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A typology of vaccine hesitancies: Results from a study of community pharmacists administering COVID-19 vaccinations during the pandemic

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ABSTRACT

Pharmacists were integral to the vaccine administration process during the first two years of the COVID-19 pandemic. As such, they encountered a variety of different forms of vaccine resistance. This qualitative study explored 33 community pharmacists (from varying geographical and practice types) responses to vaccine resistance and tactics utilized to support vaccination amongst diverse community members. A typology of 8 different variants of vaccine hesitancy emerged, each with its own root cause and potential opportunities for intervention. Pharmacists in this study described techniques to support adherence to public health guidance based on their assessment of root causes for resistance demonstrated by patients. Importantly, all pharmacists in this study described feelings of anger towards truly anti-vax patients and unwillingness to actually engage or even try to address this group in their practice.

1. Background and introduction

The COVID-19 pandemic has been one of the most impactful public health crises of our lifetimes.¹ Since being officially declared in March 2020 by the World Health Organization (WHO),² the pandemic has resulted in millions of deaths worldwide and fundamentally changed day-to-day life for billions of people.³ The rapid development of vaccines has been widely credited for blunting the full force of the pandemic and for offering tentative pathways back to “normalcy” in many parts of the world,⁴ particularly in high-income countries where vaccine access was supported by robust public health and government programs.

Globally, pharmacists have emerged as an integral part of the health care workforce responsible for ensuring safe, timely, and secure vaccine access.⁵ Beyond pharmacists’ traditional roles as stewards of medications, the complex procurement and storage requirements of vaccines (particularly novel mRNA products) thrust pharmacists into the front lines of health care as never before.^{6,7} Further, in many jurisdictions, pharmacists have been active vaccinators, administering millions of “jabs” through public health centres, bespoke or pop-up clinics, and in the course of a typical day working in a community pharmacy setting.⁸ It is clear that without the contribution of pharmacists to the vaccine effort, the (relative) success of vaccination campaigns in high-income countries would have been severely impacted.⁹

The scope of practice of pharmacists has evolved considerably and asymmetrically around the world, but in many jurisdictions, community pharmacists have been administering vaccines for well over a decade or more.¹⁰ In many cases, vaccines pharmacists can administer are limited to a restricted menu of options (specifically vaccines for H. Influenza or for protection from common conditions experienced while travelling internationally).⁷ The experience and expertise of the pharmacy profession to act as first-line vaccinators has been growing steadily, and for many in the general public today, there is no question or concern that their community pharmacist can administer vaccines.¹¹

The COVID-19 pandemic was unique in its scale and impact. While distribution, procurement, safe storage and security, and documentation of vaccine supply was more complex, the actual administration of the vaccine itself into individual patient’s arms was not particularly daunting or challenging for pharmacists with experience administering other kinds of vaccines.¹² Anecdotally, pharmacists and health care professionals noted that the most challenging aspects of the COVID-19 mass vaccination effort had less to do with medications and more to do with public mis-understanding of science and skepticism of expert guidance.^{13,14}

It has been said that the “real” pandemic during COVID-19 has been misinformation, deception, and lies, rather than an infectious virus.¹⁴ From the initial shock and fear of COVID-19, there has been a

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proliferation of alternative (often factually incorrect) beliefs and perspectives on the pandemic and the role of vaccines in its management and mitigation. In the early days of the pandemic, neighbours enduring government-imposed lockdowns would self-organize to bang pots or shout their gratitude to front line health workers who continued to serve the public. In the following months these same healthcare workers endured outright abuse, required police escorts to enter or leave workplaces, and were being openly scorned by a small and aggressive minority of fellow citizens.¹⁵ During this time, public belief in experts and scientific guidance become more polarized and outright lies about vaccines (and those administering them) began to propagate across social media.¹⁶

For public health officials and healthcare professionals, this polarization of public opinion produced a significant problem: basic and well-established scientific understanding of vaccinations pointed to the absolute need for mass, population-wide vaccination as the best way to ensure societal protection against the worst effects of COVID-19.¹⁷ Without everyone - or at least the vast majority of individuals in a society - electing to and actually getting vaccinated, vaccination programs would be sub-optimal in their impact.¹⁷ Worse, in a society where an insufficiently large number of individuals got vaccinated, the risk of variants and proliferation of new strains of COVID-19 would continue apace in an unpredictable manner. Public health officials, government representatives, and health care workers all struggled to convince as many members of the general public as possible to get vaccinated as a way of protecting an entire society. The unique features of COVID-19 itself complicated this task: the need for multiple (first 2, then 3, and perhaps more) jabs produced skeptical responses, fatigue, and disregard for expert guidance. As the months and years of living under pandemic conditions grew wearisome, some members of the public simply lost interest and stopped paying attention to scientific evidence. As pandemic responses became increasingly politicized and the population more polarized, disinformation spread rapidly and vaccination rates began to drop.¹⁸

Owing to their ubiquity and relative ease of access, community pharmacies emerged as a primary hub for COVID-19 vaccine administration.¹⁹ Large and small community pharmacy organizations invested in online reservation/booking/reminder systems to schedule individual patients to receive jabs. Marketing and communication efforts were launched emphasizing the role of the community pharmacist as a vaccinator. Government and public health websites signposted local community pharmacies as places where vaccinations could be received, further integrating pharmacy into primary health care systems.

Importantly, during the early and later stages of the pandemic, community pharmacies remained open while other arms of primary health care (e.g family doctors' offices) and public health were closed or only available remotely/virtually.²⁰ As a result, community pharmacists were actually seeing and directly speaking with a diverse range of patients about many different health-related concerns (including COVID-19). While much of the focus on pharmacy during the pandemic has emphasized vaccinations-as-products, it is important to note that the relationships developed and communication between pharmacists and their patients continued to evolve in ways that highlighted a less-traditional role for pharmacists: addressing so-called "vaccine hesitancy" in the community.

