# Introduction

Pharmacists have an important role to play in the treatment of minor ailments. Minor ailments are defined as “conditions that are often self-limiting, with symptoms easily recognized and described by the patient, and falling within the scope of pharmacist’s knowledge and training to treat”.1 Treatment may, or may not, include the provision of medicine. Examples of minor ailments include head lice, hayfever, back pain, headache, coughs and colds and scabies.2 Pharmacist involvement in minor ailment treatment may occur through the unfunded provision of health information, through patients privately purchasing medicines and/or related consultations, or through formal Pharmacist Minor Ailment Services (PMAS) with publicly-funded reimbursement for medicine cost and pharmacist time.3 There is evidence that PMAS consultations lead to high symptom-resolution rates (69-94%), a trend of reduced general practice consultations and prescribing,4 and cost savings to the health system.5 A 2015 cohort study comparing outcomes of minor ailments consultations in emergency departments, general practices, and community pharmacies, found symptom resolution and mean improvement in quality of life was similar for participants from all settings, suggesting equivalence in health outcome.6 In addition, patients’ satisfaction with pharmacists treating minor ailments is high.7–9 PMAS are available either nationally or regionally in a number of countries including; Canada, England, Ireland, Scotland and Wales, with Australia currently undertaking studies in this area.1–3 PMAS are not broadly available in New Zealand (NZ) despite the fact the majority of unfunded pharmacy services relate to minor ailment care10,11 and the growing pressure and workforce demands on general practices,12 and NZ policy recognizes that pharmacists’ skills are under-utilized, and that enhanced professional services provision by pharmacists should be supported and progressed.13,14 The provision of services for ambulatory conditions or ‘minor ailment’ care developed and delivered by the pharmacist workforce is an apt example of such a service.

Ethnic inequities in health outcomes exist across the globe, including between Indigenous and non-Indigenous peoples.15–18 These inequities are unfair and unjust, and are mediated by the social determinants of health including racism, housing, employment, education, and access to health services.15–18 PMAS have been postulated as a method to improve medicines access equity,14 however, international evidence around the impact of a minor ailment scheme on equity is scarce.19 Internationally, funded PMAS access is often restricted based on patient factors including age, comorbidities and financial need.3 PMAS are not available free of charge to all, instead incorporating equity into service application. Minor ailment schemes have been identified as important for refugee and rural communities in particular,20,21 and Australian research has identified that pharmacy has the potential to improve patient understanding and the optimal use of medicines in culturally and linguistically diverse populations.22 The potential for PMAS to facilitate the achievement of medicines access equity is relevant in the NZ context where Māori, the Indigenous people of NZ, experience reduced access to care and quality health outcomes across a spectrum of clinical contexts, compared to non-Māori, including access to medicines.23,24 Māori also disproportionately report that cost is a barrier to accessing medicines.25

Inequities in health outcomes will continue to be perpetuated unless equity is centered in the design and evaluation of health services, and working together with Indigenous populations to undertake this is vital.26 Other literature has described pharmacy service models co-designed with Indigenous populations to be both feasible and acceptable.27,28 We could not find any literature discussing the incorporation of Indigenous or other marginalized populations into PMAS development, including how the service is designed and implemented, and it is therefore unclear from published literature whether this has been done to any extent in the past. The aim of this study was to explore:

1. The types of minor ailments Māori access care for

2. Māori experiences of access to medicines for minor ailments

3. Māori perceptions of the role pharmacists play in minor ailment care.

# Methods

A convergent parallel mixed methods study design was used in this research. The current study was part of a larger research project which also explored Māori experiences of medicines adherence, the results of which have been reported elsewhere.29 This study is reported in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ).30 Ethics approval was granted by the NZ Health and Disability Ethics Committee (Ref: 21/CEN/152).

## Methodological framework

Kaupapa Māori theory originated in critical Māori education research and centres Māori ways of knowing, doing and being in the research process, often with activist and positive transformative intent.31–33 Kaupapa Māori theory was applied in the data analysis to ensure findings were reflective of Māori cultural, historical and political realities. Kaupapa Māori research practices such as involving researchers engaged in the communities of interest, developing connections through the research process, feeding back to research participants and consensus building were utilized in the research and have previously been reported.34

## Recruitment and informed consent

Participants were eligible if they were 18 years or older, self-identified as Māori and had obtained a medicine (over-the-counter or by prescription) from a pharmacy in the last 3 years. Those unable to provide informed consent were excluded. Convenience sampling by research team members in seven different regions of NZ, utilizing their local networks, were used to recruit eligible participants. The location of researchers, and therefore participant communities, were chosen to provide both rural and urban coverage. Potential participants were engaged through pharmacy social media sites, in-person communication, and email, and were provided with a brief summary of the study and a Participant Information Sheet. ‘Snow-balling’, whereby participants could invite others to participate,35 was also utilized. The recruitment methods were intentionally flexible to ensure researchers could engage with their communities in a way that aligned with their normal methods of communication. Consent was obtained either through written, informed consent, or the completion of the same form via Qualtrics®.

## Data collection

Wānanga (collaborative knowledge-sharing group discussions) were used to collect data. Wānanga were facilitated by 2 facilitators. The combination of skills between the 2 facilitators required that the following proficiencies were covered: experience in qualitative research, pharmacist qualification, the ability to converse in te reo Māori (the Māori language, the Indigenous language of NZ). All facilitators were Māori. Prior to the wānanga, facilitators participated in two project-specific training sessions on the following topics: recruitment, informed consent, *kaupapa Māori* theory, topic guide, semi-structured interviewing techniques, role-playing. Online and in-person wānanga were used in this research as it was undertaken during the COVID-19 pandemic.

During the wānanga, facilitators shared information about pharmacist training and what PMAS are. A topic guide was then utilized to prompt group discussions (supplementary material). Facilitators summarized key discussion points and presented them back to participants for consensus building. Participants were then asked to complete a questionnaire asking demographic questions, the types of minor ailments they had sought care for in the past, and what types of conditions they would likely access care for from pharmacists without prior access to a doctor (supplementary material). The conditions included in the questionnaire were collated from current international PMAS36–38 and conditions for which community pharmacists can currently provide treatment without a prescription in NZ. 39,40 Content and face validity were undertaken through research team review and subsequent piloting with three people outside the research team. Initial piloting led to question refinement and further piloting with five people produced the final questionnaire.

Wānanga were audio recorded and transcribed verbatim. Accuracy checks of transcripts were completed by one research team member and translations from te reo Māori to English were undertaken at that point. During the online wānanga participants had the ability to enter text into the ‘chat’ function. This was time stamped and included at relevant places in the transcription. Transcripts were anonymized by a research team member and each participant was assigned a unique study number in the order in which they appeared in the audio recordings.

