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[See table of contents](#)

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Article abstract

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Abstract

Francophones are an official language minority in Ontario with limited access to linguistically concordant healthcare services. Although communication is an important skill in the field of pharmacy, little is known about the availability of French-speaking pharmacists. This secondary data analysis of the Ontario College of Pharmacists registry converted weekly hours worked into full-time equivalents (FTEs) and calculated ratios of pharmacist FTEs per 1,000 population. French-speaking pharmacists tended to offer fewer FTEs in communities with a larger concentration of Francophones, particularly in northern and rural areas, a trend that was not observed among English-speaking pharmacists. This maldistribution of French-speaking pharmacists may limit the ability of official language minority patients to receive pharmacy services in their language of choice.

Résumé

Les francophones sont une minorité linguistique en Ontario avec un accès limité aux services de soins de santé en français. Bien que la communication soit une compétence importante dans le domaine de la pharmacie, on en connaît peu sur la disponibilité des pharmaciens francophones. Cette analyse de données secondaires du registre de l'Ordre des pharmaciens de l'Ontario a permis de convertir les heures hebdomadaires travaillées en équivalents temps plein (ETP) et de calculer des ratios d'ETP pour 1000 habitants. Les pharmaciens francophones avaient tendance à offrir moins d'ETP dans les communautés à plus forte concentration de francophones, en particulier dans les régions nordiques et rurales, une tendance qui n'a pas été observée chez les pharmaciens anglophones. Cette mauvaise répartition des pharmaciens francophones peut limiter la capacité des patients de langue officielle minoritaire à recevoir des services pharmaceutiques dans la langue de leur choix.

Despite Ontario being home to Canada's largest Francophone population outside of Quebec and French being an official language of Canada, Francophones represent only 4.7% of the Ontario population (Ministry of Francophone Affaires, 2019). As a result, the majority of Ontario Francophones live in a minority context and, despite the adoption of the French Language Services Act of 1989 ensuring the availability of government services in both official languages (French Language Services Act, 1990), have limited access to linguistically concordant healthcare services (Fédération des communautés francophones et acadienne du Canada, 2001; Gauthier *et al.*, 2012; Timony *et al.*, 2013). Interpersonal communication is an essential component of health care delivery (Donabedian, 1988; Ong *et al.*, 1995) and has been linked to quality of care (Bensing, 1991) and patient health outcomes (Stewart, 1995). It is, therefore, not surprising that, collectively, Francophones have worse health outcomes than the general population (Picard & Allaire, 2005; Bouchard *et al.*, 2012). For instance, when compared to the general population, Francophones experience higher rates of obesity (Gagnon-Arpin *et al.*, 2013), have a more inactive lifestyle (Imbeault *et al.*, 2013), make unhealthy dietary choices (Batal *et al.*, 2013) and are more likely to suffer from multiple chronic conditions (Bouchard & Desmeules, 2013). Francophones also tend to be older, less educated, and more likely to be unemployed and live in a rural area (Bouchard & Desmeules, 2013). In fact, simply being a member of a linguist minority group has been recognized as a determinant of health, since these individuals have reduced access to linguistically concordant health and social services (Bouchard & Desmeules, 2013).

Effective communication is a cyclical process between the patient and the health care provider in which both parties must understand and be understood (Feldman-Stewart *et al.*, 2005). A key factor in communication success is the provider's linguistic competence (*i.e.*, the ability to produce grammatically correct sentences) and communicative competence (*i.e.*, the ability to choose the appropriate sentences or expression in a given situation) (Gregg & Saha, 2007). Thus, language barriers can be problematic given that the provider must be able to translate effectively (linguistic competence) and properly interpret the words and expressions used by the patient (communicative competence). In health care, the presence of language barriers is associated with inferior quality of care and poor health outcomes (Ngo-Metzger *et al.*, 2007; Wilson *et al.*, 2005; Bowen, 2001).

While research from Ontario has explored linguistic concordance between physicians and their patients (Gauthier *et al.*, 2012; Timony *et al.*, 2013), little work has been done to understand pharmacists' delivery of services in a patient's preferred language. This is increasingly important given that the scope of practice of Canadian pharmacists has greatly expanded over the last ten years to include medication management activities, such as initiating or adapting prescriptions, managing chronic diseases, administering vaccines, and ordering and interpreting laboratory tests related to monitoring medication outcomes, among others (Canadian Pharmacists Association, 2020). The importance of communication in

the field of pharmacy has been identified through legislation and research (Cipolle *et al.*, 1998; Hargie *et al.*, 2000). The Ontario Pharmacy Act states that pharmacists, pharmacy technicians, pharmacy students and interns “must possess sufficient language proficiency, in either English or French, to be able to communicate and comprehend effectively, both orally and in writing” (Pharmacy Act, 1991). This is further supported by the National Association of Pharmacy Regulatory Authorities (2009) in their Model Standards of Practice (MSOP) for Canadian Pharmacists which requires pharmacists be proficient in English or French. The MSOP further clarifies that pharmacists must listen to patients, respond to their questions and “give patients the information they need to make decisions about their care in a way they can understand, including addressing communication challenges related to foreign languages or illiteracy” (National Association of Pharmacy Regulatory Authorities, 2009, p. 12). For many Francophone patients in the province of Ontario, this would require their pharmacist to be competent in providing pharmacy services in French, including the provision of literature and pamphlets in both official languages, describing how to take medication in French, and ensuring that translation services are made available when the pharmacist is unable to speak French themselves.