The term "vaccine hesitancy" has been defined by the WHO as "... delay in acceptance or refusal of vaccines despite availability of vaccination services".²¹ Understanding of vaccine hesitancy has been evolving for decades; much of the research in this area focuses on pediatric vaccines and parental choices with respect to vaccine-preventable diseases (VPDs).²² Given that fact that in most VPDs sufficient herd immunity requires adequate population-wide vaccine uptake to prevent person-to-person transmission, programs to address vaccine hesitancy have proliferated.^{22,23} Studies suggest that recommendations from primary health care providers - specifically family doctors and nurses - may be important for vaccine acceptance,²⁴

yet over a third of these providers report feeling uncomfortable or lacking confidence in being able to address the issue with vaccine-hesitant patients.^{24,25}

Previous research examining hesitancy (particularly amongst parents of young children contemplating pediatric vaccination programs) have highlighted the complex decision making process involved, including cultural, psychosocial, spiritual, political, economic, and cognitive factors.^{16,24,25} Shen and Dubey have proposed a typology of vaccine hesitancy involving three broad categories/reasons: lack of confidence (in vaccine effectiveness, safety or policy makers), complacency (perceived low-risk of acquiring a VPD), and lack of convenience (in the availability or accessibility of vaccines, including time, place, and language/culture).²⁷ A recent Cochrane review reported insufficient evidence to recommend any single or specific face-to-face intervention that could positively influence vaccine hesitation, despite the fact that many different, practical, evidence based "tips" have been proposed in the literature.²⁸

Many community pharmacists had limited exposure to this literature and this evidence, but were confronted by the same issues facing physicians and nurses in trying to encourage COVID-19 vaccination, address misinformation, counter outright lies, and provide the quality and kind of support and counselling necessary for individual patients to change their minds. Despite their central role in the COVID-19 vaccination roll-out, there is little extant literature exploring how community pharmacists managed and addressed vaccine hesitancy given their unique role in primary care delivery, their context and scope of practice, and their education/background.

2. Research objective

The objective of this research was to describe and characterize pharmacists' experiences with and responses to COVID-19 vaccine hesitancy amongst patients in community pharmacy.

3. Study context

The context for this study was community pharmacy in Ontario, Canada. With a publicly funded health care system and strong alignment between public health experts and government policy makers, a population-wide COVID-19 vaccination roll-out program was established in early 2021 as vaccines became available.²⁹ Priority access systems (based on age, health care acuity, place of residence etc.) were developed to ensure those at highest risk of COVID-19 were vaccinated first. Community pharmacy was fully integrated into the vaccine roll-out process: those most likely to be vaccinated by community pharmacists were younger, mobile, community-dwelling individuals.⁷ During this period there was strong political support/endorsement of mass vaccination by both governing and opposition parties³⁰; despite political unanimity, there were significant issues of mis- and dis-information spread through social media and other channels regarding COVID-19 and vaccines.^{30,31}

Ontario experienced one of the highest uptake rates for first vaccinations amongst high-income jurisdictions, with over 90% of eligible Ontarians receiving a first jab.²⁹ Uptake rates gradually declined as second, third, and fourth jabs were recommended,²⁹ despite improvements to the vaccine distribution system and establishment of diverse options for individuals to book vaccine appointments. As the vaccine roll-out progressed, patients were able to book their own appointments to receive COVID-19 jabs through pharmacy-specific websites, through government portals, or in some cases through same-day walk-up appointments. A province-wide database tracked all patients receiving vaccinations for the purpose of generating vaccine passports; vaccines delivered through community pharmacy were part of this database and community pharmacists had access to this information as part of their clinical responsibilities.

A unique feature of this study context is the cultural diversity and

heterogeneity of Canada and Ontario in particular. As an immigrant-receiving nation, Canada has a long history of ethno-cultural, linguistic, and religious diversity. Its capital city (Toronto) is routinely ranked as one of the most diverse cities in the world; over 50% of its citizens were not born in Canada and over 60% speak a language other than English or French.³² Community pharmacists in Ontario are even more ethnoculturally and linguistically diverse than the “average” citizen: close to 60% of newly registered pharmacists each year in the province come from outside Canada.³³ This diversity has been identified as a particular strength of the pharmacy profession as it facilitates the ability of pharmacists to engage with a diverse population in different languages and in ethnoculturally appropriate ways.³³

4. Research design and method

Understanding vaccine hesitancy from the perspective of community pharmacists working with multi-cultural, multi-lingual patients required exploratory research. A qualitative research method was used to give voice to individual pharmacist’s lived experiences. A narrative approach was selected that emphasized story-telling of these lived experiences as a way of making sense of how pharmacists interpreted, understood, and responded to their patients and their own practice context. As a result, semi-structured one-on-one virtual interviews with community pharmacist research participants were used, as social distancing and lockdown protocols were still in place during much of the study period.

Design of the research was guided by Lincoln and Guba’s work focused on trustworthiness in qualitative inquiry.³⁴ Four key elements were considered in design: credibility (establishing confidence in the accuracy of findings); transferability (demonstrating the degree to which findings have applicability to other contexts); dependability (demonstrating that findings are consistent and can be reproduced); and confirmability (describing the extent to which findings were shaped by participant or researcher bias, motive, or interests).

In designing this study, we aimed to establish credibility through techniques such as triangulation (using analyst triangulation (multiple coders), triangulation of sources (comparing participants from different types of practices) and theoretical triangulation (using multiple theoretical lenses to examine and interpret data). We were unable to use other credibility-establishing techniques (such as prolonged engagement with participants, persistent observation, or member checking) due to research resource constraints. We aimed to establish transferability through use of thick descriptions, using a technique described by Holloway in which the researcher makes detailed accounts of interactions with research participants and uses this data to help identify patterns and contextual relationships.³⁵ We aimed to establish dependability using the technique of inquiry audit described by Creswell,³⁵ involving a researcher not directly involved in data collection examine both processes and products of the study to evaluate accuracy and evaluate whether findings were supported by the data. Finally, to establish confirmability, we used techniques such as triangulation (previously described) and reflexivity. For this study reflexivity involved reflection and dialogue focused on backgrounds of researchers (e.g. pharmacist- and non-pharmacist researchers, student researchers and lived community pharmacy experience).

The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist³⁶ was used to frame the research method and is described below:

Three of the authors directly participated in interviews with participants (MG, DD, and PG). Two of the interviewers were final-year pharmacy students undertaking a qualitative methods research rotation (MG and DD); PG is a non-pharmacist research associate with a graduate degree. Two researchers DD and PG are male, while the third interviewer (MG) is female. The pharmacy students (MG and DD) had lived experience in working in community pharmacy as students and interests/commitments aligned with enhancing the role, scope and

impact of pharmacists in delivery of vaccine services. PG is a paid research associate with no lived experience of work in pharmacy or specific interests with respect to the pharmacy profession. The senior author (ZA) is a pharmacist-researcher with commitments to advancing community pharmacy practice. He did not participate in interviews/data collection due to his prominence in the pharmacy community, but was involved in inquiry audit and where necessary as a second or third coder of data.