Questionnaires were completed by participants online using Qualtrics® during online wānanga. For in-person wānanga, a physical copy was completed and then entered into Qualtrics® by 1 of the research team members.

## Data analysis

A general inductive approach was taken to code and develop themes, utilizing Kaupapa Māori theory. Initially, five transcripts were independently coded by 2 researchers who then met to discuss codes, de-duplicate or reword similar codes and arrange codes in hierarchy. From this, a coding framework was produced and presented to the full research team for further refinement. This coding framework was then used by one researcher to re-code the first 5 transcripts and code the remaining eight transcripts in NVivo qualitative data analysis software (QSR International Pty Ltd. Version 12, 2018). Further codes could be added to the coding framework in this process.

Codes were used to generate initial themes which were checked against data, presented back to the research team and final themes were agreed by consensus with code and quote review. Parentheses ‘( )’ have been used for translations and brackets ‘[ ]’ have been used in quotes to indicate where words have been replaced for clarity or anonymity. Participants’ unique study numbers are reported with quotes; no further demographic data was reported to ensure protection of anonymity. Simple descriptive statistics were used to present quantitative findings.

## Positionality and reflexivity

Researchers actively and critically reflected on their positionality during the research processes. Researchers held diverse positionality as well as collective positionality as a research team. The research team was made up of nine Māori researchers with experience in Māori health service delivery as both providers and receivers of care, public and community health, qualitative and quantitative research, public health and kaupapa Māori research. Shared positionality included acknowledging that current health services contribute to inequitable health outcomes for Māori, the ability of pharmacists to provide meaningful health care, the right of Māori to receive excellent health care, the right of Māori to have health care options and the importance of utilizing Māori research methods to facilitate positive, transformative changes in health care.

## Sample size

We intended to undertake 15 wānanga with 4-5 participants at each. A pragmatic approach to sample size was taken based on resources available for this project, the desire to obtain information from multiple urban and rural regions in NZ, and sample sizes of other similar research.41

# Results

From September 2021 to February 2022, 13 wānanga (10 online, 3 in-person) were held with 62 participants. The median duration of wānanga was 95 minutes (62-210 minutes) and 94% of participants (n=58) completed the questionnaire. Median age range was 35-44 years (range 18-24 to 75 plus), 71% identified as female, and 28% as having a physical disability. Participants resided in 1 of 7 geographical regions of NZ, affiliated to 37 different iwi (tribes) across NZ, and the majority (76%) chose to participate in both te reo Māori and English. Participants were given the option to bring support people. In 2 cases, family members who attended to support also met the study inclusion criteria and chose to consent to participate themselves. Further demographic data is presented in Table 1.

**Table 1. Participant demographics**

|  |  |  |
| --- | --- | --- |
| **Characteristic****(n=58)** | **Category** | **% (n)** |
| Age (years) | 18-24 | 8.6 (5)  |
| 25-34 | 17.2 (10) |
| 35-44 | 34.5 (20) |
| 45-54 | 13.8 (8) |
| 55-64 | 17.2 (10) |
| 65-74 | 6.9 (4) |
| 75-plus | 1.7 (1) |
| Age groups in participant household (years)  | 0-5 | 34.5 (20) |
| 6-17 | 50.0 (29) |
| 18-55 | 75.9 (44) |
| 55-80 | 43.1 (25) |
| 80-plus | 8.6 (5) |
| Medical conditions of participants\* | High blood pressure | 29.3 (17) |
| Diabetes | 20.7 (12) |
| High cholesterol | 19.0 (11) |
| Asthma | 15.5 (9) |
| Gout | 10.3 (6) |
| Heartburn/reflux | 5.2 (3) |
| Chronic obstructive pulmonary disorder (COPD)/emphysema | 5.2 (3) |
| Stroke | 5.2 (3) |
| Heart attack | 0 (0) |
| Heart failure | 0 (0) |
| Angina | 0 (0) |
| None of these conditions | 25.9 (15) |
| Current number of regular prescription medicines | Nil regular | 44.8 (26) |
| 1-2 | 29.3 (17) |
| 3-4 | 10.3 (6) |
| 5-plus | 15.5 (9) |
| \*Participants were asked to indicate conditions from this pre-populated list – conditions which did not appear on this list were not recorded. |

The majority of participants lived within 10mins’ drive of their general practice or a pharmacy (51% and 67% respectively). Twelve-percent of participants lived more than 30mins drive from their general practice, and 18% lived more than 30mins from a community pharmacy. All participants had visited their general practitioner (GP) in the last 12 months and 59% of participants had visited a community pharmacy 5 or more times in the same period. Almost half of the participants (48%) had visited a rongoā practitioner (traditional Māori healer/practitioner) at least once in the last 12 months.

The most common minor aliments for which participants sought care or treatment in the last 2 years were coughs and colds, vaccinations, back pain, headaches, and hayfever.

**Table 2. Participant access to care for minor ailments**

|  |  |
| --- | --- |
| **Condition (n=58)** | **Accessed care in last 2 years****% (n)** |
| Coughs and colds | 58.6 (34) |
| Vaccinations | 58.6 (34) |
| Back pain | 43.1 (25) |
| Headaches | 36.2 (21) |
| Hayfever | 32.8 (19) |
| Sore throats | 31.0 (18) |
| High blood pressure | 31.0 (18) |
| Eczema/dry skin | 27.6 (16) |
| Sports injury | 25.9 (15) |
| Asthma | 20.7 (12) |
| Diabetes | 20.7 (12) |
| Nits/kutu | 19.0 (11) |
| Cold sores | 17.2 (10) |
| Bladder infections | 17.2 (10) |
| Birth control | 15.5 (9) |
| Vaginal thrush | 15.5 (9) |
| Period pain | 15.5 (9) |
| Gout | 13.8 (8) |
| Diarrhoea | 12.1 (7) |
| Stop smoking advice or treatment | 10.3 (6) |
| Athletes foot | 10.3 (6) |
| Low mood or depression | 10.3 (6) |
| Haemorrhoids/piles | 8.6 (5) |
| Weight loss | 8.6 (5) |
| Reflux/heart burn | 6.9 (4) |
| Constipation | 6.9 (4) |
| School sores or skin infections | 5.2 (3) |
| Mouth ulcers | 5.2 (3) |
| Conditions requiring care in less than 5% of participants: scabies, insect bites, conjunctivitis (itchy, red eyes), worms, oral thrush, nappy rash, burns and scalds. |

Figure 1 presents data highlighting those who required care for a particular condition, the proportion who chose to access pharmacy first, instead of a doctor . The conditions for which participants more commonly chose to access pharmacy ahead of the doctor were mouth ulcers, impetigo/skin infections, head lice, hayfever, and headaches.