Many studies have demonstrated that the presence of a language barrier is a risk to patient safety (Divi *et al.*, 2007; Cohen *et al.*, 2005; de Moissac & Bowen, 2019). Research has revealed that patients with limited English proficiency are confused about how to use medication and find it difficult to understanding medication labels (Wilson *et al.*, 2005), which can lead to reduced medication adherence (Jacobs *et al.*, 2006) and increased adverse reactions to medication (Wilson *et al.*, 2005; Bowen, 2001). This may result in unnecessary admissions to hospital, longer hospital stays, and avoidable monetary costs to both the patient and the healthcare system (Bates *et al.*, 1997). Research on pharmacy services has found that language barriers are associated with decreased access to these services (Siganga & Huynh, 1997) and difficulty understanding medication advice when explained by an English-speaking pharmacist (Arora *et al.*, 2015; Dilworth *et al.*, 2009). Yet, data from the United States found that pharmacists rarely identify patients with limited English proficiency (Praska *et al.*, 2005) or offer translation services (Bailey *et al.*, 2009).

Pharmacists are in a unique position to improve medication use and self-care for Ontario’s Francophone population, particularly in communities with few French-speaking medical professionals. For instance, French-speaking patients who have non-French-speaking family physicians have expressed feelings of discomfort and insecurity during appointments, with a resulting feeling of self-care inadequacy (Jutras *et al.*, 2020). A French-speaking pharmacist could provide these patients with linguistically adapted services, such as clarifying medication use, providing guidance regarding health procedures, and acting as a facilitator in the patient’s care journey.

The geographic availability and distribution of French-speaking pharmacists in the province of Ontario and how it relates to where Francophones live is largely unknown. The goal of this study is to gain a greater understanding of the number of pharmacists who can provide care in French based on their geographic distribution in comparison to that of the Francophone population of Ontario. Strategies to improve the availability of distribution of French-speaking pharmacists will also be discussed.

1. Methods

1.1 Data Source and Exclusionary Criteria

This study is a secondary data analysis of the Ontario College of Pharmacists (OCP) registry. All pharmacists who were licensed to provide patient care were included in the dataset. Individuals were excluded if no practice sites were listed, they did not specify the number of hours worked at any practice site, they only reported practice sites outside of Ontario, or they worked solely in administration or in non-accredited sites with no patient interactions (*e.g.*, pharmaceutical companies, consulting groups, postsecondary institutions).

1.2 Linguistic Identification

Pharmacists who self-reported on the OCP registry that French was one of the languages in which they were competent to practise were considered French-speaking. For comparison purposes, pharmacists who did not include a French language competency are referred to as English-speaking throughout this paper, regardless of other linguistic competencies they have identified. Although a self-declaration of linguistic proficiency could be criticized as not being a true measure of competence, the languages reported on the OCP registry are available to the public on their website. Thus, the languages provided by the pharmacist represent languages in which they feel confident enough to publicly report and are therefore likely representative of their proficiencies.

The distribution of French-speaking pharmacists was compared to the distribution of Ontario's Francophone population. Francophones were identified using the First Official Language Spoken (FOLS), a variable derived by Statistics Canada by combining mother tongue, knowledge of Canada's two official languages, and the language most often spoken at home, as reported in the 2016 census (Statistics Canada, 2016). This definition was chosen since it includes Ontarians who are neither Francophone nor Anglophone, yet, of the two official languages, primarily understand French. It also closely resembles the inclusive definition of a Francophone that was adopted in 2009 by the Government of Ontario (Office of the French Language Services Commissioner, 2016). Those with a FOLS of French, or French and English, were considered Francophone.

1.3 Pharmacist Availability

The distribution of pharmacists was compared to the population distribution using the 2016 Canadian Census (Statistics Canada, 2016). However, as pharmacists may practise in multiple sites and in various communities across the province, the identification of a practice site alone is not an accurate representation of the availability of the pharmacist at that site. Therefore, the number of weekly hours worked at each reported site was converted into full-time equivalents (FTEs). On the OCP registry, pharmacists are provided with a 4-point scale to report weekly practice hours per site (1-14 hours, 15-29 hours, 30-39 hours, and 40 hours or more). The midpoint for each range was selected to represent the number of hours worked and subsequently converted to FTEs based on a 40-hour work week (see Table 1).

Table 1
Conversion of Hours Worked to Full-Time Equivalents (FTEs)

Range	Estimated hours worked	FTEs
1-14	7	0.175
15-29	22	0.55
30-39	35	0.875
40+	40	1

1.4 Geographic Definitions

Practice site addresses from the OCP registry were converted to census geographies using Statistics Canada's 2018 Postal Code Conversion Files. The pharmacy postal code and community were used to identify the Census Subdivision (CSD) of the pharmacy. CSDs, which delineate municipalities, were then coded as northern or southern by cross-referencing the Local Health Integration Network (LHIN) boundaries. LHINs are regional health planning entities responsible for coordinating, funding and integrating healthcare in their respective regions. Pharmacies located within the North East and North West LHIN were considered northern while all others were considered southern. These boundaries were chosen to produce results that are relevant for health planners. Moreover, the divide between the northern and southern LHINs closely matches the boundaries used by other health planning agencies (*e.g.*, Ontario Health Interim and Transitional Regions, the French Language Health Planning Entities and Public Health Units).