The methodological orientation of this study was positivist and focused on content analysis as a way of adducing common themes from common experiences of participants. The research team had interests in identifying better, more efficient, and more effective ways for pharmacists to interact with vaccine hesitant patients, and used data as a tool for quality and process improvement in pharmacy practice.

Participants for this study were recruited through a combination of convenience and snowball sampling methods. Notification of this study and the opportunity to participate was posted on social media sites and through the network of experiential educators at the University. Those interested in participating were provided with a summary of the research objectives and process and invited to attend a preliminary telephone or zoom-based meeting to discuss further. Following this preliminary introduction to the study, informed consent was sought and received for full participation in the study and a follow up 30 min Zoom or telephone based interview was scheduled. Where possible, two members of the research team attended each interview to support analyst triangulation and to facilitate generation of thick descriptions.

This study was positivist and focused on content analysis as a way of adducing common themes from common experiences of participants. The research team had interests in identifying better, more efficient, and more effective ways for pharmacists to interact with vaccine hesitant patients, and used data as a tool for quality and process improvement in pharmacy practice.

A total of 33 pharmacists expressed interest in this study. All 33 of these pharmacists were given further information about the study, provided informed consent, and eventually participated in this study; there were no drop-outs during the study period. All interviews were conducted using Zoom and were recorded and initially transcribed using features embedded in this program, with consent of the participant.

Table 1
Participant demographics (n = 33).

Sex	Female = 20 (60.1%) Male = 13 (39.9%)
Years in practice	0-3: 4 (=12.1%) 3-5: 4 (=12.1%) 5-10: 6 (=18.2%) 10-20: 12 (=36.4%) >20: 7 (=21.2%) Mean = 15.6 years in practice
Nature of Practice	Independent community pharmacy: 6 (=18.2%) Chain pharmacy: 12 (36.4%) Grocery store/Big-box retailer: 12 (36.4%) Medical centre/health clinic: 3 (=9.1%)
Location of Practice	Urban (>1 000 000 population): 14 (42.4%) Suburban (50 000–1 000 000 population): 14 (42.4%) Rural/Exurban (<50 000 population): 5 (15.2%)
Estimated prescription volume per 8-h shift	<100: 2 (=6%) 100–200: 4 (=12.1%) 201–300: 6 (18.2%) 301–400: 9 (27.3%) 401–500: 7 (21.2%) >501: 5 (15.1%)
Regulated Pharmacy Technician employed?	Yes: 14 (= 42.4%) No: 19 (=57.6%)
Languages other than English spoken by pharmacist?	No: 9 (= 27.3%) Yes: 24 (72.7%) (including French, Spanish, Hindi, Gujarati, Tagalog, Urdu, Punjabi, Mandarin, Russian, Arabic, Farsi, Somali, Portuguese, Italian, Greek)

Demographic data of participants is presented in [Table 1](#). A semi-structured interview guide was used by interviewers. The initial form of the guide was pilot tested using 2 volunteers; iterative adaptation of the interview guide and accompanying questions/prompts/guides occurred during the course of the study, with the final stable form of the interview guide emerging after that 17th interview (see [Table 3](#)). No follow-up or repeat interviews were undertaken. Researchers maintained field notes to complement data collection and contribute to thick data generation. Interviews typically lasted 30–35 min. Resource constraints prevented return of transcripts to participants for comment or correction, or for participants to provide feedback on findings.

A minimum of two coders reviewed all data; where disagreements in interpretation arose, a third coder was available to provide analytical triangulation. Sample coding frames are displayed in [Table 3](#). Initial coding themes were based on extant medical literature highlighting reasons for vaccine hesitancy, but this framework was adapted and evolved as data were analyzed within a community pharmacy context. NVivo v11.2 was used to support data management in this study. Data saturation for this study was triangulated using redundancy signals (i.e. point where no more new information was being collected from additional participants), replicability (i.e. point where sufficient data had been collected to allow independent coders to arrive at similar findings); and feasibility (i.e. point where logistics, recruitment, and resource constraints precluded any further data collection).

The qualitative nature of this study supported presentation of direct quotes from participants to amplify and to illustrate thematic findings, and are presented in [Table 2](#). For confidentiality purposes, participants names were withheld and demographic characteristics of the participant are presented instead. Congruence between data, codes, themes, and findings was established through independent dual coding and inquiry audit techniques. Major themes are presented in the following section: space constraints preclude presentation of minor themes.

This research was approved by the University of Toronto's research ethics board. No honorarium or compensation was provided to the participants or to the student-researchers involved.

5. Themes and findings

A key finding of this study was the elucidation of a preliminary typology of “vaccine hesitancies” that community pharmacists encounter and manage in daily practice. Key themes supporting this finding relate to: i) the unique nature of the pharmacist-patient relationship and interactions (compared to other primary health care providers); ii) the opportunities that this unique relationship provides in supporting informed decision making by patients; iii) the techniques/tactics used by pharmacists to assess and manage patients with different needs, levels of health literacy, and interests in vaccines; and iv) the complex clinical decision making that underpins pharmacists assessments and interventions with respect to vaccine hesitancies.

An important theme of this research was the way in which the longitudinal, less formal, and more interactive relationships and conversational style of pharmacist-patient interactions differed from the kinds of relationships and interactions patients experienced with other primary care providers (notably family physicians). Pharmacist-participants in this study noted that, from their perspectives, the kinds of interactions and relationships developed with patients are less hierarchical or rooted in power difference than physician-patient relationships. Participants noted that this was likely rooted in a lower general social status for pharmacy as a profession. They also noted that the shift to virtual care models or telephone-based consultation with physicians that became commonplace during the pandemic also reinforced the more accessible and friendly nature of the pharmacist-patient relationship. A common theme in this research was the belief by pharmacist-participants that this unique relationship afforded important opportunities to manage complex health literacy and health-related needs, including vaccine hesitancy. Further, during the early months of

Table 2

Semi-structured interview protocol (final version, stable after 17th interview).