**Figure 1. Proportion of those who accessed pharmacy first or instead of a doctor when they required care for a certain minor ailments.**

The minor ailments that participants were most likely to seek treatment from pharmacy first were eczema, coughs and colds, headlice, insect bites, and hayfever. The minor ailments which participants most commonly said they would be *unlikely* to seek care from pharmacy first/instead of doctors were low mood/depression, hemorrhoids/piles, diabetes, high blood pressure, and vaginal thrush (Figure 2).

**Figure 2. Future likelihood of choosing to access minor ailment care from pharmacy first or rather than a doctor**

Four themes were generated from the qualitative wānanga data: designing the right environment for minor ailment care; clinically and culturally safe care; moving from stigmatizing to strengths-based services; the benefits of PMAS.

## Designing the right environment for minor ailment care

Health care environment was an important influencer of participants’ experiences of, and likelihood of accessing treatment or advice for minor ailments. The environment included the physical space, professionalism of and access to health providers, and technology. Environmental enablers and barriers to effective minor ailment care were identified, some of which were specific to pharmacy experiences.

Participants discussed that the way spaces are designed in the pharmacy is important for how they experience interactions. Pharmacies were often described as having a retail appearance rather than that of a health care setting. The importance of pharmacy reflecting a place of health care, compared to a retail space, was important in increasing the perception of reliable health care and advice.

*At the moment, you walk in the [pharmacy] door, and you're assaulted by the stink of perfume…* *When you have a pharmacist who goes out into the community and meets you in a comfortable setting, not surrounded by those bright lights and shiny shelves, you're more likely to listen to what they're saying, [and the] advice on product, than someone that kinda looks like a retail salesperson -* P14.

The majority of participants expected there should be a private area within a pharmacy for minor ailment consultations. Privacy was important not only for discussing issues, but also for showing ailments, for example wounds that were under clothing. Without privacy, they were unlikely to seek this type of consultation.

*The pharmacies I've been to don't seem to have consultancy rooms. I think that would be pretty important if we were to discuss ailments* *-* P57.

*I might have a cold sore... I feel embarrassed showing them my lip like that. You don't feel confident, and you don't feel safe to be able to have those open conversations because it is kind of like a retail outlet. It's not like we can have that isolated conversation away from other people -* P49.

In pharmacies where there are physical barriers between pharmacists and patients, for example a dispensary bench which is often elevated, power imbalance was reinforced and also reduced access to pharmacists and pharmacy staff.

*Yeah, breaking down barriers. For me, it would be literally breaking down the barrier to getting rid of the counter. Because it's a literal barrier between the people -* P48.

*Knowing how to remove what is the perceived power balance between me as the Māori that goes in, versus that very flash looking Pākehā [NZ European] behind the bench that I think is looking down on me -* P52.

The health care environment included the people within the environment too. Most participants actively differentiated between the pharmacist and other pharmacy staff and, in relation to minor ailments, often expected that there would be ready access to pharmacists to discuss their care.

*I feel like there's a physical barrier and a human barrier to the pharmacists, I don't really want to talk. I'm gonna be honest - I don't really want to talk to the front person, I want to talk to the pharmacist -* P21*.*

Although participants differentiated between pharmacists and other staff in terms of the skill, knowledge base and scope of their roles, participants expected all staff within the pharmacy to demonstrate ‘professional’ behaviour, such as respecting confidentiality. Participants described their perceptions of being in a safe environment were influenced not only by the care they received, but by witnessing the care of others. Examples ranged from participants describing overhearing conversations which breached the privacy of others through to hearing pharmacy staff ‘gossip’ about others, which meant they were not comfortable sharing anything about themselves.

*A couple of times I've been there having to wait for my medication and these three ladies are like gossipers. So, hell no, gee, you tell them nothing* - P24.

The technology environment was discussed as a potential barrier to or enabler of effective minor ailment care. The ability of electronic resources to provide a fast way for up-to-date information to be circulated to people was seen as an added benefit. Participants also discussed that there needs to be an easy and secure way for people to register for care, with these systems not being hindered for people who were transient or moving frequently. Technology was seen as a tool to support coordinated care from multiple providers to support high quality minor ailment care.

*For a specifically Māori approach, or even sort of lower-level income units, I think it is about a wrap-around approach, and that there's a few people that need to get involved for that. For that to achieve what it needs to achieve… transient whānau (families) have to have some real easy capacity where their story and the details is easily transferred, because it's a rigmarole you move, you know? -* P61.

## Clinically safe and culturally safe care

For effective minor ailment care, the environment needs to be both clinically safe and culturally safe for Māori. This theme captures Māori experiences and expectations of the clinical and cultural skills required by pharmacists to provide minor ailments care. It also incorporates participants’ ideas for designing accessible clinically and culturally safe care.

Most participants discussed that they felt confident that pharmacists had the clinical skills to deliver minor ailment care. Participants also felt able to make intentional decisions about which type of provider they should access, for example, pharmacist or GP or physiotherapist. To complement self-referral, participants perceived that pharmacists had the skills and professionalism to refer on to other health providers when their care needs were beyond the pharmacist’s expertise. The confidence in pharmacists’ abilities often came about from positive experiences of receiving care from pharmacy.

*I was in pain, which could have been easily fixed with antibiotics. But then I also found out that you can actually prescribe that when it's in its minor phases of UTI at the pharmacist. So, the next time it happened, I went to [the pharmacist]. She was primo [excellent, first-rate]. She took me, like I just said what my problem was they said, oh, yeah, they put me in a room. And had a consult with her. And that was all sorted.* - P51.

Some participants learnt more about pharmacist skills through the process of being involved in the current research and changed their perceptions of whether pharmacists could provide minor ailment care. This led to participants identifying that the level of knowledge in the community about pharmacists’ ability to provide minor ailment care needed to be improved and they made suggestions of what could be done.

*If it was normalised in some sort of like promotional factor, that we could come into a pharmacy and ask for general advice in a personal consultation type of way, I think you'd probably see a change -* P49.

Although participants felt confident in pharmacists’ clinical skills, many participants had experienced racism in the pharmacy setting and care that did not meet their cultural needs. Some cases were historical, yet the experience still impacted in them at that current point of time and made them cautious of developing relationships. These experiences made them reluctant to obtain care from pharmacies and pharmacists. One participant articulated that the lack of a culturally safe environment, where this particular participant experienced explicitly racist encounters, can prevent Māori seeking care, even when there is not a question of clinical competence.

