa Scale. The included studies were synthesized narratively.

Results Forty-six studies met the inclusion criteria for this review. Of the included studies, 96% were cross-sectional in design and 91% had low risk of bias. The prevalence of unmet need, mostly self-reported, varied between 6.6% and 25.2% in national studies. Social determinants of unmet needs were heterogeneous across studies. Findings suggest that unmet need for primary care is related to having low income, mental health diagnoses, and chronic conditions, and negatively associated with older age, having better-perceived health, and having a family physician.

Conclusions Universal access to primary care is the founding principle of the Canadian healthcare system. However, we found evidence suggesting that the extent to which primary care needs are met is influenced by social determinants of health. Further research is needed to improve our understanding of the mechanisms of unmet primary care needs in Canada.

Systematic review registration PROSPERO CRD42021285074.

Keywords Unmet need, Health inequities, Primary care, Healthcare utilization, Systematic review

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Introduction

The Canadian healthcare system was founded on the principle of universal coverage and is a source of national pride [1]. This makes primary care services free at the point of care. Primary healthcare is an entry point into the healthcare system. Unfettered access to primary care services allows for continuity of care, reduces morbidity, hospitalizations, and mortality, and improves the efficiency of the healthcare system [2–4]. Individuals who forego or delay medical care can exacerbate existing health problems which may lead to an increase in the use of healthcare services at a later point in time [3, 5]. This, in turn, can result in an increase in healthcare spending [3, 6, 7].

Social determinants of health, i.e., non-medical factors that affect access to care and health outcomes, relate to conditions in which people are born, grow, work, connect, live, and age [8, 9]. These determinants include factors such as income, education, employment, social and physical environments, and cultural contexts [8, 9]. Social determinants of health can significantly influence an individual's health outcomes and access to healthcare services by affecting individuals' ability to seek, receive, and adhere to medical advice and treatment [8–11]. For instance, racial minorities and materially deprived households may face structural barriers and social bias in healthcare, such as intentional or unintentional discrimination, lack of culturally appropriate care, or geographical barriers that prevent them from receiving timely and appropriate healthcare [12–14]. These non-health determinants reinforce social disadvantages and vulnerability [15]. Understanding these social determinants is crucial for addressing disparities in healthcare access and outcomes [10, 11].

Despite the promise of universal, affordable coverage, many Canadians experience barriers in accessing healthcare services, resulting in unmet healthcare needs. A 2021 Commonwealth Fund Report ranked the Canadian healthcare system 9th out of 11 high-income countries on the overall access to care domain, which measures affordability and timeliness [16]. An unmet need can arise due to inadequate or inappropriate access to treatment for a health issue [17] and can be expressed in relation to physical [17–20] or mental healthcare services [12, 21, 22]. Timeliness of care has been a primary healthcare concern for the public as well as healthcare professionals for the past 20 years [23], particularly for older Canadian adults [24]. Unmet healthcare needs tend to be greater among socially marginalized groups, such as racial minorities and low-income groups [25]. Other social determinants of health associated with unmet needs include female sex [26] and poor health status [27].

Current reviews examining unmet healthcare needs are largely based on literature from the United States and Europe and have focused on patients with specific health conditions [28, 29]. Similarly, recent Canadian reviews on unmet needs have been on cancer care [30], home care [31], and immigrants [32]. Given that primary care is the entry point to the healthcare system, the identification of barriers to access is crucial to improve access. Several Canadian studies have explored the level of unmet primary care needs and the associated social determinants. However, there is no comprehensive summary of the literature. In this study, we use a broad definition of primary care, which encompasses services delivered by primary care clinics or community care services. The aim of this systematic review is to review and appraise the evidence on unmet needs for primary healthcare within the Canadian context.

Methods

Protocol

The protocol for this systematic review was preregistered on the international database of prospectively registered systematic reviews with a health-related outcome (PROSPERO; CRD: 42021285074). The review is reported in adherence with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) guidelines (see Additional file 1).

Information sources and search strategy

MEDLINE, Embase, Cochrane, and Web of Science databases were searched from inception to December 2023. The search strategy was developed in consultation with a research librarian. Terms and keywords relating to Unmet Need and Primary Care were used to identify relevant studies: unmet need AND (family medicine OR family practice OR family doctor OR family physician OR general practice OR general practitioner OR primary care OR primary healthcare). Additionally, forward and backward citation searches were performed on Web of Science. The full search strategy is provided in Additional file 2.

Eligibility criteria

The eligibility criteria were defined based on the following PICOS framework: Population (P): adults aged 18 years or older; Intervention (I): any intervention or exposure; Comparator (C): any comparator or control; Outcome (O): unmet need for primary care; Study Design (S): quantitative observational study design. Only studies with Canadian data were included. These studies could be national (or international if other countries were included besides Canada), provincial, or local. For this review, a broad definition of primary care was adopted,

which includes community care services that may not be delivered by primary care clinics, allowing for an assessment of unmet needs in a broader context. Additionally, self-perceived unmet need was defined as not receiving primary healthcare services when needed.

Studies were excluded if they focused on secondary care or only included individuals < 18 years of age. In addition, non-English language and non-Canadian studies (if Canada was not included) were excluded at the full-text screening stage. Six reviewers (FWA, JY, SK, SSK, SMN, and SS) independently screened all titles, abstracts, and full texts. Each study was screened by two authors. Disagreements were resolved through consensus.

Data extraction and synthesis

A data extraction form was developed and pilot-tested for data abstraction. Author information, year of publication, geography, study objectives, study design, sample size, study population characteristics, level of unmet need, and the quantified association of predictors of unmet need were collected. The data extraction was performed by six reviewers (FWA, JY, SK, SSK, SMN, and SS) and validated by two reviewers (FWA and SS). Any discrepancies were resolved through consensus.

Due to the heterogeneity of studies, a meta-analysis was deemed not appropriate. A narrative synthesis was used to summarize the data extracted from the included studies. For studies that reported both unadjusted and adjusted effect estimates, only the adjusted effect estimates were extracted.

Risk of bias assessment

The risk of bias was assessed using separate tools for cross-sectional and cohort studies [33]. For cross-sectional studies, the Joanna Briggs Institute (JBI) critical appraisal checklist for analytical cross-sectional studies was used [34]. For cohort studies, the Newcastle–Ottawa Scale for cohort studies was used [35]. Discrepancies in risk of bias assessment were resolved through consensus.