Prompt	Notes
1. Introductions, study rationale, study process, recording, informed consent, questions	Establish positive, receptive and open tone Present personal story/situation and interest in this study
2. Demographic details: sex, years in practice, place of graduation/qualification, years in practice, languages spoken to patients in practice	Do not ask chronological age of participant Explicitly ask for self-identification of sex/gender
3. Practice characteristics: type of practice, prescription volumes, clinical services, staffing, workflow description, patient demographic characteristics,	Use Statistics Canada data to define urbanity/rurality Differentiate regulated Pharm Tech vs unregulated pharmacy assistant
4. Practice philosophy: relationships between pharmacists/patients, role of pharmacist in patient's care team, participants' relationships to their own profession	Aim is to understand how participant understands their role as a pharmacist vis-à-vis patient care: for example, providing advice vs making decisions/deferring to physician authority vs peer/collegial interactions etc
5. Pandemic: description of impact on professional practice and personal life during pandemic – use chronological sequencing starting March 2020	Use chronological approach across phases of pandemic: 1) Initial uncertainty and lockdowns (March–June 2020); 2) First reopening, shift to masking and social distance (July–Sept 2020); 3) Second wave lockdown (Sept 2020–Nov 2020); 4) First Christmas lockdown; third wave (Dec 2020–April 2021); 5) First dose vaccine rollout (Jan 2021–June 2021); 6) Fourth wave lockdown (Sept 2021–Nov 2021); 7) Second dose vaccine rollout (July 2021–Nov 2021); 8) First booster vaccine rollout (Nov 2021–Feb 2022)
6. Vaccine rollout (Logistics): procurement, storage, record keeping, supply and cold chain management issues, documentation, COVAX record keeping, public health interactions	Focus on public health guidance and support directed at community pharmacy
7. Vaccine rollout (Workflow): allocation of duties, physical layout, changes in nature of practice, patient management, staff management	Use of sketches or diagrams may be helpful (use Zoom whiteboard)
8. Vaccine rollout (Patients): uptake, advice, education, support, countering misinformation, caregiver involvement, quality of interactions, interprofessional collaboration/support, tools/resources used, language/culture issues	Core of interview: use narrative interviewing to encourage story-telling; gather information about patient demographics where possible; safeguard patient confidentiality; distinguish between “fact” and “feeling” reported by participant
9. Vaccine rollout (Lessons learned): what worked well, what didn't work well, what could be done differently, evolution during 1st, 2nd, and booster phases, reflections on patient interactions and successes	Reflect narratives and words use by participant previously during interview to confirm/triangulate
10. Advice to public health and government for future? Anything else	Open ended
11. Wrap up, thank you, confirm recording completed, suggestions for additional participants for study?	Stop recording

pandemic-related lockdowns, community pharmacists were amongst the only readily accessible health care professionals patients could physically “see” in person (rather than through virtual care appointments). For pharmacists in this study, this consistent face-to-face presence provided further opportunities to help patients make more informed decisions and choices regarding pandemic-related vaccinations, and (perhaps more importantly) helped them navigate complex booking/reservation/scheduling systems that were used to triage and prioritize patients based on health status and age.

A central finding of this research was the emergence of a typology of vaccine hesitancies reported by community pharmacists. During the

Table 3
Sample coding frames.

Question/Prompt from interviewer	Response from Participant	Coding
You mentioned how your interactions changed during the pandemic – the early part – with patients. Can you tell me more?	F/S/C: You know we were the only game in town during those months. Doctors offices hadn't yet figured out how to zoom or give virtual care, so the pharmacy was the only place people could go to get help. This really boosted, well, I think it made people realize what a resource pharmacists are. Really improved our reputation, and strengthened our relationships	Enhanced pharmacist-patient relationships during pandemic
You used the word "leverage" to describe your discussion – conversations – with patients. Can you expand on that a bit please?	M/U/I: Sure. I mean for six months the only person – professional, health – patients could see, I mean physically see – well, it was us, pharmacists. That made a huge difference. They trusted us already but, well we were still there, still at our posts so to speak, while the doctors they were hiding behind zoom or whatever. I think this made us more believable, more trustworthy than the doctors during this time. So if I said, you should get a vaccine, I got a vaccine, and I'm you know out there in the world just like you are ... well, that made more sense to the patient.	Professional relationship to influence informed decision making
Can you give me an example of what you did to help (a patient who did not speak or read English)?	F/S/C: Sure. I'm Punjabi, and speak Urdu as well and I know – well, we have a very diverse community here. People come to (my) pharmacy because they know we can serve them in their language. In bigger cities there may be more resources, public health resources in different languages but here I think I'm it. So when I see patients who I know don't speak English or read English – well, I make sure we talked about COVID vaccines, how to book appointments, the process and all that. It's surprising how many of them hadn't heard, didn't know but of course if you're isolated because of language and culture – well, I think that's where we have such a positive influence. They're not opposed or anti-vaxxers or anything they just don't know the process or that vaccines are even available.	Vaccine unaware
You mentioned the aggravation some patients felt about the whole appointment booking process. Can you explain more, how you helped deal with that?	F/U/C: I think it was one of the biggest problems actually. Lots of people were anxious – really keen – to get a shot, or a booster but the process of booking and the on-line portal system – it's a disaster. So despite a positive	Vaccine disorganized

Table 3 (continued)

Question/Prompt from interviewer	Response from Participant	Coding
	attitude they just get frustrated and give up. I don't blame them – it's like "the Hunger Games" you know? So the technicians, staff here, we try to help them just figure it out, cut through that obstacle. I mean these are positive people with the right intention – it's the system that let them down, but we can help and I think we helped a lot that way.	
How do you think (patient's) motivation to get vaccinated changed as the pandemic evolved?	M/R/I: You see it really clearly! The first shot – everyone was all in, eager, would follow every rule just to make sure they got it. By the second shot – and then so much worse with the booster – people were just exhausted. Too much red tape, too much waiting, too much hype. People started to lose interest and just didn't have the energy to sustain. At that point it was so important for me, for pharmacists to figure out how to keep them motivated. People knew it was important and they wanted to get vaccinated but [public health] made it so difficult with so many barriers and that's where pharmacists came in and could help them with that.	Vaccine exhausted
How did you perceive attitudes towards vaccine shifting as the pandemic progressed.	F/R/I: In my experience it was like an accumulation of small irritations – the portal, the waits, the paperwork, all of that – and at a certain point – I mean patients, they just checked out. They lost interest and even began to say things like "COVID isn't so bad" or "I got one jab, that's enough for someone healthy like me". It was so hard to convince someone like that to continue, to persevere, right? So you have to be patient, you have to be calm, and explain, don't blame and most of all yeah, acknowledge they are right – the whole vaccine rollout process was totally screwed up and it affected everyone's morale. Mine too.	Vaccine irritated
So people's previous experiences with needles – that was an issue for you to overcome with COVID vaccines?	M/U/C: Totally, it was one of the most common problems. Lots of people hate needles – even me, I give injections but I hate them! Anyway so people with needlestick fears, you have to be gentle. You know recommending things like [acetaminophen] or [a eutectic mixture of local anaesthetics] to lessen pain, anxiety. You need to be creative and give patients like this lots of options, but	Vaccine phobic