*You can make it as accessible as you want. But if there’s mamae (pain) about going into the pharmacy shop, it'll always be there. I think, in terms of cultural safety, [pharmacists] would score low, but in terms of the ability to give a really good professional advice based on their tenure of their education I wouldn't have an issue with that* *-* P32.

Participants discussed that there were multiple ways in which a culturally safe environment for Māori could be promoted in pharmacy. Increasing the Māori workforce, both pharmacists and other staff, was important. It was felt that by increasing knowledge of pharmacists ability to offer minor ailments care in Māori communities, including education in te reo Māori immersion schools, this would also help promote pharmacy as a career option. Participants discussed that having pharmacists learn more about Māori culture, and the place of Māori in NZ was important to being able to provide safe care. Developing relationships with other community providers and organizations was also seen as important to develop a more holistic approach to minor ailments care.

*Integrated healthcare, with the inclusion of... you've got your pharmacists, you've got your doctors, you've got your traditional rongoā people in there. But, integrating it all together, so that you've got the choice …having a group that you could see that could cure your ailments together - P38.*

## Moving from stigmatising to strengths-based services

It was seen as important that minor ailments care did not propagate stereotypes and promote stigma for Māori. Some minor ailments such as scabies and head lice were associated with stigma for participants.

*If you asked for something for nits, it was like you knew you were being judged. That's how it felt really. So, to be honest, when I go to a pharmacy, I try keep that time in there as minimal as, I need to. - P32.*

Participants were asked whether particular groups of people should be prioritised for funded pharmacist minor ailments services. Many participants stated that this type of care should be available for all, however, in the context of finite resource it was recognized that certain groups would need to be prioritized for funding. The types of cohorts to be prioritised was diverse and included Māori, Pasifika, youth, older people, and those with less financial means. Participants also noted that current mechanisms used to determine those eligible for reduced primary care costs in NZ do not cover all those likely to be eligible, often because of the bureaucratic nature which can also cause lags in eligibility. Participants acknowledged that it was important to counter stigmatising narratives in the planning of services, including deciding the eligibility criteria for funding.

*I think one of the big stigmas for Māori and the lower economic whānau is the stigma of whakamā (shame). With those types of ailments that you spoke to... If we're gonna say that we're only going to fund those people that in the lower end of the pay scale, that's immediately gonna drag on a whakamā (shame) over them -* P57.

Some suggested that having minor ailments medicines available for people to collect without having to see any health provider could reduce exposure to stigma and help to increase access.

*[If head lice treatment is provided through schools, people] don't have to ask, it cuts that whole thing out. I don't know, maybe whether that would be something that could be considered. Maybe a drop basket or somewhere where whānau [family] don’t have to come in and engage, but they can just know that it's there -* P33*.*

Others suggested that it could be useful to initiate minor ailments services for those conditions where stigma is not associated, for example hayfever.

## The benefits of PMAS

Minor ailments care delivered specifically by pharmacists was noted to have potential benefits. PMAS were perceived to have the ability to increase the accessibility of minor ailment care as they were open longer hours than general practices, and did not require appointments or for patients to be enrolled or registered with a particular practice. Several participants referred to not having the ‘luxury’ of time to access a GP and that minor ailments care access through pharmacy was an efficient use of time.

*So, a lot of whānau, do go [to the pharmacy] - and even myself I work full time too and I don't have time to go to the doctor so I do just pop into the pharmacy hoping that they could help me but, it's expensive!*- P2.

Participants discussed that pharmacists could also facilitate access to minor ailment treatments through other providers including Māori health providers and local schools. The flexibility to access minor ailment treatment through multiple providers was seen as an enabler of increased access to minor ailment care. Participants suggested that pharmacists could further increase accessibility by providing care outside the four walls of the pharmacy.

*When you have a pharmacist who goes out into the community and meets you in a comfortable setting, not surrounded by those bright lights and shiny shelves, you're more likely to listen to what they're saying -* P14.

Driven by current difficulties in accessing minor ailments treatments, participants discussed alternative mechanisms they had developed to access these treatments which included building informal networks amongst family and community members to access medicines, and stock-piling of medicines so that they had it available at hand if needed.

*Within my husband's whānau (family) in [rural area]. They stockpile because they don't come to town all the time -* P2.

Participants noted that increasing access to minor ailment care would reduce the need to use these alternative mechanisms and had the potential for these for beneficial flow-on effects, such as reducing the need for secondary care by gaining earlier access to treatment, particularly in rural areas. PMAS was seen as valuable to the community and participants felt that by providing this type of service, the importance of the role of pharmacy and pharmacists in the community would be elevated.

# Discussion

This study explored Māori experiences of accessing minor ailments care. The key findings were that multiple components of the environment influence minor ailment care, minor aliment care needs to be clinically and culturally appropriate, PMAS needs to prevent not enhance stigma, and that PMAS can increase access to minor ailment care with flow-on benefits. Participants identified factors within the PMAS environment that were important to consider when designing PMAS for Māori and provided solutions for these.

Participants felt comfortable accessing pharmacist care for a range of minor ailments and were confident that pharmacists had the clinical expertise to provide minor ailment care, or to refer to another provider if necessary.

The majority of participants indicated they were likely to preferentially seek care from a pharmacist (compared to a doctor) for all listed minor ailments / conditions, which is supported by previous research showing high levels of satisfaction with PMAS.7-9 There was, however, a clear trend towards those conditions that are traditionally viewed as being ‘self-limiting’ minor ailments (e.g. eczema, coughs and colds, head lice, hayfever, etc.) being more acceptable to be preferentially managed by a community pharmacist when compared to long-term conditions such as diabetes, hypertension, or depression. This finding aligns with the types of conditions which more commonly in different countries currently.7,42–44 While this does not preclude community pharmacists from providing care to people living with long-term conditions, having a clear definition of minor ailments will be important, as the inclusion of long-term conditions within a PMAS scope may crossover with other funded pharmacist services such as medicines management services being completed by general practice pharmacists. The extent to which PMAS extends into treatment of chronic conditions varies internationally with stakeholder acceptance of broadened scope also varying.3,42 While the majority of stakeholders in one study felt the scope of conditions treated under PMAS was appropriate, some felt that regulatory mechanisms could be used to enable pharmacist supply of prescription-only medicines through extended PMAS services.42 Due to the multiple confounding factors influence treatment acceptability for certain conditions which may be encompassed by PMAS, further interrogation of the types of conditions treated within PMAS is warranted in the service planning stage.