Consistent with other research (Desmeules *et al.*, 2006; Pampalon *et al.*, 2006; Wenghofer *et al.*, 2011; Pong *et al.*, 2011; Gauthier *et al.*, 2012; Timony *et al.*, 2013),

Statistics Canada's Statistical Area Classifications (SAC) were used to define rural and urban communities. CSDs classified as Census Metropolitan Areas (population of 100,000 or more) and Census Agglomerations (population of 10,000 or more) were considered urban, with all other communities considered rural.

Practice sites were further categorized by the degree of Francophonie of the community in which they were located (Timony *et al.*, 2013; Gauthier *et al.*, 2015; Timony *et al.*, 2016). The percentage of Francophones residing within each CSD was calculated based on the First Official Language Spoken data from the 2016 census. CSDs with a Francophone population of less than 10% were considered "weak/no French," those with a Francophone population between 10% and 24.9% were considered "moderate French" and those with a Francophone population equal to or greater than 25% were considered "strong French." Although we are not able to determine the volume of French-speaking patients actually seen by a pharmacist, the degree of Francophonie is a reasonable approximation of the Francophone patient profile of a community, which allows us to identify areas where the needs for French-language health services is likely greater.

1.5 Statistical Analysis

Given that the OCP database represented population-level data, inferential statistics were not necessary and descriptive representations of the data were used. In order to consider population size when exploring the distribution of pharmacists, ratios were calculated to express the number of pharmacist FTEs offered in a community per 1,000 residents. French-speaking ratios (number of French-speaking pharmacists per 1,000 Francophones) and English-speaking ratios (number of English-speaking pharmacists per 1,000 non-Francophone residents) were calculated and compared. Ratios of pharmacist FTEs per 1,000 population are considered a representation of pharmacist availability (with larger ratios indicative of greater availability) and distribution (with smaller ratios representing comparatively underserved areas).

1.6 Ethics and Funding

Ethics approval was granted by Laurentian University's Research Ethics Board (LUREB) (File # 6017276) and the Office of Research Ethics at the University of Waterloo (ORE #40518).

2. Results

2.1 Population and Demographics

As shown in Figure 1, of the 15,664 pharmacists registered to practise in Ontario as of December 20, 2018, 13,666 were included in the final analysis. An overview of their demographics is provided in Table 2. Seven percent ($n = 989$) reported being competent to provide patient care in French. Collectively, there were more women pharmacists (57.8%) than men (42.2%), with no difference in gender distribution between French-speaking and English-speaking pharmacists. No French-speaking pharmacists had been in practice for less than one year, compared to 1.3% of English-speaking pharmacists. The majority of pharmacists, both French-speaking (52.4%) and English-speaking (52.8%), were educated in Canada. English-speaking pharmacists were slightly more likely to have been trained in the United States (6.6% vs. 5.3% of French-speaking pharmacists), whereas French-speaking pharmacists were slightly more likely to have been internationally trained (42.4% vs. 40.6% of English-speaking pharmacists). Practically no linguistic differences were observed across the types of practice sites, with approximately 83% and 19% of pharmacists practising in community pharmacies and hospitals, respectively (note that pharmacists can practise in multiple sites with differing practice types).