Results

Results of the search

A total of 11,663 abstracts were initially identified from the database searches (Fig. 1). After deduplication, 8586 studies underwent title and abstract screening, 256 underwent full-text screening review and 43 were found to be relevant. Studies were excluded after full-text screening for the following reasons: ineligible outcomes ($n=101$), ineligible study design ($n=44$), ineligible setting ($n=33$), abstract-only study ($n=31$), ineligible patient population ($n=3$) and full text not in English ($n=2$). Five additional studies were identified through

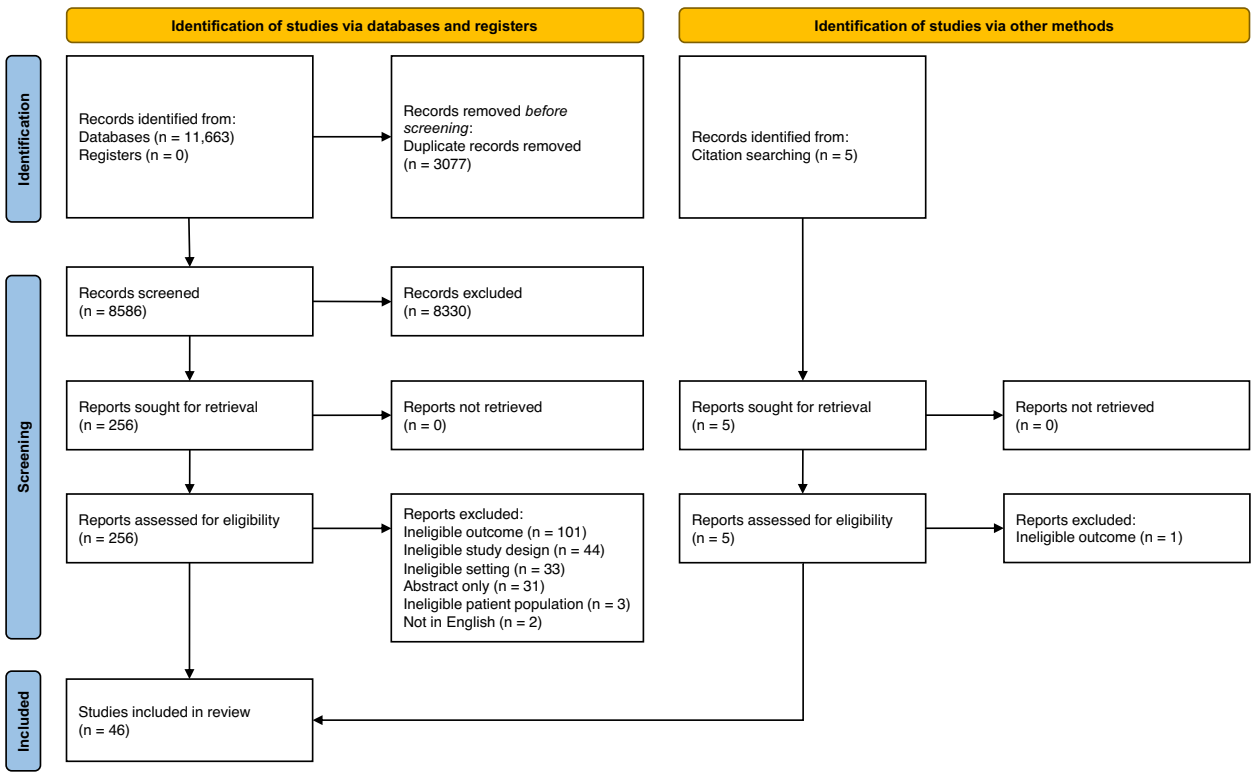

Fig. 1 PRISMA flow diagram

citation searching; however, one was excluded due to an ineligible outcome. This report is focused on a total of 46 Canadian studies (Additional file 3) examining unmet primary healthcare needs.

Description of the included studies

A detailed description of the included studies is presented in Table 1. Of the included studies, 32 focused on unmet needs in general healthcare [13, 17–20, 27, 36–61], and 11 focused on unmet needs in mental healthcare [12, 21, 22, 26, 62–68]. Three studies focused on unmet needs in both general and mental healthcare [69–71]. Two of the included studies were longitudinal in design [36, 63] while the rest were cross-sectional. The studies were conducted between 1998 and 2023, where sample sizes ranged from 320 in a community-based study conducted in Edmonton, Alberta [22] to over 400,000 in a study that pooled multiple national-level population-based surveys [42]. There were differences in the data sources used across the included studies. The most common data sources were the Canadian Community Health Survey (CCHS, $n=26$), the Health and Housing in Transition study (HHiT, $n=3$), and the Canadian Longitudinal Study on Aging (CLSA, $n=2$). The remaining sources were used in one study each. The minimum average age within the study was 38.2 years, and the maximum average age was 67.7 years. Sex distribution varied vastly with female participants making up 12.4% to 100% of study participants. All provinces and territories of Canada were included in 5 studies, 20 included all provinces but not the territories, 6 were conducted in Ontario, 4 in Quebec, 4 in British Columbia, 3 in Ontario and British Columbia, 1 in Alberta, 1 in Ontario and New Brunswick, and 1 in Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland and Labrador. One study included participants from Ontario, Manitoba, Newfoundland and Labrador, Alberta, New Brunswick, Nova Scotia, and the Northwest Territories.

All included studies defined unmet need as the perceived need for healthcare by study participants that were not received. The recall period for assessing unmet needs ranged from 6 to 12 months; however, it was not specified in three studies [43, 44, 60]. Twenty studies (43%) utilized Andersen's Behavioral Model of Health Services Use [72], a model that asserts that an individual's use of the healthcare system is partly determined by factors that predispose and enable them to seek or avoid care and their need for healthcare services, to inform their selection of predictors of unmet need [17, 21, 27, 38, 39, 43, 45, 46, 50, 51, 53, 54, 57, 58, 60, 62, 65, 68–70].

Findings

The five studies that included participants from all provinces and territories in Canada focused on general unmet healthcare needs (Table 1). The proportion of participants reporting unmet needs in these studies ranged from 10.4 [58] to 12.8% [49] as each study used data from different study periods. The 20 studies that reported the rate of unmet needs across all 10 provinces (but not the territories) differed in the data sources they used and study periods they covered. The level of unmet need for general healthcare in these studies ranged from 6.6 [19] to 25.2% [47], while the level of unmet need for mental healthcare ranged from 2.4 [66] to 50.3% [66].

Sixteen studies reported the rate of unmet need for general healthcare at the provincial or territorial level. The level of unmet needs ranged from 12.0 to 24.7% in British Columbia [40, 46, 52, 69] 8.0 to 23.6% in Ontario [13, 27, 53, 60], and 18.4% to 52.3% in Quebec [20, 41, 43]. Three studies reported an unmet need proportion of 37.7% in Ontario and British Columbia [18, 36, 71], one reported a proportion of 10.0% in Ontario and New Brunswick [59] and another one reported a proportion of 3.5% across six provinces and the Northwest Territories [57].

Seven studies reported an unmet need for mental healthcare at the provincial level. These were 47.6% in Alberta [22], 39.9% in Quebec [63], 23.5% in Ontario and British Columbia [71], 60.0% in Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland [68], a range of 4.5% to 68.3% in Ontario [12, 26] and a range of 10.4% to 16.5% in women residing in British Columbia. MacLean et al. (2021) only reported the rate of general unmet needs among veterans and the general population, stratified by sex [37]. Female veterans had higher rates of unmet needs relative to their general population comparators (16.2% vs. 13.4%). Male veterans and their comparators both had an unmet need rate of 9.9%.