Interestingly, although depression was the least common minor ailment for which participants would preferentially seek pharmacist care, the majority of participants still said they would likely access pharmacy first for this depression. This finding could be interpreted, not as comfort level with pharmacy, but potential discomfort with care from their doctor. A pharmacy-based service to support those with mental health conditions in Canada has been shown to be effective in improving medicines-related outcomes and was highly valued by patients.45,46 Similar programmes have been developed in Australia where a randomized controlled trial investigating the effectiveness of community pharmacy-based intervention to improve psychotropic medicines adherence is currently underway.47 For this model of care, training to enhance pharmacists skills in delivering care to Indigenous peoples was explicitly designed for and on evaluation was found to be feasible and prepared pharmacists to deliver a culturally responsive medication review intervention.48

When care, providers, or situations were deemed racist or culturally unsafe this prevented people from accessing care, which is common in health care settings globally.49,50 Pharmacists have a professional obligation to be culturally competent and deliver equitable care,51,52 with much education-based research focused on this area of pharmacy practice.53,54 Cultural competency does not ensure culturally safe care. The term cultural safety incorporates examination and rebalancing of power dynamics, and is patient focused, i.e. it is the patient, not the provider, who decides whether a situation is culturally safe.55 A number of participants described culturally unsafe experiences which could be compounded when seeking care for ailments perceived to have stigma attached. Stigma-related reduction in health care access has been reported for many of other conditions,56–58 but not previously in the context of PMAS. Although some participants’ negative experiences were from many years prior to their participation in this research, these still influenced how pharmacy care was experienced and are useful to consider when developing new services.

Pharmacies have the potential for great influence, both positive and negative, particularly in rural areas where there may only be one pharmacy and no general practice. Māori are more likely to live rurally than non-Māori, and there is recent evidence to show that Māori inequities in health outcomes are compounded when they live rurally.59 The impact of rurality on access to medicines has been shown to be significant internationally,60,61 with other factors, such as older age and living alone, further compounding access difficulties.62 To further widen access to minor ailments care, and to offer choice of provider, there is the potential that models of care in addition to pharmacies may be particularly beneficial in rural populations.

Participants were supportive of PMAS development as a way to increase access to minor ailments care, which they felt would perpetuate follow-on benefits for individual care and also raising the profile of the pharmacy profession. Similar to the current study, previous investigation of PMAS has shown that patients appreciate the ability to get funded minor ailment medicines without a prescription, not having to make an appointment with a GP, and an increase in choice of provider when seeking treatment.8 Increasing access options to minor ailment care, including through pharmacy, also has the ability to lessen implications of GP workforce shortages, which are likely to worsen in the coming years.63 While our participant group highlighted that it was important to position pharmacy as a place of health care rather than a retail space, this may need to be balanced against the view that some people may enter a pharmacy for retail purposes, providing an opportunity for pharmacists to interact with someone who might not otherwise engage with the health system.

It is important to undertake wide stakeholder engagement, including patient voice, in new pharmacy service development, to ensure it is fit-for purpose and sustainable.64 While previous research reports some GP hesitation around expansion of community pharmacists’ roles, in general, there is evidence that GPs see pharmacists providing PMAS as a relatively acceptable activity, especially when compared with other activities such as providing vaccinations, and having greater prescribing powers.65 The evaluation of a minor ailment scheme in England found that most health professionals were positive about the implementation of the scheme.7 Other research found that stakeholder groups (patients, pharmacists, GPs) agree that community pharmacies should be used over general practices for the management of minor ailments due to the access and convenience of community pharmacy settings.66 Primary care in NZ, including pharmacy and general practice, is currently structured as multiple private businesses that in some cases (e.g. vaccinations) compete for the same resource. This can propagate issues of patch protection and emphasizes the importance of stakeholder engagement when considering innovative service design. Engagement with other NZ pharmacy and health sector stakeholders to establish consensus is therefore important and is currently being undertaken by this research group.

Inequities in medicines access are present not only for Māori, but also other Indigenous populations.24,67 Designing for health equity requires examination of structural inequities that exist in the current health system/s or service, including power imbalances and differential resourcing, and explicit attention to counter these. To ensure that solutions are appropriate for the communities most adversely impacted by structural inequities, these communities must be included in the development of solutions. In the current study, participants identified a number of ideas and solutions for developing a PMAS which centers the needs of Māori, but which have potential relevance to other Indigenous or marginalized populations. These have been synthesized into the following recommendations which are of relevance to those developing equity-focused policy and services with target populations in mind:

* Investigate PMAS as a viable option for increasing access to treatment and care for minor ailments.
* Review current pharmacy environment to assess appropriateness for minor ailment care. This includes physical (e.g. removing the dispensing counter, having a private consultation room), technology infrastructure, and team behavior and culture.
* Promote pharmacist clinical skills and services to family and communities to raise awareness of pharmacists’ ability to deliver PMAS.
* Be aware that the messaging and language used in awareness raising campaigns regarding new services will be important. Pilot marketing and public health messaging with target consumers, to assess for understanding and to avoid stigmatizing language.
* Ensure pharmacists and pharmacy staff recognize the importance of providing culturally safe care for populations currently experiencing inequitable access to minor ailments care. Education pathways to support understanding of what culturally safe care is will support this.
* Collaborate with local community health providers to deliver minor ailments care. This could include Indigenous practitioners.
* Have the ability for minor ailment care from pharmacies to be available without appointments and include some ‘after-hours’ availability.
* Have the ability for minor ailment care to be available outside of the pharmacy setting. This could include clinics embedded in other locations (e.g. schools) or community events.
* Monitor and evaluate the impact of PMAS on access to primary and secondary care.

Having a flexible service delivery model was important to participants, who noted that a minor ailments service could be delivered outside of the four walls of a pharmacy, such as through Indigenous health providers and local schools. Although these changes may increase access, regulatory requirements designed to assure quality and safe supply of medicines, may need to be addressed in some countries for these types of changes to be initiated. Within Europe, there is a wide spectrum of non-pharmacy supply which has been shown to improve patient self-management, increase patient knowledge of medicines and health conditions, and reduce healthcare access, although this non-pharmacy medicines supply increase medicines-related risk.68 Changes to regulation and supply mechanisms will always need to weigh the benefit of increased medicines access with the potential for increased risk.