(continued on next page)

Table 3 (continued)

Question/Prompt from interviewer	Response from Participant	Coding
Can you clarify what you mean by “suspicious” of the COVID vaccine?	most importantly accept that yeah needles are scary, I get it. F/U/C: Some patients – especially later in the pandemic when things got totally crazy with some of those anti-vaxx nutjobs – well, you’d hear even pretty compliant patients saying “I heard there are microchips in the vaccine” or “this isn’t officially approved yet, right?”, things they’d hear or read on the internet. I mean these people may have already got their first shot, or at least were open to it, but somehow wrong information was influencing their thinking. That’s hard, but with these patients you know, there’s at least hope you can educate, you can them by showing them facts, pointing them in the right direction. Not completely lost causes because they’d at least had, or benefitted from vaccines, like for flu or whatever, in the past. Just this one, this mRNA for COVID – that one was different for them.	Vaccine suspicious
You mentioned how exhausting it is trying to convince some patients and in those cases, many pharmacists might just give up. Can you elaborate a bit, maybe with a personal case or example?	M/S/I: Sure. We’ve always had to deal with these skeptical people – usually really health conscious, surprisingly literate, but for whatever reason don’t want their kids vaccinated, you know, autism or whatever. So now these patients – they’re even more belligerent and aggressive about it, and sometimes they actually try to convince other customers – people in the [pharmacy] there to actually get their own COVID shots – that it’s a mistake. I don’t have time – or interest – in taking on that kind of craziness so you just try to avoid or ignore it and make sure it doesn’t affect other people doing the right thing.	Vaccine skeptical
You experienced abuse because you were a pharmacist administering vaccines, COVID vaccines?	F/U/H: For sure, I’m not the only one. We had picketers at the [hospital the pharmacy is located in]. Signs, chanting, shouting, throwing things. Security even told us not to use the front door, we got an escort to the [subway] in case it got violent. But they still spotted us, said the worst things. Such anger, such hostility. It’s really chilling. Easily it could have been violent. Just because we give vaccines. What’s it coming to? I sometimes – I shouldn’t say it but honestly, it’s like “Go ahead don’t get	Anti-vaxx

Table 3 (continued)

Question/Prompt from interviewer	Response from Participant	Coding
	vaccinated and get sick, what do I care”? It’s like these people – well they’re against seat belts and not only refuse to wear their own seat belt, they want to reach over and unplug yours! No patience or time for them, I’m sorry.	
What advice would you give to [public health agencies] for the next time mass vaccination campaigns are needed, to ensure as many people as possible take them?	M/R/G: Gosh, they really need to connect more with front line pharmacists. I really wish they’d asked us because I think – well, we see and talk with so many different patients so we have a great sense of how complex this is. It’s easy to just label someone as antivaxxer or whatever but it’s so much more subtle, so different than that. There are so many reasons why people don’t or can’t get vaccinated. I think pharmacists – we deal with this, right? So we have ideas, strategies for dealing with all these different kinds of reasons, since we already have some great relationships with them in place.	Lessons learned Typology of vaccine hesitancies

Note: To protect confidentiality of participants, a three letter code precedes each transcript excerpt.

M = Male/F=Female.

R = Rural/S=Suburban/U=Urban practice location.

C=Chain/I=Independent/G = Grocery/M = Medical or health centre.

pandemic, popular media reporting of certain groups’ resistance to accepting COVID vaccines was framed as “vaccine hesitancy” or “vaccine resistance”, in a somewhat arbitrary and oversimplified manner. Those who did not receive available vaccines were generally vilified, mocked, or disrespected in the popular press. In the literature associated with the public understanding of science, this “deficiency” model of non-adherence to expert guidance conceptualizes resistant individuals as lacking education, awareness, and insight – all of which can and should be corrected through further expert guidance.³⁷ In some cases, resistance to vaccination was framed as a mental health issue, particularly when accompanied by rhetoric of an overtly political or conspiratorial nature.³⁸

Pharmacists in this study were unanimous in their support of and faith in available COVID-19 vaccinations, and strongly endorsed the notion that all eligible individuals in society should have access and receive vaccinations based on prioritization schemes established by public health officials. As individuals, the pharmacists in this study strongly endorsed population-wide vaccination and personally indicated they received their own vaccines as soon as they were eligible. Perhaps surprisingly, participants in this study expressed more nuanced and sympathetic responses to patients in their practices and communities who did not endorse vaccines. Some participants speculated that the reality of interacting with these “vaccine hesitant” patients on a semi-regular, face-to-face basis during the pandemic humanized them, in a way that popular media depictions of their choices did not. Others noted that dialogue with these patients enhanced the pharmacist’s understanding of underlying reasons for choices that seemed non-compliant or defiant. These discussions highlighted a wide array of reasons patients expressed for not becoming vaccinated when eligible, despite overwhelming public and societal pressure to do so.

Pharmacists' narration of these conversations with these reluctant patients provided a rich data set that facilitated formulation of a model typology for understanding "vaccine hesitations" experienced by community pharmacists. Eight variants of vaccine hesitancy were identified through this research, each representing qualitatively different facets of a complex phenomenon. Importantly, pharmacists in this study described the crucial need to not "lump" all resistant patients into one category, and described how their own typologies and understanding evolved during the course of the pandemic, and how important this typologically-oriented approach to patient assessment was in helping to customize interventions, dialogue and support.

The eight variants of "vaccine hesitancy" described by participants in this study included:

5.1. Vaccine unaware

Though relatively uncommon, pharmacists in this study did note there were some patients in their practice who were simply unaware that vaccines for COVID-19 were available and could be accessed by the general public. In most cases, pharmacists indicated that vaccine-unaware patients experienced health literacy barriers related to lack of fluency in English or inability to read. In some cases, patients were generally aware that vaccines existed but were unaware they were eligible, believing (for example) that only Canadian citizens or those with government-issued health cards could access them. While the behaviour of vaccine-unaware patients resembled vaccine resistance (insofar as these individuals neither sought out nor received vaccines when available), the underlying reason for this behaviour was quite different. Where language was the barrier to access, multi-lingual pharmacy staff could be mobilized to explain in the patient's own language the process for accessing vaccines, and in most cases, this resulted in vaccine acceptance. Where issues of documentation were the barrier (e.g. lack of a government-issued health card granting access to universal health care available in Canada), directions to public health clinics that provided vaccinations without asking for health cards was often helpful. The vaccine-unaware patient typology produced interventions focused on education and explanations crafted in language that was simple and accessible to the patient. Pharmacists reported this was generally successful and most patients responded with gratitude. In some cases, pharmacists would expand efforts with the vaccine-unaware and set up specific programming (e.g. multi-lingual signs posted in stores, or outreach to various ethno-cultural and linguistic communities) to further "spread the word" that vaccines were available, free, and accessible. Participants in this study reported strong feelings of professional and personal satisfaction in helping the vaccine-unaware population gain access to vaccines.