A summary of the associations reported in the included studies is presented in Table S1 (Additional file 4). The most frequently investigated factors were sex/gender ($n=36$), age ($n=34$), education ($n=30$), and income ($n=29$). A significant proportion of these studies found notable associations between health conditions and unmet needs, including chronic conditions (17/21), specific health conditions (14/15), mental health diagnoses (20/21), and perceived health (22/26). Likewise, 13 out of 15 studies found significant associations between having a primary care provider and unmet needs. Age was the most frequently reported significant variable, with 24 out of 34 studies identifying significant associations. Other variables showing significant associations included province (7/8), education (19/30), income (20/29), substance use (4/6), and

Table 1 Detailed description of included studies

First author/ year	Data source	Location	Study period	Sample size	Type of unmet need	Sex (% female)	Mean age (SD)	Proportion reporting unmet need (%)
Allan et al. 2021 [54]	CCHS	10 provinces	2001 to 2014	383,939	General	2001: 51.0 2003: 51.0 2005: 51.0 2010: 50.9 2014: 50.9	46.1	2001: 13.0 2003: 11.6 2005: 11.8 2010: 12.0 2014: 11.0
Argintaru et al. 2013 [18]	Health and Housing in Transition (HHiT) study	ON, BC	2009	1181	General	32.8	NR	37.7
Awe et al. 2019 [58]	CCHS	Canada	2013 to 2014	58,462	General	55.1	NR	10.41
Baiden et al. 2017 [21]	CCHS-MH	10 provinces	2012	3857	Mental	63.0	NR	31.9
Bataineh et al. 2019 [59]	CCHS	ON, NB	2003, 2005, 2014	163,409	General	NR	Unmet: 42.50 Met: 46.29	10.0
Bryant et al. 2009 [52]	Telephone survey study	BC	NR	2536	General	61.3	NR	13.2
Cammaert 2022 [69]	CCHS	BC	2012	3699	General, Mental	100.0	NR	Body satisfied: 10.4 Body dissatisfied: 16.5
Chamberlain et al. 2023 [70]	CLSA	10 provinces	2015 to 2018	44,423	General, Mental	51.1	NR	8.5
Chen & Hou 2002 [19]	National Population Health Survey	10 provinces	1998 to 1999	14,143	General	NR	NR	6.6
Dezetter et al. 2015 [63]	Dialogue project	QC	2008	1288	Mental	74.7	NR	39.9
Drapeau et al. 2019 [64]	CCHS	10 provinces	2002, 2012	55,063	Mental	50.0	46.1	2002: 4.4 2012: 5.3
Durbin et al. 2014 [60]	Mental health court support programs in Toronto	ON	2009	994	General	26.4	38.19	12
Gibson & Clair 2019 [61]	CCHS	10 provinces	2001 to 2013	3300	General	57.6	NR	11.2
Hwang et al. 2017 [53]	Neighborhood Effects on Health and Well-being (NEHW) study	ON	2009, 2011	2338	General	35.6	42 (11)	Women: 16.9 Men: 14.2
Hyshka et al. 2017 [22]	Direct recruitment from community	AB	2014	320	Mental	32.8	Vancouver: 42.0 (10.2) Toronto: 43.8 (9.8) Ottawa: 41.0 (11.4)	47.6
Islam & Kellett 2022 [55]	CCHS	Canada	2014, 2017 to 2018	120,345	General	2014: 50.9	NR	2014: 11.2
Jaworsky et al. 2016 [36]	Health and Housing in Transition (HHiT) study	ON, BC	2009 to 2013	1163	General	74.7	NR	37.8
Kasman & Badley 2004 [49]	CCHS	Canada	2001	130,880	General	NR	NR	12.8

Table 1 (continued)

First author/ year	Data source	Location	Study period	Sample size	Type of unmet need	Sex (% female)	Mean age (SD)	Proportion reporting unmet need (%)
Khattar et al. 2022 [56]	CLSA: COVID-19 Questionnaire Study	10 provinces	2011 to 2020	23,972	General	53.2	NR	Pre-Pandemic: 7.8 Pandemic: 25.3
Kitching et al. 2020 [13]	Our Health Counts Toronto (OHCT)	ON	2015 to 2016	836	General	53.1	NR	23.6
Law et al. 2005 [27]	Health survey in Hamilton, ON	ON	2001 to 2002	1500	General	52.0	46	8.0
Levesque et al. 2012 [20]	Household-dwelling population of Montreal and Monté-régie regions	QC	2005	9205	General	57.7	NR	18.4
Lin & Fang 2023 [57]	CCHS	ON, MB, NL, AB, NB, NS, NWT	2015 to 2018	19,020	General	54.7	NR	3.5
MacLean et al. 2021 [37]	Life After Service Survey (LASS), CCHS	10 provinces	2015 to 2016	LASS: 2755 CCHS: 109,659	General	LASS: 12.4 CCHS: 53.7	NR	NR
Marshall 2011 [38]	CCHS	10 provinces	2003	134,072	General	50.7	NR	22.3
McDonald et al. 2010 [39]	CCHS	10 provinces	2002 to 2003	39,974	General	Urban Core: 54.2 Rural Fringe: 51.3 Urban o/ CMA: 54.2 Rural o/ CMA: 48.5	Urban Core: 67.2 Rural Fringe: 65.5 Urban o/ CMA: 67.7 Rural o/ CMA: 66.6	NR
McLeod & Karim 2020 [65]	CCHS	10 provinces	2014	52,825	Mental	51.1	NR	11.8
Moallef et al. 2021 [40]	DTES-2GS evaluation study	BC	2017 to 2018	889	General	41.5	NR	24.7
Nelson & Park 2006 [26]	CCHS-MH	ON	2002 to 2003	13,184	Mental	51.0	NR	4.5
Palepu et al. 2013 [71]	Health and Housing in Transition (HHiT) study	ON, BC	2009	1181	General, Mental	32.7	Physical Unmet: 41.6 (10.5) Met: 42.6 (10.6) Mental Unmet: 40.9 (9.7) Met: 42.6 (10.8)	Physical: 37.7 Mental: 23.5
Pineault et al. 2017 [41]	Population-based telephone survey; Physicians' survey	QC	2010	6084	General	55.0	NR	NR

Table 1 (continued)