## Strengths and limitations

A strength of this study was that Māori experiences have been proactively sought prior to the development of PMAS to explicitly utilize these experiences in the development of a new service. Although this approach should be standard, health services are often not informed by Indigenous lived experiences in the development stages. The large number of participants has provided rich data to generate themes and participant-identified solutions to developing equitable minor ailment care have been proposed rather than simply describing past experiences. Although results are not intended to be generalizable for all Māori, a diverse sample was included in this study from multiple regions across NZ. The research was designed to enable participation in spite of a pandemic which limited in-person communication, while upholding Māori research practices.34 There were several limitations in this study. Each wānanga included at least one pharmacist as a facilitator, some of whom were known in professional capacities by the participants, which could have affected participants openness. Four participants did not complete the questionnaire which could have related to technical difficulties through the online platform.

# Conclusion

Equity of medicines access has been a driver for PMAS service development and delivery,14 yet there is no evidence to these services do deliver equitable outcomes for people of different ethnicity.19 When delivering a service under the pretense of equity, it is important that equity is designed for and that the service is evaluated to ensure equitable effectiveness. Pharmacy care model development, which involves communities and populations of interest through the planning, implementation and evaluation, has been shown in previous literature to be valuable for Indigenous people.28 This study provides factors important when developing PMAS to increase the likelihood of delivering equitable care, and can also be used to develop outcomes with which to measure equity.

**Acknowledgements**

Thank you to the participants who shared their knowledge and time with us and to Pauline Te Karu for administrative support. Thank you to the project stakeholder group for engaging with this project and supporting wider dissemination.

**Conflicts of interest**

The authors have no conflicts of interest to declare.

**Funding**

This research is funded by Health Research Council of NZ and PHARMAC NZ [grant number:20/1466]. Funders had no role or influence over study design, the collection, analysis and interpretation or reporting of the data.

Author contributions

JH: Conceptulization, Methodology, Investigation, Formal analysis, Resources, Data curation, Writing – Original draft, Supervision, Project administration, Funding acquisition; RH Methodology, Formal analysis, Writing – Review & editing, Conceptualisation; NP: Investigation, Methodology, Formal analysis, Writing – Review & editing; BM: Investigation, Methodology, Formal analysis, Writing – Review & editing; AA: Methodology, Formal analysis, Writing - Review and editing; KP: Investigation, Formal analysis; RB: Methodology, Formal analysis, Writing – Review & editing.

# References

1. Dineen-Griffin S, Garcia-Cardenas V, Rogers K, Williams K, Benrimoj SI. Evaluation of a Collaborative Protocolized Approach by Community Pharmacists and General Medical Practitioners for an Australian Minor Ailments Scheme: Protocol for a Cluster Randomized Controlled Trial. JMIR Res Protoc. 2019;8(8):e13973. doi: 10.2196/13973

2. Taylor JG, Joubert R. Pharmacist-led minor ailment programs: a Canadian perspective. Int J Gen Med. 2016 Aug 10;9:291–302. doi: 10.2147/IJGM.S99540

3. Aly M, García-Cárdenas V, Williams K, Benrimoj SI. A review of international pharmacy-based minor ailment services and proposed service design model. Res Soc Adm Pharm. 2018;14(11):989–98. doi: 10.1016/j.sapharm.2017.12.004

4. Paudyal V, Watson MC, Sach T, Porteous T, Bond CM, Wright DJ, et al. Are pharmacy-based minor ailment schemes a substitute for other service providers? Br J Gen Pract. 2013;63(612):e472–81. doi: 10.3399/bjgp13X669194

5. Baqir W, Learoyd T, Sim A, Todd A. Cost analysis of a community pharmacy ‘minor ailment scheme’ across three primary care trusts in the North East of England. J Public Health. 2011 Dec 1;33(4):551–5. doi: 10.1093/pubmed/fdr012

6. Watson MC, Ferguson J, Barton GR, Maskrey V, Blyth A, Paudyal V, et al. A cohort study of influences, health outcomes and costs of patients’ health-seeking behaviour for minor ailments from primary and emergency care settings. BMJ Open. 2015;5(2). doi:10.1136/bmjopen-2014-006261

7. Pumtong S, Boardman HF, Anderson CW. A multi-method evaluation of the Pharmacy First Minor Ailments scheme. Int J Clin Pharm. 2011 Jun;33(3):573–81. doi: 10.1007/s11096-011-9513-2

8. Vohra S. A community pharmacy minor ailment scheme — effective, rapid and convenient. The Pharmaceutical Journal. 2009. doi: 10.1211/PJ.2009.10967574

9. Hall G, Cork T, White S, Berry H, Smith L. Evaluation of a new patient consultation initiative in community pharmacy for ear, nose and throat and eye conditions. BMC Health Serv Res. 2019 Dec;19(1):1–8. doi.org/10.1186/s12913-019-4125-y

10. Abdul Aziz YH, Heydon SJ, Duffull SB, Marra CA. What free services do pharmacists offer? Investigating the provision of unfunded pharmacy services in community pharmacies. Res Soc Adm Pharm. 2021 Mar 1;17(3):588–94. doi: 10.1016/j.sapharm.2020.05.007

11. Abdul Aziz YH, Heydon SJ, Duffull SB, Marra CA. Investigating the provision, nature and associated costs of unfunded pharmacy services: A nationwide study. Res Soc Adm Pharm. 2022 Sep 14. doi.org/10.1016/j.sapharm.2022.08.019

12. Grimmond D, Martin G, Tu D. GP furture workforce requirements report. Wellington, N.Z: Allen + Clarke; 2021 p. 30.

13. Health and Disability System Review. Health and Disability System Review - Final Report – Pūrongo Whakamutunga [Internet]. Wellington: HDSR; 2020. [cited 2022 Mar 25]. Available from: https://systemreview.health.govt.nz/assets/Uploads/hdsr/health-disability-system-review-final-report.pdf

14. Ministry of Health. Pharmacy Action Plan 2016 to 2020. [Internet]. Wellington, N.Z.: Ministry of Health; 2016 [cited 2022 Mar 25]. Available from: https://www.health.govt.nz/system/files/documents/publications/pharmacy-action-plan-2016-to-2020.pdf

15. Reading C. Structural determinants of Aboriginal people’s health. In: Determinants of Indigenous Peoples Health in Canada: Beyond the Social. Toronto: Canadian Scholars’ Press; 2015.

16. Reid P, Robson B. Understanding health inequities. In: Hauora, Māori standards of health IV A study of the years, 2000-2005. Wellington, N.Z.: Te Rōpū Rangahau Hauora a Eru Pōmare; 2007.

17. Cooper D. Closing the gap in cultural understanding: social determinants of health in Indigenous policy in Australia. Darwin: Aboriginal Medical Services Alliance of the Northern Territory (AMSANT); 2011.