Figure 1
Flow Chart of Pharmacist Inclusion/Exclusion

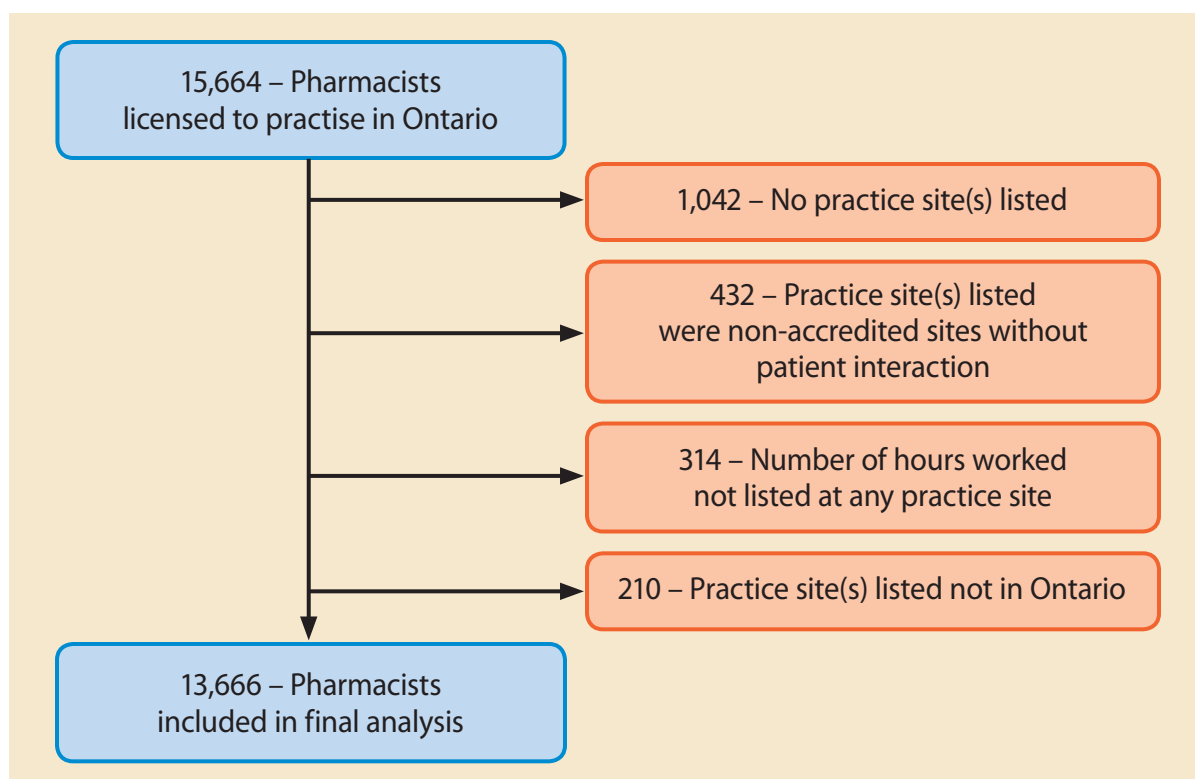


Table 2
Demographics of French-Speaking and English-Speaking Pharmacists

	English-speaking pharmacists		French-speaking pharmacists		All pharmacists	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
N	12,677	92.8	989	7.2	13,666	100
Gender						
Female	7,331	57.8	573	57.9	7,904	57.8
Years since graduation						
Less than 1	163	1.3	0	0.0	163	1.2
1 – 5	1,859	14.7	121	12.2	1,980	14.5
6 – 10	2,013	15.9	125	12.6	2,138	15.6
11 – 20	3,130	24.7	310	31.3	3,440	25.2
21 – 30	2,648	20.9	237	24.0	2,885	21.1
31 – 40	2,043	16.1	134	13.5	2,175	15.9
41 – 50	721	5.7	58	5.9	779	5.7
51 +	100	0.8	6	0.6	106	0.8
Country of education						
Canada	6,696	52.8	518	52.4	7,214	52.8
USA	836	6.6	52	5.3	888	6.5
Other	5,145	40.6	419	42.4	5,564	40.7
Practice type ^a						
Community Pharmacy	10,613	83.7	823	83.2	11,436	83.7
Hospital pharmacy	2,427	19.1	183	18.5	2,610	19.1
Other	305	2.4	40	4.0	345	2.5

a Multiple practice types are possible given that pharmacists can work in multiple locations and settings.

2.2 Distribution of Pharmacists by Degree of Francophonie

For English-speaking pharmacists, no differences were observed in the number of FTEs per 1,000 population regardless of the degree of Francophonie of the community in which they practise. On average, English-speaking pharmacists offered 0.9 FTEs per 1,000 non-Francophone residents across strong, moderate and weak/no French communities (Table 3). However, French-speaking pharmacists had a tendency to practise in communities with smaller Francophone populations. There was a clear trend for French-speaking pharmacists to offer fewer FTEs as the degree of Francophonie of a community became greater, with the most favourable ratio observed in weak/no French communities (2.2 FTEs per 1,000 Francophones), followed by moderate French communities (1.3 FTEs per 1,000 Francophones) and finally strong French communities (0.7 FTEs per 1,000 Francophones).

Table 3
Ratio of FTEs per 1,000 Population by Degree of Francophonie
and Geographic Distribution