First author/ year	Data source	Location	Study period	Sample size	Type of unmet need	Sex (% female)	Mean age (SD)	Proportion reporting unmet need (%)
Reid et al. 2012 [42]	CCHS	10 provinces	2001 to 2005	Gen pop: 400,055 Epilepsy: 2555	General	Gen. pop: 50.7 Epilepsy: 50.9 Asthma: 58.9 Diabetes: 46.9 Migraine: 71.8	Gen pop: 45.4 (20.2) Epilepsy: 43 (17.7) Asthma: 39.5 (19.2) Diabetes: 62.9 (14.7) Migraine: 41.1 (16.8)	Gen. pop: 11.6 Epilepsy: 17.9 Asthma: 17.5 Diabetes: NR Migraine: 21.0
Ridde et al. 2020 [43]	Direct recruitment from community and NGO (Doctors of the World)	QC	2016 to 2017	806	General	63.0	40.3	52.3
Ronksley et al. 2012 [50]	CCHS	Canada	2001 to 2005	360,105	General	51.0	NR	12.2
Shakeel et al. 2020 [44]	Provincial cancer registries	10 provinces	2016	10717	General	58.8	NR	NR
Sibley & Glazier 2009 [51]	CCHS	10 provinces	2003	111,258	General	51.3	NR	11.7
Sibley & Weiner 2011 [45]	CCHS	10 provinces	2003	111,258	General	NR	NR	Urban CMA: 11.7 Urban CA: 12.7 Rural S-MIZ: 10.8 Rural M-MIZ: 10.2 Rural W/N-MIZ: 11.2
Socias et al. 2016 [46]	CCHS	BC	2011 to 2012	12,252	General	55.9	NR	12.0
Starkes et al. 2005 [68]	CCHS	NS, NB, PEI, NL	2000 to 2001	17,836	Mental	51.2	NR	60.0
Steele et al. 2017 [12]	Community-based internet survey	ON	2011 to 2012	704	Mental	NR	All: 37.9 (11.6) Cis-Het: 41.8 (11.7) Bi/Pan: 33.8 (9.8) Trans: 36.1 (11.3) LGQ: 36.9 (11.4)	68.3
Sunderland & Findlay 2013 [62]	CCHS-MH	10 provinces	2012	25,113	Mental	NR	NR	12.2
Urbanoski et al. 2007 [66]	CCHS-MH	10 provinces	2002	36,984	Mental	50.7	43.7 (17.8)	No disorder: 2.4 SUD: 13.2 MD: 20.8 SUD + MD: 50.3
Urbanoski et al. 2017 [67]	CCHS-MH	10 provinces	2012	23,782	Mental	NR	NR	33.5
Vyas et al. 2020 [47]	CCHS	10 provinces	2000 to 2014	350,084	General	51.7	NR	25.2
Wu et al. 2005 [17]	CCHS	Canada	2000 to 2001	118,219	General	Immigrant: 50.5 Non-immigrant: 51.1	Immig.: 47.93 Non-immig. 44.22	Immig.: 11.6 Non-immig.: 13.6

Table 1 (continued)

First author/ year	Data source	Location	Study period	Sample size	Type of unmet need	Sex (% female)	Mean age (SD)	Proportion reporting unmet need (%)
Zygmunt et al. 2017 [48]	Canadian Survey of Experiences with Primary Health Care	10 provinces	2008	10,858	General	Team-based: 52.9 Non-team-based: 51.6	NR	NR

AB Alberta, *BC* British Columbia, *Bi/Pan* bisexual or pansexual, *CA* Census Agglomeration, *CCHS(-MH)* Canadian Community Health Survey (-Mental Health), *Cis-Het* cisgender heterosexual, *CLSA* Canadian Longitudinal Study on Aging, *CMA* Census Metropolitan Area, *Gen. pop*. general population, *Immig.* immigrant, *LGQ* lesbian, gay or queer, *(S-, M-, W/N-)MIZ* (Strong-, Moderate-, Weak/No-) Metropolitan Influenced Zones, *MB* Manitoba, *MD* mood disorder, *NB* New Brunswick, *NGO* non-government organization, *NL* Newfoundland and Labrador, *NR* not reported, *NS* Nova Scotia, *NWT* Northwest Territories, *o/* outside, *ON* Ontario, *PEI* Prince Edward Island, *QC* Quebec, *SUD* substance use disorder

social support (8/12). In contrast, variables such as immigration status (10/14) and health insurance (5/7) largely did not show significant associations. For the remaining variables, the studies did not consistently show significant associations in either direction, indicating a lack of a clear trend. The outcomes from each included study are presented in Tables S2, S3, and S4 (Additional file 5).

Geographical factors

Nineteen studies evaluated the effect of geographical factors on unmet needs (Table S2). Ten studies examined the difference in unmet needs between urban and rural residents, with seven finding no significant differences [17, 19, 38, 39, 46, 54, 68]. Three studies found that rural residence was associated with lower odds of unmet needs with estimates ranging from OR = 0.80 (95% CI 0.72, 0.90) to OR = 0.88 (95% CI 0.78, 0.99) [45, 51, 64].

Eight studies investigated the relationship between odds of unmet needs and province of residence, one of which did not find a significant association [68]. The remaining studies found a significant association, however, there was variation in the estimates reported [39, 45, 48, 51, 55, 59, 65]. Five studies investigated unmet needs at the level of Canadian cities [16, 36, 71] evaluated unmet needs across three cities (Ottawa, Toronto, and Vancouver), and found no significant differences [18, 36, 71]. Law et al. (2005) explored the effect of the neighborhood on the healthcare needs of residents of Hamilton, Ontario, and found that residents of the Downtown Core were 2.19 times more likely to report having unmet needs compared to those in the Southwest Mountain area [27]. Shakeel et al. (2020) found that individuals living in areas with > 50,000 residents had lower odds of unmet physical healthcare needs (OR = 0.76, 95% CI 0.62, 0.93), while no significant association was found for emotional needs [44].

Socioeconomic and demographic factors

The relationship between unmet needs and demographic and socioeconomic factors was evaluated in 43 and 36 studies, respectively (Tables S2 and S3). These included age ($n = 39$), sex and gender ($n = 40$), race and ethnicity ($n = 17$), marital status ($n = 21$), immigration status ($n = 20$) education ($n = 31$), income ($n = 31$), and employment status ($n = 16$).

Thirty-nine studies considered age a determinant of unmet needs. Ten of these did not find a significant association [18, 22, 36, 40, 43, 44, 52, 59, 60, 71] and five did not report the estimates [39, 41, 50, 53, 66]. Twenty-one studies found that older age was associated with lower odds of unmet need relative to younger age, with odds ratios ranging from 0.13 to 0.98 [12, 17, 19–21, 26, 27, 38, 42, 45, 46, 48, 49, 51, 54, 55, 64, 65, 67, 69, 70], and one study found younger age to be associated with higher risk of unmet need [47]. In contrast, Starkes et al. (2005) found that middle-aged and older adults had higher odds of unmet needs relative to young adults [68]. Awe et al. (2019) found individuals aged 18 to 49 years old had higher odds of unmet healthcare needs when compared to those aged 12 to 17 years old (18–34 years OR = 1.74, 95% CI 1.17, 2.59; 35–49 years OR = 1.54, 95% CI 1.03, 2.30) [58].

The effect of sex and gender was evaluated in 40 studies. Sixteen of these studies did not find a significant association [18, 19, 21, 22, 27, 36, 40, 43, 44, 47, 48, 60, 61, 67, 68, 71] while four studies did not report estimates [39, 41, 50, 66]. Female sex was associated with higher odds of unmet need in 18 studies, with estimates ranging from 1.03 to 1.65 [20, 26, 38, 42, 45, 46, 49, 51, 52, 54–56, 58, 59, 64, 65, 70]. However, one study found that female sex was associated with lower odds of unmet need (OR = 0.990, 95% CI 0.990, 0.990) [17]. A study by Steele et al. (2017) assessed the association between unmet need and gender and sexual identity but their findings were not statistically significant [12].

The search found 17 studies that assessed the relationship between unmet healthcare needs and race and ethnicity, 10 of which did not find a significant association [12, 22, 36, 45–47, 51, 65, 67, 71]. Identifying as East Asian, West Asian, a visible minority, or other was associated with lower odds of unmet need in three studies, with estimates ranging from 0.28 to 0.98 [17, 18, 61]. Kasman and Badley (2004) found white racial/ethnic identity was associated with higher odds of unmet need relative to visible minority (OR = 1.32, 99% CI 1.18, 1.49) [49]. Two studies found Indigenous status was associated with higher odds of unmet need [19, 54], while another considered Indigenous status but did not report an estimate [50].