5.2. Vaccine disorganized

A common meme during the early roll-out of vaccines for COVID-19 was comparisons to the popular movie and book series, "The Hunger Games". The overwhelming majority of Canadians were eager to receive COVID-19 vaccinations as soon as possible, and for many months demand far outstripped supply, leading to complex schemes designed to prioritize access based on age and health condition. One scheme in particular involved development of centralized, government-administered on-line booking/appointment systems that triaged and prioritized eligible Canadians, then "assigned" them a specific time, date, and location to receive their jab. Locations included community pharmacies, public health offices, and mass vaccination clinics. These on-line booking systems were easily overwhelmed, leading to long on-line wait times, crashes and other problems. This in turn led many patients to simply show-up at community pharmacies hoping for a gap in the schedule, or left-over doses at the end of the day as a way of getting vaccinated as soon as possible. This "free-for-all" competitive process significantly disadvantaged a large number of individuals who may have

lacked technological access/sophistication, or simply could not walk-in and wait around for left-over doses. Navigating vaccine booking portals, managing technological breakdowns, and managing scheduling issues was overwhelming for some. Further, these booking portals often required certain documentation (e.g. government-issued health card number, uploading of previous vaccine information etc) and in some cases these requirement documents were difficult to find or secure. Pharmacists in this study reported a relatively large number of "vaccine-disorganized" individuals who were philosophically open to and interested in receiving COVID-19 vaccines but did not have the wherewithal to navigate the competitive, complex, and cumbersome processes required to do so. In some cases, language and mobility issues led to vaccine disorganization; these individuals may have been elderly, lacked younger family or friends to support them and consequently were falling through the cracks in the system. Participants in this study noted how frequently they were called upon to not simply help vaccine disorganized individuals book appointments, but actually do all the work involved, while still managing a busy pharmacy practice. Most participants in this research noted this additional workload, but also noted they did so without grievance – helping the vaccine disorganized was described as one of the most straightforward and impactful interventions to increase vaccination uptake in the community. The accessibility and trustworthiness of community pharmacists meant vaccine disorganized patients felt they could seek help from them rather than remain unvaccinated. Many pharmacists noted that public health or social work professionals should have been more available to take on this important role of supporting the vaccine disorganized, but given that this was simply not the reality, community pharmacists were required to step into the breach and provide this service. Importantly, the outcome of vaccine-disorganization is the same as vaccine-hesitancy: an unvaccinated individual. However, given the reasons behind vaccine disorganization, the relatively simple (though time-consuming) intervention of a community pharmacist or technician was important in enhancing vaccine access in communities.

5.3. Vaccine exhausted

A unique feature of the COVID-19 vaccine process was the need for multiple jabs over multiple months requiring significant time and energy to navigate complex booking and scheduling systems. Pharmacists in this study reported a significant number of their patients became progressively more and more exhausted by the complexity of it all and enthusiasm for adherence waned as months – and booster requirements – advanced. Patience for navigating booking systems, waiting for appointments, and getting in line for boosters presented a different series of challenges for pharmacists, particularly when patients believed that a single (or two) jabs was sufficient for them.

For pharmacists in this study, vaccine exhaustion represented a failure of public health infrastructure to adequately support patients and to reinforce motivation. The scale of the mass vaccination campaign in COVID-19 was truly unprecedented, and the infrastructure and support to accomplish this was fragile at the best of times. Pharmacists expressed compassion for and understanding of those who were simply exhausted as the months rolled on, and who consequently simply stopped adhering to vaccination guidelines. Importantly the vaccine exhausted were described as group who were generally literate and health literate, understood the value and importance of vaccines, and were philosophically agreeable to being personally vaccinated, but who encountered a variety of system barriers that discouraged adherence. These individuals were described as being generally healthy, mobile, and somewhat impatient, perhaps with an unrealistic sense of their own invincibility. The vaccine-exhausted appeared to span multiple age groups, including healthy and young adults, and relatively healthy and mobile older individuals. Vaccine-exhaustion was described as a particularly problematic type of vaccine hesitancy to deal with; pharmacists agreed with the complaints of those who were "fed up" with the infrastructural

deficiencies leading to delays in vaccination, and beyond simple encouragement had little to offer these patients. Given their generally good health, the vaccine exhausted were less frequently seen by pharmacists and as a result there were fewer opportunities to encourage and support – and when encouragement was provided by pharmacists, it came across as vapid platitudes about the miracle of mRNA vaccines. Pharmacists in this study expressed frustration at the limited impact they had with this subgroup of vaccine hesitant individuals; identifying viable or effective interventions to support this group were difficult, as the root issues were not amenable to pharmacists' control. In describing vaccine exhaustion, most participants highlighted their hope that “lessons were learned” in public health with respect to procurement, distribution, appointment/scheduling systems, etc to ensure this relatively large group of vaccine hesitant individuals would not be left behind in the future.

5.4. Vaccine irritated

One of the most common variants of vaccine hesitancy encountered by community pharmacists was vaccine irritation. Vaccine-irritated individuals were those who were philosophically supportive of vaccination, understood its value and importance, and who had generally been compliant in receiving a first and/or second vaccination when available. In most cases, the vaccine irritated experienced first-hand unexpected mild or moderate adverse effects to their vaccine and that left them feeling hesitant or resistant to receiving boosters or additional jabs. In many cases, these adverse effects may have resulted in a sick day or inability to care for family, that created further personal burdens linked back to their decision to comply with public health guidance and receive the vaccine in the first place. Many of these patients expressed resentment at the lack of truthful transparency regarding consequences and side effects of vaccines, in some cases blaming the pharmacist for not warning them in advance of negative reactions. This level of irritation with both pharmacists and the public health system lead to increasing mistrust of expert guidance and decreased motivation to comply with further booster recommendations.