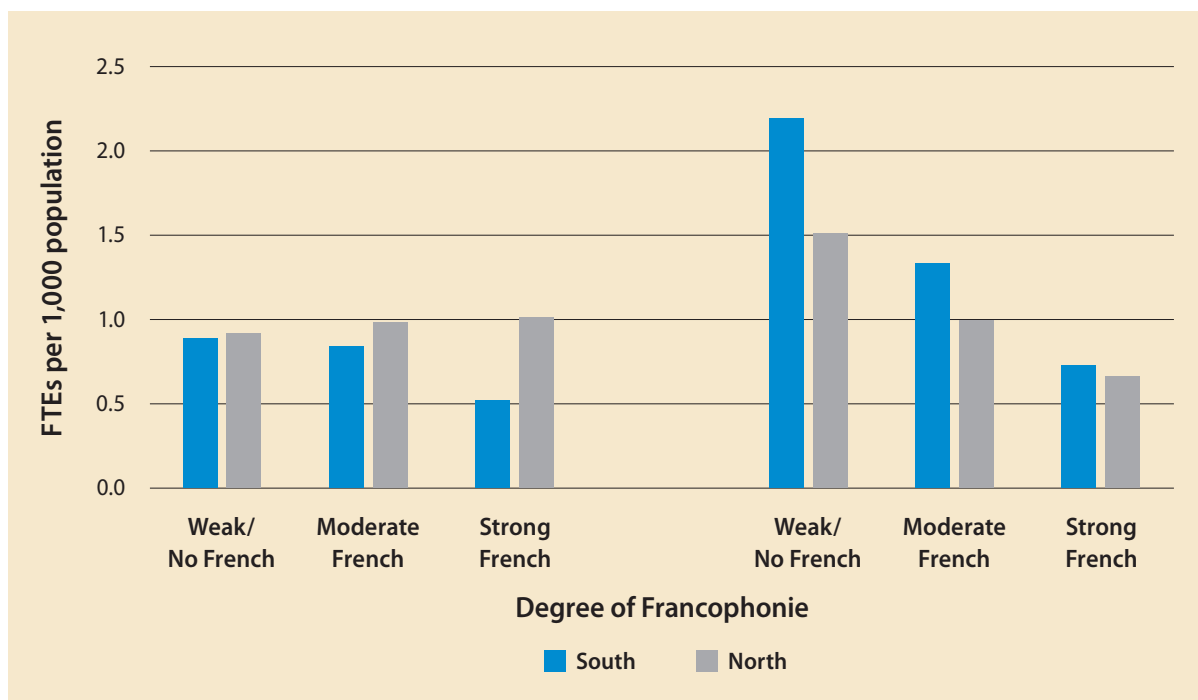
Degree of Francophonie	English-speaking pharmacists			French-speaking pharmacists			
	FTEs	Non-Francophone population	Ratio (FTE/1,000 non-Francophone population)	FTEs	Francophone population	Ratio (FTE/1,000 Francophone population)	
Total	Weak/no French	10,383.55	11,572,190	0.9	533.03	245,255	2.2
	Moderate French	780.33	908,095	0.9	247.08	189,115	1.3
	Strong French	213.35	235,300	0.9	111.55	161,325	0.7
	Total	11,377.23	12,715,585	0.9	891.66	595,695	1.5
North	Weak/no French	341.65	367,735	0.9	13.38	8,845	1.5
	Moderate French	96.73	98,460	1.0	16.70	16,760	1.0
	Strong French	186.23	183,555	1.0	63.33	95,085	0.7
	Total	624.61	649,750	1.0	93.41	120,690	0.8
South	Weak/no French	10,041.90	11,204,455	0.9	519.65	236,410	2.2
	Moderate French	683.60	809,635	0.8	230.38	172,355	1.3
	Strong French	27.13	51,745	0.5	48.23	66,240	0.7
	Total	10,752.63	12,065,835	0.9	798.26	475,005	1.7
Rural	Weak/no French	685.33	1,159,970	0.6	44.30	19,140	2.3
	Moderate French	38.65	35,420	1.1	4.78	6,675	0.7
	Strong French	47.88	67,270	0.7	35.58	72,835	0.5
	Total	771.86	1,262,660	0.6	84.66	98,650	0.9
Urban	Weak/no French	9,698.23	10,405,110	0.9	488.73	226,090	2.2
	Moderate French	741.68	872,675	0.8	242.30	182,440	1.3
	Strong French	165.48	168,030	1.0	75.98	88,490	0.9
	Total	10,605.39	11,445,815	0.9	807.01	497,020	1.6

2.3 Distribution of Pharmacists by Geography (North vs. South) and Degree of Francophonie

The ratio of French-speaking pharmacist FTEs per 1,000 Francophones was two times greater in southern Ontario (1.7) than it was in the North (0.8). However, regardless of geography (North vs. South), the tendency for French-speaking pharmacists to predominantly practise in weak/no French communities persisted, with the greatest ratio found in

southern weak/no French communities (2.2 FTEs per 1,000 Francophones) (Figure 2). In comparison, although the ratio of 1.5 FTEs was considerably smaller in northern weak/no French communities (a 0.7 FTE difference as compared to southern weak/no French communities), this still represented the highest ratio of all northern communities. Conversely, the smallest ratios were observed in strong French communities, with French-speaking pharmacists providing 0.7 FTEs per 1,000 Francophone residents in both northern and southern regions, respectively. Unlike their French-speaking counterparts, the ratios of English-speaking pharmacist FTEs per 1,000 non-Francophone residents varied only slightly between geographic regions (0.9 in the South vs. 1.0 in the North) and by degree of Francophonie (typically ranging between 1.0 and 0.8). The only notable deviation was found in southern strong French communities where English-speaking pharmacists provided only 0.5 FTEs per 1,000 non-Francophone residents.

Figure 2
Distribution of Pharmacist FTEs by Geographic Location (North vs. South)
and Degree of Francophonie