Twenty-one studies examined the relationship between unmet needs and marital status, ten of which reported nonsignificant findings [21, 44, 45, 47, 51, 52, 59, 60, 65, 68] and two did not report an estimate [39, 50]. Five studies found that, compared to individuals who were married or in a common law relationship, those who were divorced, separated, or widowed had higher odds of unmet needs with estimates ranging from 1.12 to 1.48 [17, 19, 42, 55, 58]. Two studies found that those who were single or never married had lower odds of unmet needs [26, 54]. Another study found being widowed was associated with lower odds of unmet needs whereas being divorced or living in common law was associated with higher odds [61]. In contrast, Drapeau et al. (2019) found individuals living with a partner had 41% lower odds of having unmet need [64].

Twenty studies evaluated the association between immigration status and unmet needs. Lin and Fang (2023) found that racialized immigrants had higher odds of unmet needs compared to Canadian-born whites [57]. Three studies found that immigrants had 12–40% lower odds of unmet healthcare needs [17, 38, 64]. Time since immigration and immigration class were not associated with the odds of having unmet need in two studies [43, 59] however, one study found an inverse association between reporting unmet needs and time since immigration [54]. Three studies did not report estimates [39, 50, 53] and the remaining studies did not find a significant association [18, 19, 21, 44, 46, 47, 55, 61, 65, 67].

Level of education attainment was not significantly associated with unmet needs in 11 studies [19, 21, 27, 44, 47, 48, 52, 61, 63, 64, 67], and the estimate was not reported in one [53]. Higher education attainment was associated with higher odds of unmet need in 16 studies, with estimates ranging from 1.03 to 1.85 [17, 18, 20, 38, 39, 42, 43, 45, 46, 49, 51, 55, 58, 59, 65, 70] However, three studies found higher odds of unmet need in those with lower education attainment [54, 68, 69].

Thirty-one studies assessed the effect of income on unmet needs by considering total household income as well as relative income quantiles/quintiles. Nine studies found that income was not associated with the odds of having unmet needs [26, 27, 44, 48, 52, 54, 64, 67, 68] while one study did not report the odds ratio estimate [53] Seventeen studies reported individuals with lower income had higher odds of unmet need, with odds ratios ranging from 1.01 to 9.71 [17, 19, 21, 38, 42, 45, 46, 49, 51, 55, 58–61, 63, 65, 70] Vyas et al. (2020) found those with income < $60,000 had a higher risk of having unmet need, with estimates ranging from 1.44 to 1.51 [47]. One study found individuals in the middle-income quintile had lower odds of unmet need relative to those in the highest quintile (OR = 0.825, $p = 0.05$) [39]. Two studies found low socioeconomic status, evaluated by considering employment status, source of income, total household income, number of individuals in the household, amount of income spent on housing [12], and average or poor perceived wealth status [20] were associated with lower odds of unmet need.

The search found 16 studies that assessed the relationship between unmet needs and employment, seven of which found no significant association [36, 43, 44, 48, 52, 63, 71]. Six studies found that being unemployed was associated with lower odds of having unmet needs, with estimates ranging from 0.60 to 0.85 [18–20, 45, 51, 55]. One study found that being employed was associated with lower odds of unmet need (OR = 0.93, $p < 0.001$) [38]. Mixed results were found for being self-employed, with one study including all 10 provinces suggesting a 32% reduction in odds of unmet need [64] and another study conducted in Ontario reporting a 1% increase for self-employed [59].

Life circumstances

The association between unmet needs and life circumstances was evaluated in 12 studies (Table S4). These include housing status ($n = 8$), incarceration ($n = 3$), adverse childhood experiences ($n = 1$), discriminatory events ($n = 2$), food insecurity ($n = 2$), living arrangements (3), and stress ($n = 2$).

Eight studies evaluated the impact of housing status on having unmet healthcare needs. Being a renter, having moved one or more times in the previous year, and having slept in six or more different places in the past 6 months were not associated with having unmet needs [13, 22, 52]. Having no fixed address, staying in hostels and shelters and homelessness were associated with higher odds of unmet needs with estimates ranging from 1.45 to 2.79 [40, 60, 71]. The lifetime duration of homelessness, however, did not affect the odds of reporting unmet need [18, 36, 71].

One study found that incarceration in the past 12 months was associated with higher odds of unmet need (OR = 1.32, 95% CI 1.04, 1.68) [36], while two other studies did not find a significant relationship [40, 71]. History of two or more adverse childhood experiences was associated with an increase in odds of unmet needs by a factor of 1.28 [21]. Experiencing discriminatory events was associated with higher odds of unmet need [12, 13]. In addition, Indigenous individuals who had been discriminated against by a healthcare provider and did not have access to desired foods (OR = 5.2, 95% CI 1.6, 16.8) [13] as well as immigrants experiencing food insecurity (OR = 3.73, 95% CI 2.38, 5.87) [43] had higher odds of unmet need.

Two studies did not find an association between living arrangements and having unmet healthcare needs [27, 60]. One study found living with a spouse or a partner was associated with lower odds of unmet need (OR = 0.89, $p < 0.05$), while living with a roommate was associated with higher odds (OR = 1.21, $p < 0.05$) [38]. High stress and having experienced a stressful event in the previous 12 months were also associated with higher odds of having unmet healthcare needs with estimates ranging from 1.35 to 1.83 [17, 52].

Existing health conditions

The association between unmet needs and health conditions was assessed in 40 studies: chronic conditions ($n = 21$), specific health conditions ($n = 15$), mental health diagnoses ($n = 21$), and perceived health ($n = 26$) (Table S4). Twenty-one studies evaluated the relationship between chronic conditions and having unmet needs. Eleven studies found the presence of one or more chronic conditions was associated with higher odds of unmet healthcare needs [17–20, 26, 27, 48, 50, 58, 65, 71]. The estimates ranged from 1.14 to 1.74. In addition, relative to individuals with one chronic condition, those with two or more [45, 49, 51] and those with three or more [36, 70] had higher odds of unmet needs. However, Sunderland and Findlay (2013) found the converse in individuals with two or more chronic physical conditions [62]. One study did not report an estimate [41] and the findings in three studies were nonsignificant [43, 44, 68].

Fifteen studies evaluated unmet needs in individuals with specific health conditions. Chronic pain [19, 40, 48, 49], arthritis [39, 50, 54, 57, 59], asthma [39, 42, 54, 57], cancer [39], epilepsy [42], migraine [42], disability [49], difficulty performing instrumental activities of daily living, such as cooking and cleaning [58], and functional impairment [70] were associated with higher odds of unmet need, whereas emphysema [48] and having better quality of life [18] were associated with lower odds. Three studies found individuals with heart disease had higher odds of unmet need [39, 50, 54], while one study found the opposite relationship [59]. Similarly, one study found diabetes was associated with higher odds of unmet need [42], while three others found lower odds/probability [39, 50, 59]. Vyas et al. (2020) found that individuals with heart disease (RR = 1.24, 95% CI 1.16 to 1.33) or diabetes (RR = 1.14, 95% CI 1.03 to 1.25) were at higher risk of having unmet need [47]. One study found that the number of disability days in the past 2 weeks was not associated with having unmet need [68].