18. Marmot M, Allen J, Boyce T, Goldblatt P, Morrison J. Health equity in England: The Marmot Review 10 years on. London: Institute of Health Equity; 2020.

19. Hikaka J, Haua R. Examining equity in a void of evidence-Pharmacist minor ailments services and the role of systematic reviews. Explor Res Clin Soc Pharm. 2022;100174. doi: 10.1016/j.rcsop.2022.100174

20. Parmentier H, Golding S, Ashworth M, Rowlands G. Community pharmacy treatment of minor ailments in refugees. J Clin Pharm Ther. 2004;29(5):465–9. 10.1111/j.1365-2710.2004.00591.x

21. McKeirnan KC, Garrelts MacLean L. Pharmacist, physician, and patient opinions of pharmacist-treated minor ailments and conditions. J Am Pharm Assoc JAPhA. 2018 Dec;58(6):599–607. doi: 10.1016/j.japh.2018.08.008

22. Mohammad A, Saini B, Chaar BB. Exploring culturally and linguistically diverse consumer needs in relation to medicines use and health information within the pharmacy setting. Res Soc Adm Pharm RSAP. 2015 Aug;11(4):545–59. doi: 10.1016/j.sapharm.2014.11.002

23. Ministry of Health. Wai 2575 Māori Health Trends Report [Internet]. Wellington: Ministry of Health; 2019 [cited 2020 Apr 28]. Available from: https://www.health.govt.nz/publication/wai-2575-maori-health-trends-report

24. Metcalfe S, Beyene K, Urlich J, Jones R, Proffitt C, Harrison J, et al. Te Wero tonu—the challenge continues: Māori access to medicines 2006/07–2012/13 update. N Z Med J. 2018;131(1485).

25. Jatrana S, Crampton P, Norris P. Ethnic differences in access to prescription medication because of cost in New Zealand. J Epidemiol Community Health. 2011 May 1;65(5):454–60. doi: 10.1136/jech.2009.099101

26. Huria T, Palmer S, Pitama S, Beckert L, Lacey C, Ewen S, et al. Consolidated criteria for strengthening reporting of health research involving indigenous peoples: the CONSIDER statement. BMC Med Res Methodol 2019;19(1):173. doi: 10.1186/s12874-019-0815-8

27. Hikaka J, Hughes C, Jones R, Amende H, Connolly MJ, Martini N. Feasibility of a pharmacist-facilitated medicines review intervention for community-dwelling Māori older adults. Explor Res Clin Soc Pharm. 2021 Jun;2:100018. doi: 10.1016/j.rcsop.2021.100018

28. Hikaka J, Jones R, Hughes C, Connolly MJ, Martini N. Clinical expertise, advocacy and enhanced autonomy – Acceptability of a pharmacist-facilitated medicines review intervention for community-dwelling Māori older adults. 2021 Apr;2:100010 doi: 10.1016/j.rcsop.2021.100010

29. Hikaka J, Parore N, Haua R, Anderson A, Hudson M, McIntosh B, et al. Māori, pharmacists, and medicines adherence–A mixed methods study exploring indigenous experiences of taking medicines ‘as prescribed’ and mechanisms of support. Explor Res Clin Soc Pharm. 2022;100175. doi: 10.1016/j.rcsop.2022.100175

30. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 2007 Sep 16: 19(6):349–57. doi.org/10.1093/intqhc/mzm042

31. Pihama L. Kaupapa Māori theory: transforming theory in Aotearoa. He Pukenga Korero. 2010;9(2):5–14.

32. Smith LT. Decolonising methodologies: Research and indigenous peoples. 2nd ed. London: Zed Books; 2012.

33. Curtis E. Indigenous positioning in health research: The importance of Kaupapa Māori theory-informed practice. Altern Int J Indig Peoples. 2016;12(4):396–410. doi: doi.org/10.20507/AlterNative.2016.12.4.5

34. Hikaka J, Anderson A, Parore N, Haua R, Hudson M, McIntosh B, et al. Establishing research tikanga to manaaki research participants in a pandemic. N Z Med J. 2022;135(1550):167–9.

35. Valentine G. Tell me about...Using interviews as a research methodology. In: Methods in human geography: A guide for students doing a research project. Harlow: Pearson; 2005. p. 110–27.

36. Clews G. The Pharmaceutical Journal. Scottish government announces national minor ailments service for all London: Pharm J [Internet]. 2018; Available from: https://www.pharmaceutical-journal.com/news-and-analysis/news/scottish-government-announces-nationalminor-ailments-service-for-all/20205404.article?firstPass=false

37. Formulary Subgroup of, NHS Highland Area Drug and Therapeutics Committee. Community Pharmacy Minor Ailments Service formulary [Internet]. Scotland: NHS; 2017 p. 60. Available from: https://www.communitypharmacy.scot.nhs.uk/documents/nhs\_boards/highland/NHS\_Highland\_MAS\_Formulary\_8thEdition.pdf

38. Lee R, McCarthy L. Canadian “minor ailments” programs. Can Pharm J CPJ. 2015 Nov;148(6):302–4. doi: 10.1177/1715163515611144

39. Andrews S, Gasparini J, Henderson G. Evaluation of Gout Stop and Owning My Gout management programmes. 2020. Synergia. https://www.arthritis.org.nz/wp-content/uploads/2020/07/Gout-programmes-evaluation-report-.FINAL\_.-200228.pdf

40. Ministry of Health. Using Practitioner Supply Orders and Standing Orders in the Rheumatic Fever Prevention Programme. Wellington, N.Z: Ministry of Health; 2015.

41. Adcock A, Cram F, Lawton B, Geller S, Hibma M, Sykes P, et al. Acceptability of self-taken vaginal HPV sample for cervical screening among an under-screened Indigenous population. Aust N Z J Obstet Gynaecol. 2019;59(2):301–7. doi: 10.1111/ajo.12933

42. Aly M, García-Cárdenas V, Williams KA, Benrimoj SI. A qualitative study of stakeholder views and experiences of minor ailment services in the United Kingdom. Res Soc Adm Pharm. 2019 May 1;15(5):496-504. doi.org/10.1016/j.sapharm.2018.06.014

43. Buchan R, Turner R, Hughes N, Urban R. Implementation of a pharmacy self-care scheme to prevent patients attending general practice within a majority South-Asian population. Int J Pharm Pract. 2015;23(SUPPL. 2):78–9.