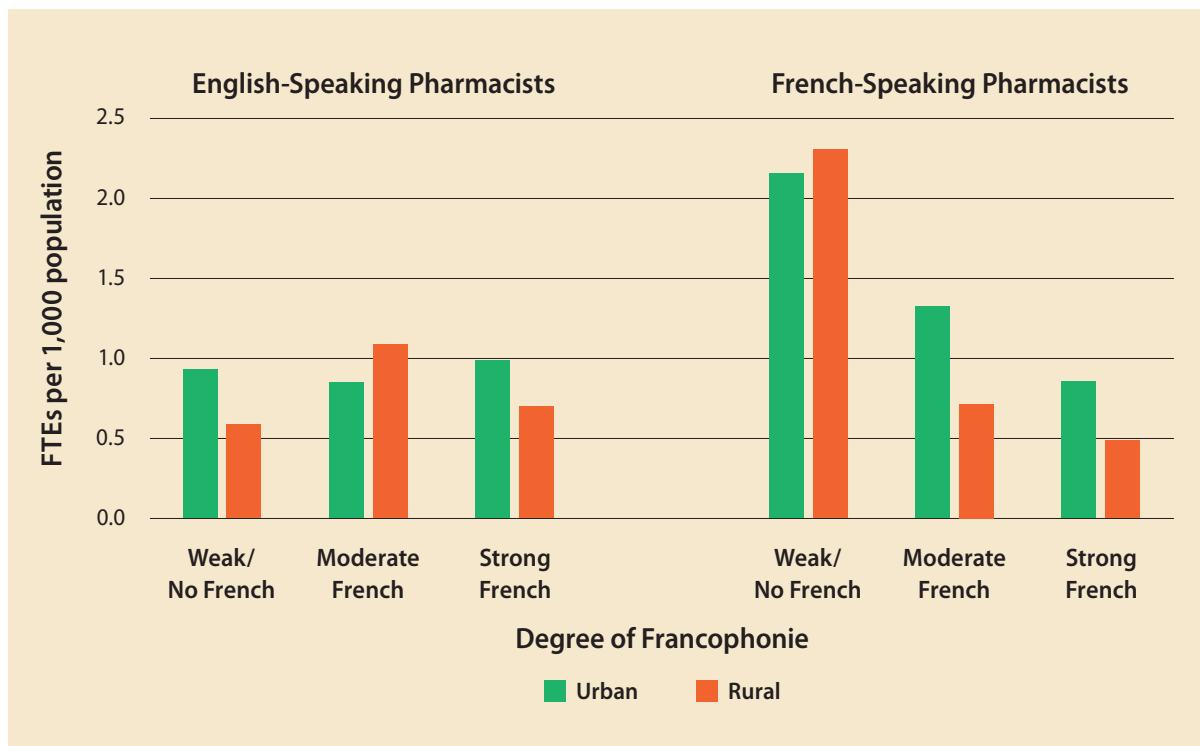


2.4 Distribution of Pharmacists by Community Size (Rural vs. Urban) and Degree of Francophonie

The ratio of FTEs offered by French-speaking pharmacists varied greatly by community size, with 1.6 FTEs per 1,000 Francophones being offered in urban communities, which is nearly twice as many as in rural communities (0.9) (Figure 3). The trend towards

communities with fewer Francophone residents persisted once again, with the most favourable ratios of French-speaking pharmacists found in weak/no French communities, with slightly more FTEs offered in rural (2.3 FTEs per 1,000 Francophones) than in urban (2.2 FTEs per 1,000 Francophones) communities. Moderate French communities followed, with almost twice as many FTEs offered in urban (1.3 FTEs per 1,000 Francophones) than in rural (0.7 FTEs per 1,000 Francophones) communities. Finally, the fewest FTEs per 1,000 Francophones were again found in rural (0.5 FTEs) and urban (0.9 FTEs) strong French communities. Much less variation was observed in the distribution of English-speaking pharmacist ratios by community size, although ratios were larger in urban (0.9 FTEs per 1,000 non-Francophone residents) than in rural (0.6 FTEs per 1,000 non-Francophone residents) communities. Ratios of English-speaking FTEs by community size and degree of Francophonie ranged between 0.6 and 1.1 in all communities with no discernible pattern emerging.

Figure 3
Distribution of Pharmacist FTEs by Community Size (Rural vs. Urban)
and Degree of Francophonie



3. Discussion

The present analysis revealed that 7.2% of pharmacists in the province Ontario self-identified as being competent to provide patient care in French, with no discerning difference between French-speaking and English-speaking pharmacists in terms of demographic characteristics (*i.e.*, gender, years of experience, country of education, or practice type). Although the percentage of French-speaking pharmacists is greater than that of Ontario's Francophone population (4.7%) (Ministry of Francophone Affaires, 2019), an exploration of their distribution across the province revealed a clear trend for the availability of French-speaking pharmacists to be greatest in communities with smaller Francophone populations and smallest in communities where more Francophones reside. In general, French-speaking pharmacists offered 3 times more FTEs in weak/no French communities than they did in strong French communities. This inverse trend persisted regardless of geographic location (North vs. South) or community size (rural vs. urban). Such trends were not observed in the distribution of English-speaking pharmacists. Although, in many communities, the ratio of French-speaking pharmacists to Francophone residents seems to outweigh the ratio of English-speaking pharmacists to the general population—suggesting Francophones should be well served—it is important to remember that French-speaking pharmacists do not exclusively see Francophone patients. In reality, in many communities (particularly weak French communities), Francophones make up only a small percentage of the population served. Furthermore, the present findings confirm that the distribution of French-speaking pharmacists does not parallel the distribution of the Francophone population. Therefore, Francophones in Ontario will have more trouble finding a French-speaking pharmacist than Anglophones will have finding an English-speaking pharmacist.