Pharmacists in this study acknowledged the challenges they experienced in supporting patients through the predictable – and unpredictable – adverse effects of COVID-19 vaccinations. Some participants noted that it was important to “downplay” the extent and significance of vaccine-related side effects in order to encourage as many people as possible to get jabs. Some pharmacists indicated they felt “guilty” that they were not as forthcoming with patients about what their other patients had experienced, while others noted that public health data regarding severity and extent of vaccine-related side effects seemed to be deliberately under-reported as a way to avoid discussion of this issue. Vaccine-irritated patients presented unique challenges for community pharmacists, who described them as initially trusting and compliant, then somewhat angry and resistant due to first-hand experience of harm suffered.

Vaccine irritation presented may issues in terms of providing support and encouragement. Most pharmacists in this study emphasized the value of openly acknowledging the experience of negative side effects and not trying to “sugar coat” these or massage them into statistical irrelevance. In particular, individuals who lost hours of work, or whose family care responsibilities were hampered due to vaccine-related side effects described experiences of being disregarded or having their experiences trivialized, which heightened their irritation and mistrust, and reduced willingness to take boosters or additional jabs. Finding strategies or techniques to move the vaccine irritated towards vaccine adherence was identified as an important priority by the participants in this study, as they represent a group who were initially open and welcoming of vaccines but whose own lived experiences resulted in a somewhat disgruntled view of vaccination and scientific expertise in general.

5.5. Vaccine phobic

Vaccine hesitancy literature has previously highlighted vaccine phobia as a root cause of resistance for some individuals.^{23–25} Fear or anxiety associated with needle sticks, or previous negative experiences with injections are examples of vaccine phobia that pharmacists in this study reported. The hesitancy literature has previously noted evidence-based strategies for managing this issue, particularly in younger individuals. Distractions, use of topical anaesthetics or pain relievers, or even placebo agents such as sugar water have been shown to reduce fear of needles to facilitate administration of vaccines.^{25,26} Pharmacists in this study noted pre-existing or latent vaccine phobia was a phenomenon on they encountered: in many cases, individuals with vaccine phobia were philosophically agreeable to receive a COVID-19 vaccine and were struggling for solutions to their own preconceptions and fears about the process. These individuals were very receptive to practical, evidence-based strategies or techniques suggested by the pharmacist, and were open to working with pharmacists to identify and discuss options for management. In many cases, pharmacists themselves needed to quickly refresh or update their own knowledge and skills in managing vaccine phobia, but found generally receptive patients who were willing to try suggestions that appeared reasonable and tailored to their needs.

5.6. Vaccine suspicious

The politicization of COVID-19 has emerged as one of the most important – and unfortunate - outcomes of the pandemic. Disbelief in the actual existence or the severity of the COVID-19 virus, compounded by mistrust of “new” vaccine delivery systems (such as mRNA) was further inflamed by political rhetoric that brought medical expertise into disrepute. In some cases, individuals believed the virus existed but felt no personal risk or fear of potential harm due to their age and health status and expressed suspicion as to whether they really needed the vaccine. Pharmacists in this study reported a continuum of opinions and beliefs they encountered; the mildest variant of this was framed as vaccine suspicion. Vaccine-suspicious individuals may have had positive previous experience with vaccines (for example, pediatric vaccines, or ‘flu shots) but had particular concerns about COVID-19 vaccines. Frequently described reasons for suspicion included lack of robust testing of mRNA vaccinations, the speed/rapidity of deployment, provisional (as opposed to permanent) Food and Drug Administration (FDA) approval etc. Patients who extended this line of reasoning to include outright conspiracy theories (e.g. embedded microchips, or use of aborted fetal tissue to produce vaccines) were not included in the vaccine suspicious group. For pharmacists in this study, vaccine suspicion had some possibility of being addressed through education, support, and through leveraging of pre-existing positive relationships with patients. They noted that simply “telling” patients their concerns about COVID-19 vaccines were ill-founded rarely worked; instead, signposting ways for patients to discover accurate information about the vaccine online for themselves was usually more impactful for the vaccine suspicious.

Importantly, most pharmacists in this study described how mistrust of physicians and their advice around vaccines appeared to amplify over the course of the pandemic; patients noted that the delivery of virtual care in medicine lead to abrupt and truncated conversations that heightened social distance between physicians and patients, which further heightened vaccine suspicion. Face to face conversation with pharmacists was described as an important way of reducing vaccine suspicion, particularly when such conversations had been more regular during the pandemic itself. The importance of positive pharmacist-patient relationships as a foundation for addressing vaccine suspicion – and counteracting the negative and distorting influence of social media, politicians, and other loud voices – highlighted the possibility of allaying concerns and changing the minds of these patients, though one-

on-one attention and time-consuming conversation were required.

5.7. Vaccine skepticism

At the midpoint of the continuum of resistance to COVID-19 vaccines, vaccine skepticism represented a more entrenched view of the lack of need for, and specific concerns regarding safety and efficacy of, vaccines. Pharmacists in this study reported a category of patients who were not merely quietly suspicious, but actually and vocally skeptical of vaccines. A key point differentiating vaccine-suspicious and vaccine-skeptical patients was the extent to which the latter group invested considerable time and energy in actually “researching” the issue and who were actively engaged in promoting a non-evidence based view, rather than simply holding personal opinions to themselves. Vaccine skeptics presented some significant behavioural and customer service challenges in community pharmacy; for example, some pharmacists reported customers actively trying to dissuade other patients in the pharmacy from getting a vaccine, by promoting discredited theories and conspiracies regarding safety and efficacy. Several participants reported abusive behaviours from vaccine skeptics and even threats to physical safety. In describing interactions with these vaccine skeptics, some participants became quite emotional: being disrespected, feeling afraid or threatened, and having personal integrity called into question for supporting vaccinations created a very negative environment for conversation and compromise. Some participants noted they wanted to say, “Great, if you’re being such a jerk then don’t get a vaccine and go ahead and get sick”. Vaccine skepticism represented a most challenging kind of behaviour to address, since most participants lacked motivation or interest to even try reaching these patients who – in their opinion – were beyond helping. On the continuum of vaccine resistance, vaccine skeptics typically demonstrated relatively aggressive behaviours and ascribed to beliefs without evidentiary foundation, but were not necessarily completely embracing the most outrageous or outlandish conspiracy theories that emerged. Still, for virtually all participants in this study, there was general acceptance that this group could not be reached, and that time and energy spent in trying to educate and support them would be time wasted that would be better spent on others more needful of pharmacists’ interventions. This finding raises some profound ethical questions regarding who pharmacists “choose” to help and what implications may exist when a small but vocal group of skeptics are marginalized.