44. Formulary Subgroup of, NHS Highland Area Drug and Therapeutics Committee. Community Pharmacy Minor Ailments Service formulary [Internet]. Scotland: NHS; 2017 p. 60. Available from: https://www.communitypharmacy.scot.nhs.uk/documents/nhs\_boards/highland/NHS\_Highland\_MAS\_Formulary\_8thEdition.pdf

45. Murphy AL, Gardner DM, Jacobs LM. Patient care activities by community pharmacists in a capitation funding model mental health and addictions program. BMC Psychiatry. 2018;18(1):192. doi.org/10.1186/s12888-018-1746-3

46. Murphy AL, Gardner DM, Jacobs LM. The patient experience in a community pharmacy mental illness and addictions program. Can Pharm J Rev Pharm Can. 2019;152(3):186–92. doi.org/10.1177/1715163519839424

47. Wheeler AJ, O’Reilly CL, El-Den S, Byrnes J, Ware RS, McMillan SS. Bridging the gap between physical and mental illness in community pharmacy (PharMIbridge): protocol for an Australian cluster randomised controlled trial. BMJ Open [Internet]. 2020;10(7):e039983. doi:10.1136/ bmjopen-2020-039983

48. Wheeler AJ, Hu J, Tadakamadla SK, Hall K, Miller A, Kelly F. Development and feasibility testing of a training programme for community pharmacists to deliver a culturally responsive medication review intervention. Pilot Feasibility Stud. 2022; 8(1):51. doi.org/10.1186/s40814-022-01006-2

49. Gadsden T, Wilson G, Totterdell J, Willis J, Gupta A, Chong A, et al. Can a continuous quality improvement program create culturally safe emergency departments for Aboriginal people in Australia? A multiple baseline study. BMC Health Serv Res. 2019;19(1):222. doi.org/10.1186/s12913-019-4049-6

50. Nelson SE, Wilson K. Understanding barriers to health care access through cultural safety and ethical space: Indigenous people’s experiences in Prince George, Canada. Soc Sci Med. 2018; 218:21–7. doi.org/10.1016/j.socscimed.2018.09.017

51. Royal Pharmaceutical Society. Joint National Plan for Inclusive Pharmacy Practice. 2021. [cited 2022 Dec 17]. Available from: https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Inclusive%20Pharmacy%202021/Joint%20National%20Plan%20for%20Inclusive%20Pharmacy%20Practice%20-%2010%20March.pdf

52. Pharmacy Council of New Zealand. Competence standards for the pharmacy profession. Wellington: Pharmacy Council of New Zealand; 2015.

53. Prescott GM, Nobel A. A Multimodal Approach to Teaching Cultural Competency in the Doctor of Pharmacy Curriculum. Am J Pharm Educ. 2019;83(4). doi:10.5688/ajpe6651

54. Okoro ON, Odedina FT, Reams RR, Smith WT. Clinical Cultural Competency and Knowledge of Health Disparities Among Pharmacy Students. Am J Pharm Educ. 2012;76(3). doi: 10.5688/ajpe76340

55. Curtis E, Jones R, Tipene-Leach D, Walker C, Loring B, Paine SJ, et al. Why cultural safety rather than cultural competency is required to achieve health equity: a literature review and recommended definition. Int J Equity Health. 2019;18(1):174. doi: 10.1186/s12939-019-1082-3

56. Knaak S, Mantler E, Szeto A. Mental illness-related stigma in healthcare: Barriers to access and care and evidence-based solutions. In: Healthcare management forum. SAGE Publications Sage CA: Los Angeles, CA; 2017. p. 111–6.

57. Nguyen T, Li X. Understanding public-stigma and self-stigma in the context of dementia: A systematic review of the global literature. Dementia. 2020;19(2):148–81. doi: 10.1177/1471301218800122

58. Chang SH, Cataldo J. A systematic review of global cultural variations in knowledge, attitudes and health responses to tuberculosis stigma. Int J Tuberc Lung Dis. 2014;18(2):168–73. doi: 10.5588/ijtld.13.0181

59. Crengle S, Davie G, Whitehead J, Graaf B de, Lawrenson R, Nixon G. Mortality outcomes and inequities experienced by rural Māori in Aotearoa New Zealand. Lancet Reg Health – West Pac. 2022 Nov 1;28. doi: 10.1016/j.lanwpc.2022.100570

60. Tharumia Jagadeesan C, Wirtz VJ. Geographical accessibility of medicines: a systematic literature review of pharmacy mapping. J Pharm Policy Pract. 2021;14(1):28. doi.org/10.1186/s40545-020-00291-7

61. Yusuf S, Islam S, Chow CK, Rangarajan S, Dagenais G, Diaz R, et al. Use of secondary prevention drugs for cardiovascular disease in the community in high-income, middle-income, and low-income countries (the PURE Study): a prospective epidemiological survey. The Lancet. 2011;378(9798):1231–43. doi.org/10.1016/S0140-6736(11)61215-4

62. Rushworth GF, Diack L, MacRobbie A, Munoz SA, Pfleger S, Stewart D. Access to medicines in remote and rural areas: a survey of residents in the Scottish Highlands & Western Isles. Public Health. 2015;129(3):244–51. doi.org/10.1016/j.puhe.2015.01.005

63. The Royal New Zealand College of General Practitioners. 2018 general practice workforce survey. Wellington: The Royal New Zealand College of General Practitioners; 2018.

64. Piquer-Martinez C, Urionagüena A, Benrimoj SI, Calvo B, Martinez-Martinez F, Fernandez-Llimos F, et al. Integration of community pharmacy in primary health care: The challenge. Res Soc Adm Pharm. 2022 Aug;18(8):3444–7. doi:10.1016/j.sapharm.2021.12.005

65. Moore T, Kennedy J, McCarthy S. Exploring the General Practitioner-pharmacist relationship in the community setting in Ireland. Int J Pharm Pract. 2014 Oct;22(5):327–34. doi: 10.1111/ijpp.12084

66. Hindi AMK, Schafheutle EI, Jacobs S. Patient and public perspectives of community pharmacies in the United Kingdom: A systematic review. Health Expect. 2018;21(2):409–28. doi: 10.1111/hex.12639

67. Ouellet C, Saias T, Sit V, Lamothe L, Rapinski M, Cuerrier A, et al. Access to indigenous and allopathic medicines: A systematic review of barriers and facilitators. Glob J Comm Psych Pr. 2018;9(2):1–38.

68. Oleszkiewicz P, Krysinski J, Religioni U, Merks P. Access to Medicines via Non-Pharmacy Outlets in European Countries—A Review of Regulations and the Influence on the Self-Medication Phenomenon. Healthcare. 2021;9(2):123. doi.org/10.3390/healthcare9020123