Twenty-one studies investigated the association between mental health diagnoses and odds of having unmet needs, one of which reported nonsignificant estimates [18]. Having a mental health problem [36, 71], general anxiety disorder [21, 56], mood or anxiety disorder [26, 40, 48, 50, 57, 62, 65, 66], depression [12, 56], body dissatisfaction [69], and experiencing psychological distress [19, 27, 62, 67] were associated with higher odds of unmet need. The estimates of the odds ratios ranged from 1.09 to 10.53. Individuals with chronic depression had lower odds of unmet need relative to those with acute depression (OR = 0.45, 95% CI 0.30, 0.67) [68] while worsening depression and anxiety symptoms were associated with higher odds of unmet need (OR = 2.75, 95% CI 1.44, 5.26) [63]. Suicidal ideation was found to be associated with higher odds of unmet need in one study (OR = 1.20, 95% CI 1.03, 1.41) [21] and associated with lower odds in another (OR = 0.47, 95% CI 0.31, 0.72) [68]. Drapeau et al. (2019) evaluated change in the level of unmet need for mental healthcare between 2002 and 2012 and found that individuals with major depression or psychological distress had higher odds of unmet need in 2012 (OR = 1.54, 95% CI 1.33, 1.78) [64].

Twenty-two studies found that individuals with better-perceived health (excellent > very good > good > fair > poor) had lower odds of unmet healthcare needs [17–20, 26, 27, 38, 39, 45–49, 51, 52, 54, 55, 58, 59, 65, 69, 70]. One study did not find a significant association between unmet needs and perceived health [68] and three studies did not report estimates [41, 50, 53].

Smoking, alcohol, and substance use

The association between unmet need and smoking, alcohol, and substance use was evaluated in 9 studies: smoking ($n = 3$), alcohol ($n = 2$), and substance use ($n = 6$) (Table S4). Two studies found that current smoking status was associated with higher odds of unmet need [39, 54], while another found having ever smoked was associated with a lower risk [47]. Similarly, alcohol use was found to be associated with higher odds of unmet needs in two studies [54, 71] Six additional studies assessed the relationship between substance use and having unmet needs, two of which reported

nonsignificant findings [21, 40]. Problematic substance use [36] and substance dependence [22, 66, 67] were associated with higher odds of unmet needs. Urbanoski et al. (2007) found that individuals with both a substance disorder and a mood disorder had 40.5 times greater odds of having unmet needs relative to those with neither disorder [66].

Health service use

The relationship between health service use and having unmet needs was evaluated in 23 studies (Table S3). Thirteen studies found that having a regular healthcare provider was associated with lower odds of having unmet healthcare needs, with estimates ranging from 0.33 to 0.77 [18, 20, 36, 38, 45, 46, 48, 51, 54, 57, 65, 70, 71]. One study did not find an association between having a regular healthcare provider and having unmet needs [63], while another one did not report an estimate [53]. Relative to individuals with both a regular doctor and a regular place of care, those with only a regular place (OR = 1.96, 95% CI 1.58, 2.44) or neither (OR = 1.81, 95% CI 1.18, 2.78) had higher odds of unmet need [58]. Receiving care at an integrated clinic (OR = 0.14, 95% CI 0.06, 0.34) and a community health center (OR = 0.23, 95% CI 0.10, 0.52) were associated with lower odds of unmet need, while poor treatment at a healthcare facility was associated with higher odds (OR = 5.50, 95% CI 3.59, 8.60) [40].

Consultation with a general practitioner within the past year [19] and having three or more consultations were associated with higher odds of unmet needs [49]. Poor perceived healthcare availability was associated with higher odds of unmet needs (women OR = 1.58, 95% CI 1.09, 2.28; men OR = 1.92, 95% CI 1.23, 2.99) [53]. One study did not find a significant relationship between gender predominance at a primary healthcare organization and the odds of patients having unmet needs [41].

Having private or provincial health insurance was not associated with having unmet need [18, 43, 63]. Two studies reported that individuals with prescription drug insurance had higher odds of unmet needs relative to those without one [(OR = 1.22, 95% CI 1.16, 1.28) [45], (OR = 1.20, 95% CI 1.11, 1.29) [51]. However, two studies did not find a significant association [38, 39].

Other factors

Five studies evaluated the association between language fluency and having unmet needs (Table S3), two of which reported nonsignificant findings [43, 60]. Individuals who primarily speak a non-English [27] or a non-French [20] language had lower odds of unmet need. However, one study that included all 10 provinces found that French speakers had higher odds of unmet physical and emotional needs [44].

The search found 12 studies that examined the relationship between social support and having unmet needs (Table S3), four of which reported nonsignificant findings [17, 43, 46, 68]. Having a strong sense of belonging to a community [12, 21, 38, 58, 65], membership in a political, or a national organization [52], having a source of affection [26], and having emotional or informational support [26] were associated with lower odds of unmet need. However, experiencing positive social interactions was associated with higher odds of unmet needs (OR = 1.11, 95% CI 1.03, 1.20) [26]. Chamberlain et al. [70] found that individuals who reported loneliness had higher odds of unmet healthcare needs (OR = 1.80, 95% CI 1.64, 1.97) [70].

Risk of bias in the included studies

The risk of bias (ROB) assessment of the included studies is presented in Table 2. Based on the JBI tool, 41 of the 44 cross-sectional studies were rated as having low ROB. The three remaining studies were rated as having intermediate ROB [37, 41, 66]. While Urbanoski et al. (2007) identified potential confounders of unmet needs, they failed to adjust for them in their regression analysis [66]. Pineault et al. (2017) did not clearly define the inclusion criteria [41], whereas MacLean et al. (2021) did not identify confounding factors, and as a result, did not have strategies to deal with confounding factors or employ the appropriate statistical analysis [37]. With the exception of Durbin et al. (2014) [60] and Hyshka et al. (2017) [22], all the other cross-sectional studies evaluated the outcome through self-reported questionnaires that were not validated. Durbin et al. (2014) identified potential confounding factors but did not state the strategies used to deal with them [60]. Hence, it was unclear whether the appropriate statistical analysis was performed.

The two longitudinal studies were rated as having low [36] and intermediate [63] risk of bias based on the Newcastle–Ottawa Scale. Both studies included a representative exposed cohort that was drawn from the same community as the non-exposed, used structured interviews to ascertain exposure and had an adequate follow-up of the participants. However, Dezetter et al. (2015) did not demonstrate the comparability of the exposed and non-exposed cohorts [63].