5.8. Anti-vaxxers

It is important to note that the vast majority of Canadians were highly supportive of vaccines and vaccine mandates.²⁹ A small, vocal, fringe minority of individuals demonstrated a variant of vaccine hesitancy that came to dominate discussion in the public and media: anti-vaxxers. These individuals often embraced and promulgated the most outlandish and conspiratorial beliefs related to vaccines in vocal, sometimes aggressive ways. Some anti-vaxxers actively picketed outside hospitals, pharmacies and clinics, hurling abuse and epithets at pharmacists and other health care professionals in an attempt to dissuade other members of the public from becoming vaccinated. Active disobedience to masking and vaccine mandates and public disobedience were common techniques used by the most vocal anti-vaxxers. Pharmacists in this study expressed strong emotional responses to anti-vaxxers ranging from exasperation to contempt to outright anger at the consequences of their behaviour. No participant in this study described attempts to educate, support, or counsel anti-vaxxers, and several noted they actually called law enforcement officials to forcibly remove active anti-vaxxers who were disrupting public peace. Understanding of anti-vaxxers’ behaviours was most frequently described in terms of mental health problems rather than attempting to engage or understand philosophical foundations for resistance.

Pharmacists in this study expressed very limited interest in engaging

with or attempting to support those they categorized as anti-vaxxers, expressing sentiments ranging from “it’s a waste of time that could be better spent elsewhere” to “what’s the point, you can’t change their minds”. There was general belief that those categorized as anti-vaxxers were immovable in their beliefs, and potentially dangerous to deal with or communicate with. While all pharmacists in this study described characteristics of anti-vaxxers, not all of them actually had interacted with one during the course of the pandemic; some noted that their views on anti-vaxxers were strongly influenced by negative media portrayals and stereotypes, though participants expressed relative confidence in the strength of their beliefs and opinions about this group.

Lack of willingness to even engage with (let alone support, communicate or help) those thought to be anti-vaxxers was not perceived as an ethical or professional/moral issue, but instead a practical reality. Recognizing extraordinary demands on time and the need to prioritize and triage activities within practice, most participants in this study felt engagement with anti-vaxxers would be unproductive. This raises important questions regarding respect for patient choices and autonomy and the ways in which health professionals like pharmacists may be inadvertently contributing to further societal polarization through their beliefs and behaviours.

6. Discussion

The development of a pharmacist-informed typology of vaccine hesitations is an important outcome of this study, one that requires further testing and validation in other contexts. This study helped elucidate a vaccine hesitancy model that is somewhat broader with more categories and greater specificity than existing models, and one that is particularly relevant to the context of community pharmacy vaccinators. An important element of this typology are the pharmacy-specific techniques that can be used to address these different forms of hesitancy using the tools, scope of practice, and competencies possessed by most community pharmacists. Though not necessarily a continuum of hesitancy, this typology does highlight the diverse reasons patients may have for resisting vaccines and alternatives to consider to enhance likelihood of adherence. Clinical decision making in practice is complex and subject to diverse cognitive and emotional pressures and influences. The schema or mental models of “types” of vaccine hesitant patients can provide a convenient though imperfect scaffold for rapidly assessing and prioritizing patients’ needs and for providing an initial framework for supportive interventions. Like any similar schema it is subject to inherent bias, subjectivity and verges on stereotyping of individuals rather than respecting individual autonomy. The typology presented here is NOT meant to depict an ideal or preferred way of managing patients in practice; instead, it depicts the real-world experience and response of pharmacists in difficult situations processing complex information and making decisions regarding how best to help – or not help – certain patients. Caution must be exercised in assuming this typology can or should be applied a priori in assessing patients’ needs: this research did not set out to generate a typology, but instead uncovered the widespread use of typological thinking in shaping pharmacist-participants’ behaviours.

The semi-rigid categorization based on superficial characteristics that is at the core of such typological thinking is also at the heart of stereotyping, which has potential harms and consequences. In the context of this study, the differentiation between vaccine suspicious, vaccine skeptical and anti-vax patients may be a convenient heuristic for initiating action, but has surfaced important ethical issues. For example, is it ethically defensible – in the name of time management – to “write-off” categories of patients with whom philosophical disagreements about medical choices exist. Further, the typology generated from this research highlighted interesting speculation from pharmacist-participants regarding causes of certain beliefs: for example, is it ethically defensible to invoke “mental illness” as an underlying reason for vaccine skepticism or anti-vax beliefs? Further, the typological thinking

demonstrated by participants in this study heightens risk of further politicization and polarization of vaccination beliefs in society. Conversely, it is important to also recognize that the occupational stress, burnout, and pressures associated with provision of primary care pharmacy services during the pandemic heightened needs for heuristic short-cuts such as this kind of typological thinking. Further, many participants in this study reported being recipients of hostility, abuse, and disrespect, further blurring “professional” and “personal” responses to these challenging situations.

Ultimately, health professionals have a strong interest in supporting informed, evidence-based decision making by patients - but not at any cost. The experience of COVID-19 mass vaccination campaigns has highlighted the need for further research and professional development to support pharmacists in building upon pre-existing typologies and applying more nuanced and individually focused approaches to support as many of their patients as possible. At the core of this finding is the unique nature and strength of the pharmacist-patient relationship, particularly during the pandemic when pharmacists were amongst the only health care professionals available and accessible for in-person consultation.

This qualitative study does not purport to be generalizable beyond the context of these participants’ practices. This study occurred in a specific political, geographical, and national context that may not be directly comparable to other contexts despite superficial similarities in terms of language of practice, health system features, etc. Though care was taken to enhance trustworthiness and indicativeness of data collection and analysis using the COREQ checklist, researcher subjectivities may influence interpretation of participants’ experiences as reported here.

7. Conclusions

The COVID-19 pandemic represents the most significant public health emergency in most pharmacists’ lifetimes. This study has reported the complexity of managing a mass public vaccination campaign and the ways in which pharmacists navigated a diverse array of vaccine hesitations. The use of typological thinking and behaviour that emerged in this study highlights further opportunities for research and continuing professional development to better support the pharmacy workforce in meeting the needs of its diverse communities and patients.

Author statement

Paul AM Gregory was responsible for study design, primary data collection and analysis and drafting of the initial manuscript.

Manmohit Gill was responsible for primary data collection and analysis and review and revisions of initial drafts of the manuscript.

Dhruv Datta was responsible for primary data collection and analysis and review and revisions of initial drafts of the manuscript.

Zubin Austin was responsible for study conception and design, data analysis and revisions of initial manuscript.

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