This distribution of French-speaking pharmacists is consistent with other reports documenting that official language minority populations in Ontario have historically been underserved. A 2009 report by the Office of the French Language Services Commissioner of Ontario suggested French-language services were severely lacking in hospitals, community health centres, medical clinics, and home care (Office of the French Language Services Commissioner, 2009). Such claims were further supported by a 2013 study of the distribution of family physicians and general practitioners (FPs/GPs) in Ontario, which revealed that those who self-identified as being competent to practise in French were less likely to locate their practice in communities with larger Francophone concentrations (Timony *et al.*, 2013). In fact, the distribution of French-speaking FPs/GPs closely paralleled that of French-speaking pharmacists found in this paper, with the most favorable availability found in southern and urban weak/no French communities and the least favourable availability in northern and rural strong French communities. Furthermore, although there were more pharmacists practising in Ontario ($n = 13,666$) than FPs/GPs ($n = 10,968$), there were nearly half as many pharmacists who could practise in French (989 pharmacists vs. 1,674 FPs/GPs). Thus, not

only does the maldistribution of French-speaking pharmacists mirror that of French-speaking FPs/GPs, but the overall availability of French-speaking pharmacists is also smaller throughout the province. However, the OCP data used in this study does not provide any insight into the reason for the observed distribution of French-speaking pharmacists. Further research is needed to explain this maldistribution. Pharmacists are key members of the primary health-care delivery complement within a community. When collaborating closely with primary care teams, pharmacist interactions are associated with reduced FP/GP and Emergency Department use, while simultaneously increasing overall primary care use and reducing health system and medication costs (Hayhoe *et al.*, 2019). Throughout Canada, pharmacists are recognized as medication experts and being given an expanded scope of practice, which includes medication management services, immunization, and prescribing in various therapeutic areas including smoking cessation and for minor ailments (Canadian Pharmacists Association, 2020). In Ontario, pharmacists have also become frontline providers during the COVID-19 pandemic, continuing to offer in-person consultations to their communities at a time when other primary care providers moved to virtual care. Pharmacists have also contributed to the province's testing capacity by offering COVID-19 testing to asymptomatic patients and, more recently, have been essential in deploying COVID-19 vaccines and establishing vaccine clinics. Working with other primary care providers, such as physicians, pharmacists contribute to providing comprehensive primary care services to a community and can help overcome service gaps, including serving hard-to-reach linguistic minority groups (National Assembly for Wales Health and Social Care Committee, 2012). For instance, in smaller communities with limited primary care providers, a Francophone patient with an English-speaking physician may come to rely on their local French-speaking pharmacists to provide self-care guidance and health-related education. However, results from the present analysis suggest that the distribution of French-speaking pharmacists does not optimally serve Ontario's Francophone population. In fact, this distribution seems to further contribute to gaps in French-language care provision rather than contributing to solutions to this problem.

Improving the distribution of French-language pharmacist services could be achieved through various short- and long-term strategies. First, changes to pharmacy education could achieve long-term benefit in terms of both the total number of French-speaking pharmacists and their distribution. There are presently no French-language pharmacy schools in Ontario, which is an obvious barrier to improving the supply of French-speaking pharmacists. The dominance of English in healthcare professions and a lack of French education opportunities have been identified as one of the challenges to offering French-language health services (Timony *et al.*, 2016). Although we are encouraged by the prospect of a new French-language pharmacy school set to open in Ottawa in 2023 (Logothetis, 2021), existing pharmacy schools could also help train future French-speaking pharmacists. This could be achieved through the strategic recruitment of French-speaking students from

strong French communities, the provision of learning opportunities in French and the opportunity to receive experiential learning and placements in strong French communities. Strategies such as these have already been employed by the Association of Faculties of Medicine of Canada (AFMC) with their Franco-DOC initiative (Association of Faculties of Medicine of Canada, n.d.) as well as by the Northern Ontario School of Medicine (NOSM) (Strasser *et al.*, 2013), but have not yet been implemented in Ontario pharmacy programs. For example, the NOSM has a social accountability mandate to prepare physicians for practice in northern Ontario, with evidence that strategies such as recruiting students with a rural background and training them in rural and northern communities can improve the likelihood of future rural and northern practice (Hogenbirk *et al.*, 2016). A recent scoping review from Australia further supports strategies for increasing rural pharmacy practice, such as establishing pharmacy schools in rural areas, exposing learners to rural content in the curriculum, enrolling students with a rural background and providing rural placements (Obamiro *et al.*, 2020). Likewise, offering French education opportunities for pharmacy students and increasing the enrolment of French-speaking students from underserved areas in pharmacy schools could lead to similar improvements in the future supply and distribution of French-speaking pharmacists.

A second and more traditional strategy to improving the distribution of French-speaking pharmacists involves recruitment and retention incentives. For instance, in an effort to improve the distribution of pharmacists in underserved areas of rural Australia, a series of rural support programs have been implemented, such as continued professional education allowances, scholarships, intern training allowances, and rural practice incentives (Australian Government Department of Health, n.d.). Similar incentive programs could be implemented in Ontario to encourage French-speaking pharmacists to practise in underserved Francophone communities. However, a number of limitations with this approach must be considered. Although financial incentive programs have had some success in recruiting healthcare professionals to underserved areas, they appear to be less effective at retaining these health professionals (Pong, 2008). This is evidenced by persistent pharmacist maldistribution in Australia, despite the various rural incentives in place (Hays *et al.*, 2020). Furthermore, the cost of such incentives could be high, with Canadian pharmacy students reporting that they would expect a \$17,000 increase in salary to practise in a rural setting upon graduation (Ulrich *et al.*, 2019). Given the revolving door phenomenon that is common with incentive programs of this nature (*i.e.*, providers only stay until the incentive runs out); it is not clear that such strategies would improve the distribution of French-speaking pharmacists over the long term, and may only present an intermediate solution.