Discussion

To our knowledge, this is the first systematic review of unmet primary healthcare needs in Canada. The studies included in this review reported prevalence estimates of unmet needs ranging between 3.5% and 68.3%. These variations are likely due to the differences in data sources,

Table 2 Risk of bias assessment of included studies

Cross-sectional Studies									
First Author/ Year	**Clearly defined inclusion criteria**	**Described study subjects and setting in detail**	**Measured exposure in a valid and reliable way**	**Used objective, standard criteria for measurement of the condition**	**Identified confounding factors**	**Stated strategies to deal with confounding factors**	**Measured outcomes in a valid and reliable way**	**Used appropriate statistical analysis**	**Final Judgement**
Allan et al. 2021 [54]	✖	✓	✓	✓	✓	✓	✖	✓	+
Argintaru et al. 2013 [18]	✓	✓	✓	✓	✓	✓	✖	✓	+
Awe et al. 2019 [58]	✓	✓	✓	✓	✓	✓	✖	✓	+
Baiden et al. 2017 [21]	✓	✓	✓	✓	✓	✓	✖	✓	+
Bataineh et al. 2019 [59]	✓	✓	✓	✓	✓	✓	✖	✓	+
Bryant et al. 2009 [52]	✓	✓	✓	✓	✓	✓	✖	✓	+
Cammaert 2022 [69]	✓	✓	✓	✓	✓	✓	✓	✓	+
Chamberlain et al. 2023 [70]	✓	✓	✓	✓	✓	✓	✓	✓	+
Chen & Hou 2002 [19]	✓	✓	✓	✓	✓	✓	✖	✓	+
Drapeau et al. 2019 [64]	✓	✓	✓	✓	✓	✓	✖	✓	+
Durbin et al. 2014 [60]	✓	✓	✓	✓	✓	✖	✓	?	+
Gibson & Clair 2019 [61]	✓	✓	✓	✓	✓	✓	✖	✓	+
Hwang et al. 2017 [53]	✓	✓	✓	✓	✓	✓	✖	✓	+
Hyshka et al. 2017 [22]	✓	✓	✓	✓	✓	✓	✓	✓	+
Islam & Kellet 2022 [55]	✓	✓	✓	✓	✓	✓	✓	✓	+
Kasman & Badley 2004 [49]	✓	✓	✓	✓	✓	✓	✖	✓	+
Khattar et al. 2022 [56]	✓	✓	✖	✓	✓	✖	✓	✓	+
Kitching et al. 2020 [13]	✓	✓	✓	✓	✓	✓	✖	✓	+
Law et al. 2005 [27]	✓	✓	✓	✓	✓	✓	✖	✓	+
Levesque et al. 2012 [20]	✓	✓	✓	✓	✓	✓	✖	✓	+
Lin & Fang 2023 [57]	✓	✓	✓	✓	✓	✓	✓	✓	+
MacLean et al. 2021 [37]	✓	✓	✓	✓	✖	✖	✖	?	**?**
Marshall 2011 [38]	✓	✓	✓	✓	✓	✓	✖	✓	+
McDonald et al. 2010 [39]	✓	✓	✓	✓	✓	✓	✖	✓	+
McLeod & Karim 2020 [65]	✓	✓	✓	✓	✓	✓	✖	✓	+

Table 2 (continued)

Cross-sectional Studies

First Author/ Year	Clearly defined inclusion criteria	Described study subjects and setting in detail	Measured exposure in a valid and reliable way	Used objective, standard criteria for measurement of the condition	Identified confounding factors	Stated strategies to deal with confounding factors	Measured outcomes in a valid and reliable way	Used appropriate statistical analysis	Final Judgement
Moallef et al. 2021 [40]	✓	✓	✓	✓	✓	✓	✖	✓	+
Nelson & Park 2006 [26]	✓	✓	✓	✓	✓	✓	✖	✓	+
Palepu et al. 2013 [71]	✓	✓	✓	✓	✓	✓	✖	✓	+
Pineault et al. 2017 [41]	✖	✓	✓	✓	✓	✓	✖	✓	?
Reid et al. 2012 [42]	✓	✓	✓	✓	✓	✓	✖	✓	+
Ridde et al. 2020 [43]	✓	✓	✓	✓	✓	✓	✖	✓	+
Ronksley et al. 2012 [50]	✓	✓	✓	✓	✓	✓	✖	✓	+
Shakeel et al. 2020 [44]	✓	✓	✓	✓	✓	✓	✖	✓	+
Sibley & Glazier 2009 [51]	✓	✓	✓	✓	✓	✓	✖	✓	+
Sibley & Weiner 2011 [45]	✓	✓	✓	✓	✓	✓	✖	✓	+
Socias et al. 2016 [46]	✓	✓	✓	✓	✓	✓	✖	✓	+
Starkes et al. 2005 [68]	✓	✓	✓	✓	✓	✓	✖	✓	+
Steele et al. 2017 [12]	✓	✓	✓	✓	✓	✓	✖	✓	+
Sunderland & Findlay 2013 [62]	✓	✓	✓	✓	✓	✓	✖	✓	+
Urbanoski et al. 2007 [66]	✓	✓	✓	✓	✓	✓	✖	✖	?
Urbanoski et al. 2017 [67]	✓	✓	✓	✓	✓	✓	✖	✓	+
Vyas et al. 2020 [47]	✓	✓	✓	✓	✓	✓	✖	✓	+
Wu et al. 2005 [17]	✓	✓	✓	✓	✓	✓	✖	✓	+
Zygmunt et al. 2017 [48]	✓	✓	✓	✓	✓	✓	✖	✓	+

Cohort Studies

First Author/ Year	Selection	Comparability	Outcome	Final Judgement
Dezetter et al. 2015 [63]	****	–	**	?
Jaworsky et al. 2016 [36]	****	**	**	+

Rating: ✓ Yes ✖ No **?** Unclear * Met criteria

Judgement: + Low ROB **?** Intermediate ROB — High ROB

geographical coverage, and participant groups. Approximately 45% of the included studies used Andersen's Behavioral Model of Health Services Use to inform their selection of predictors [72].

The most frequently investigated predisposing factors were age and sex/gender. A notable trend was observed in relation to age, with older individuals generally experiencing lower odds of unmet primary healthcare needs. This trend varied across provinces, reflecting the diversity of the healthcare systems and policies across the country. Conversely, most studies examining immigration status did not find a significant association with unmet needs. No consistent trends were found in relation to sex/gender, marital status, race/ethnicity, urban/rural residence, or language fluency. Among enabling factors, income and education were most frequently considered, with findings indicating that low income and higher educational attainment were associated with higher odds of unmet needs. Having a regular healthcare provider and social connections were generally associated with lower odds of unmet needs. The most adjusted need-based factors included chronic conditions, perceived health, and mental health diagnoses, with chronic conditions and mental health issues correlating with higher unmet needs, while better-perceived health was linked to lower unmet needs. Other factors such as housing status, substance use, and living arrangements were included in very few studies, making it difficult to draw conclusions on their association with unmet needs.

Social determinants of health often intersect with systemic and structural inequities, contributing to disparities in healthcare access. For instance, individuals with lower income may face barriers to accessing care, including cost-related issues or limited availability of services in their area [73]. Affluent individuals often leverage their resources and influence to obtain expedited access to healthcare services and additional diagnostic tests. Similarly, those with higher educational attainment might be more aware of healthcare needs but still face barriers to accessing services, indicating a complex interplay between health literacy and access [74, 75]. These findings underscore the importance of addressing social determinants of health to improve equity across the dimensions of healthcare access (availability, accessibility, acceptability, affordability, appropriateness, and timeliness) [76, 77].

Significant heterogeneity was observed across studies. A meta-analysis requires a certain level of homogeneity among studies to ensure that the combined effect size is meaningful and generalizable. Due to significant heterogeneity observed across the included studies, a meta-analysis was deemed inappropriate. We considered the variability in outcome definition, explanatory variables, population, and study design of the included studies. The measurement of unmet needs (outcome) varied across studies. For instance, in Durbin et al. (2014), social workers and healthcare providers determined the level of unmet healthcare needs [60], as opposed to self-reported unmet needs investigated in national surveys [17, 21, 26, 37–39, 42, 45–47, 49–51, 58, 59, 61, 62, 64–67]. While most studies focused on healthcare needs, Ridde et al. (2020) asked respondents about their unmet needs only in relation to having medical insurance [43]. Similarly, definitions and categorizations of explanatory variables varied across studies, leading to inconsistencies in the measurement of the same construct. For example, age was operationalized as a continuous variable in 10 studies [12, 17, 22, 36, 40, 43, 54, 59, 60, 71], and a categorical variable in the remaining studies, with different age bands. Similarly, variables such as race/ethnicity, income, and perceived health were categorized differently across studies, making it challenging to meta-analyze reported values. There was variation in the recall interval, with three studies not reporting the time period [43, 44, 60], four using a 6-month period [20, 40, 41, 63], and the rest using a 12-month period. The study populations also varied, with some studies focusing on specific subgroups or regions, while others adopting a broader approach. For instance, Cammaert (2022) focused on unmet needs in women with disordered eating living in British Columbia [69]; Jaworsky et al. (2016) focused on homeless and vulnerably housed individuals living in Toronto, Ottawa, or Vancouver [36]; Reid et al. (2012) compared the level of unmet need in people with epilepsy to that of the general population across the ten provinces [42]; and Awe et al. (2019) focused on the Canadian general population [58]. Additionally, there were differences in sampling methods across studies. Studies that used pan-Canadian datasets, such as CCHS, used multistage cluster sampling and random sampling methods, whereas studies that directly recruited participants used methods such as venue-based sampling [43], convenience sampling [40], respondent-driven sampling [13], and street outreach and snowball sampling [22]. Furthermore, the included studies differed in their analytical methods and statistical reporting. Bataineh et al. (2019) employed linear probability models to report probabilities [59], Vyas et al. (2020) used log-binomial generalized estimating equations to report risk ratios [47], and MacLean et al. (2021) focused solely on computing and reporting rates [37]. Other studies utilized multivariable logistic regressions to report odds ratios. In summary, due to the observed heterogeneity in the studies identified, a meta-analysis was considered inappropriate.

The risk of bias assessment indicated that most studies exhibited low bias, though some showed intermediate bias due to unclear inclusion/exclusion criteria or inappropriate statistical analyses [37, 41, 66]. Moreover, the reliance on self-reported questionnaires in most studies raises concerns about social desirability and recall biases [78]. All but two of the included studies were cross-sectional in design. Given that the need for healthcare services changes over an individual's life course, cross-sectional studies may not capture the full extent of factors that impact unmet needs. Additionally, only five studies included participants from across Canada, limiting the generalizability of the findings to the entire Canadian population. Future studies on unmet needs, and by extension future population-based surveys, should aim to include individuals from across Canada, particularly the Territories.

Implications for policy and research

While predisposing and need-based factors are inherently challenging to alter, Andersen (1995) suggests that enabling factors, such as having a regular source of care, can be modified to improve healthcare access [72]. This highlights the potential for policy interventions to address these enabling factors and thereby reduce unmet healthcare needs. For instance, increasing the number of primary healthcare providers in underserved areas, particularly in regions with high levels of unmet need, can help alleviate access barriers. This could involve policy measures aimed at incentivizing healthcare professionals to practice in these areas, such as setting up new primary care centers and increasing healthcare center operating hours. For example, in an empirical case study conducted in England, targeted primary care investment in deprived regions was shown to reverse the gap in the supply of primary care physicians [79]. Task-shifting, involving nurse practitioners and physician assistants in primary care roles, can also be an effective strategy, particularly for cases that do not necessarily require a physician's expertise [80–82]. This approach can help optimize the use of healthcare resources, improve access to care, and potentially reduce wait times.

Routine monitoring of disparities in unmet healthcare needs at the local decision-making level is crucial. This practice can help identify emerging trends and areas in need of intervention, enabling policymakers to respond proactively. This could involve the development of health system performance indicators at the decision-making level. Additionally, conducting qualitative investigations is essential to get a deeper understanding of the multifaceted nature of unmet needs, offering insights into the lived experiences of individuals and the barriers they face in accessing healthcare. For example, qualitative research can explore the underlying mechanisms that drive the association between higher educational attainment, healthcare needs, and barriers to accessing services. This could shed light on the complex interplay between health literacy and access, informing the development of interventions that address these barriers.

Strengths and limitations

This systematic review provides a comprehensive overview of the current literature on unmet primary healthcare needs in the Canadian context, offering insights into the extent and quality of existing studies. The inclusion of multiple data sources and a thorough search strategy enhances the robustness of the findings.

However, the review also has limitations. First, the search did not explicitly search for grey literature, which may have excluded reports that are not published in peer-reviewed journals. Second, this review solely focused on quantitative studies to narratively summarize the level of unmet need in primary healthcare. Hence, it is potentially missing the nuanced interpretations and unique perspectives that could be gained from qualitative studies. Third, a meta-analysis was not conducted due to the heterogeneity of studies. Lastly, non-English studies were excluded from the current review. This language restriction may have missed studies in other languages.

Conclusions

The findings from this systematic review suggest that unmet need is directly associated with low income, mental health diagnoses, and chronic conditions, and inversely related to age, better-perceived health, and having a family physician. By identifying the factors associated with unmet healthcare needs, this study highlights the population groups that may benefit from targeted interventions to improve their access to healthcare services.

The review also revealed the heterogeneity in Canadian literature on unmet healthcare needs suggesting the need for standardized measures and approaches in future research. The selection of predictors that allow cross-study comparisons and appropriate analyses will lead to a better understanding and quantification of unmet primary healthcare needs in Canada. Further research is also needed to understand the mechanisms underlying the relationships between the factors identified in this review and unmet healthcare needs.

Abbreviations

OR	Odds ratio
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analysis
ROB	Risk of bias

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s13643-024-02647-5.

Additional file 1: Appendix 1. PRISMA checklist. Table detailing PRISMA checklist items and the location where they are reported in the review.

Additional file 2: Appendix 2. Search strategy. List of terms and keywords used to search for relevant literature across four databases.

Additional file 3: Appendix 3. List of the Included Studies. Reference list of the studies included in this review.

Additional file 4: Appendix 4. Associations in the Included Studies. Summary table of findings from the included studies.

Additional file 5: Appendix 5. Predisposing, Enabling, and Need-based Factors. Tables of statistically significant associations between unmet need and predisposing, enabling, and need-based factors from the studies included in the review.

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Authors' contributions
FWA was involved in the conception and design of the study, extraction, risk of bias assessment, validation, and interpretation of the data, and in writing the first and subsequent drafts of the manuscript. JY, SK, SS, SSK, and SMN were involved in the extraction of data, risk of bias assessment, and revision of the manuscript. PW and KN were involved in the interpretation of the data and critical revision of the article. SA and JST were involved in the conception and design of the study, interpretation of the data, writing drafts of the paper, and critical revision of the article. All authors read and approved the final manuscript.

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Declarations

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