A third strategy for improving the Francophone patient experience lies in the active offer of French-language services. Active offer is the act of proactively offering services in French, which are consistently available, clearly communicated, visible, easy to access and

of equal quality to the services being offered in English (Office of Francophone Affairs, 2014). Although the concept of active offer originated in the public sector as a strategy for responding to legislative obligations set out by the French Language Services Act, it has since gained resonance in the realm of health care delivery (Bouchard *et al.*, 2012). A hallmark of the active offer is that it provides opportunities for French-speaking and non-French-speaking providers alike to ensure that their French-speaking patients are identified as such and offered services in French. Such strategies include identifying the patient's preferred language of service, proactively welcoming Francophone patients in French, understanding the particular needs of Francophone patients, hiring bilingual health professionals and staff, developing a communication strategy that informs the general public of the availability of services in both official languages, and offering interpreter and translation services. (Office of Francophone Affairs, 2014; French Language Health Planning Entities and French Language Health Networks of Ontario, 2015;). To our knowledge, active offer has not been widely adopted in the field of pharmacy, yet it has potential to improve access to French-language services and possibly improve the distribution of French-speaking pharmacists. For instance, by participating in active-offer training, pharmacists would gain a better appreciation of their own language skills and how these can be optimally utilized in their practice. As a result, more pharmacists may gain the confidence needed to change their languages of competence and self-declare being able to practise in French. Furthermore, modern telecommunication strategies in combination with active-offer strategies could allow French-speaking pharmacists to support their English-speaking colleagues by providing linguistically adapted services from a distance (Niznik *et al.*, 2018). Many tools are currently available to help implement active-offer strategies, including an online tool kit offered by the Consortium national de formation en santé (<http://www.offreactive.com/home>) as well as online training developed by the Réseau du mieux-être Francophone du Nord de l'Ontario (<https://www.activeoffertraining.ca>). The latter provides a series of interactive online training modules that are geared to individuals working in healthcare, available in both French and English and currently free to access. Additionally, although the active offer strategies discussed thus far are aimed at the Francophone population, the lessons learned can be applied to other linguistic minority groups, thus improving the offer of linguistically appropriate services to all Ontarians. The adoption of active offer strategies by the pharmacy profession could stimulate immediate, lasting benefits by equipping pharmacists currently working in underserved communities with the tools needed to better serve their linguistic minority patients.

3.1 Limitations

Although the use of data from the Ontario College of Pharmacists has the advantage of providing population-level data of all practising pharmacists, our analysis was limited by the type of data collected on the registry. This includes the language spoken variable,

which is a self-declaration by pharmacists and may not be an accurate measure of linguistic competence or service delivery language. As such, it is likely that some pharmacists who are able to speak French did not self-declare it as a language of practice, while others who did self-declare rarely practise in French. Anecdotal evidence from some of our previous work with other health care providers suggests that some providers who can speak French prefer to practise in English, particularly if they were educated in English or if they practise in a community densely populated by Francophones and question the quality of their second language skills. Given the absence of French training opportunities in the province of Ontario, it is likely that some pharmacists would feel the same way, particularly if they are not aware of the importance of language concordance in health care delivery. Likewise, we defined French-speaking populations based on the first official language spoken, which is a relatively strong proxy for linguistic capacity, but is not a measure of language of preference. Future work in this field should objectively measure pharmacists' linguistic ability in comparison to the language of preference of the patients they serve.

The use of a categorical variable to measure hours worked represents a second limitation with the data. Rather than estimating the number of hours worked at each practice site, pharmacists were asked to identify the range of hours that most closely represented their actual hours worked. As a result, we used the midpoint of each range to calculate full-time equivalents. The midpoint of a range is a rough representation of hours worked and would inherently be an overestimation for some and an underestimation for others. However, it is reasonable to believe that the midpoint would be a close approximation when averaged over the entire pharmacist population.

Finally, the inclusion of all pharmacists who provide patient care assumes that the general population is able to access these pharmacists; however, we recognize that those practising in hospitals or clinics may primarily care for specific patient groups. It is also possible that a subset of pharmacists who identify as community pharmacists primarily provide services to residents of long-term care facilities or other specific patient populations. The latter is expected to occur more frequently in larger urban communities, but it was outside the scope of this work to examine the frequency of these occurrences.

Conclusion

Official language minority patients may be limited in their ability to receive pharmacist services in their preferred language due to the maldistribution of French-speaking pharmacists in Ontario. Pharmacists who can practise in French are preferentially located in communities with smaller Francophone concentrations, leaving communities more densely populated by Francophones comparatively underserved. This maldistribution is particularly pronounced in northern Ontario, a region that is recognized as being chronically underserved. This

compounds the problem of a parallel maldistribution of French-speaking FPs/GPs in Ontario. Strategies to improve the supply and distribution of French-speaking pharmacists include improvements to the recruitment and education of French-speaking pharmacy students (long-term solution), incentivising practice in underserved communities (intermediate solution), and adopting the active offer of French-language services in pharmacy (immediate and lasting solution)

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Keywords

English, pharmacists, Francophones, linguistic concordance, geographic distribution, French-language health services

Mots clés

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