Examining equity in a void of evidence - Pharmacist minor ailments services and the role of systematic reviews

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ABSTRACT

Pharmacist minor ailment services (PMAS) are formalised services which remunerate pharmacists for delivering care and providing medicines used to treat minor ailments such as hayfever, musculoskeletal pain, head lice and constipation. PMAS have been postulated to improve medicines access equity yet there is little evidence to suggest that equitable health outcomes from PMAS have been achieved in those countries where these services have been initiated. Systematic reviews are regarded as the gold standard in assessing evidence of outcome effectiveness, including equity of outcomes. Our research team developed a systematic search strategy and review protocol to examine ethnic variation in PMAS outcomes. No results were returned, even with the inclusion of grey literature, and therefore the impact of PMAS on ethnic equity could not be examined. This commentary discusses the potential for PMAS to achieve medicines access equity and the role of empty reviews in identifying gaps in the literature and advocating for equity.

We recently read a tweet from an academic pharmacist that mocked systematic reviews which included minimal studies. Other academics joined in, trumping the initial comment – what about those that return zero results? The discussion that ensued suggested that researchers who undertake this type of systematic review are aiming at an easy path to research and publication. I mean, how hard is it to synthesise data from just a few papers??

At the same time as reading this chain of tweets, our research team was undertaking a robust, systematic search of the literature to examine ethnic equity of access to pharmacist minor ailments services (PMAS) in preparation of exploring the value of PMAS in the New Zealand (NZ) setting. Minor ailments can be defined as ‘common or self-limiting or uncomplicated conditions which can be diagnosed and managed without medical intervention’. This group of conditions may also be referred to as ‘common ailments’ or ‘ambulatory conditions’ and health professionals often play a major role in the provision of medicines and advice to treat these conditions. Examples of minor ailments include coughs and colds, eczema, head lice, musculoskeletal pain, hayfever, sore throat and constipation.

Community pharmacists in primary care settings provide advice and medicines to support the treatment of minor ailments on a daily basis. PMAS formalise this service offering and establish funding pathways for pharmacists to be remunerated. PMAS often involve the supply of appropriate medicine although it can include education and/or onwards referral only. In addition to the resolution of clinical symptoms, benefits of pharmacist utilisation to manage minor ailments through PMAS include reduced general practitioner consultations and prescriptions, reduced costs associated with the treatment of minor ailments, improved access to healthcare, with high levels of patient satisfaction. The potential for pharmacists to better optimise health resources and improve patient self-management has led to a number of countries, including England, Scotland, Wales and Canada, developing PMAS that are distinctively developed and resourced. Other countries, including NZ and Australia, are actively investigating the impact that this type of service could have on care and health system resourcing.

There is evidence that ethnic minority groups experience reduced access to medicines and health services, and inequitable health outcomes associated with medicine use. The introduction of PMAS has been postulated as a way to improve equity in access to medicines and the associated outcomes resulting from access equity. In the majority of settings internationally, PMAS access is restricted (in varying degrees) based on age, other comorbidities and financial need; it is not available free of charge to all; thereby incorporating an aspect of equity into service design and application. Research demonstrates that minor ailment schemes are important for refugee and rural communities in particular, however, international evidence around the impact of a minor ailment scheme on equity is scarce. Although systematic reviews have been conducted to examine PMAS cost-effectiveness, intervention components, and the methodological considerations of outcome measures, a comprehensive understanding of the impact of PMAS on equity of outcomes, particularly at a patient-level, is missing. Further information is needed to understand the impact of PMAS on these outcomes and to explicitly examine these outcomes in relation to ethnic variation in medicines access and related health outcomes.

Our team aimed to undertake a systematic review to assess the ethnic variation in PMAS outcomes. We anticipated a paucity of results and therefore applied broad inclusion criteria and extended the search beyond peer-reviewed articles, into grey literature. We anticipated heterogeneity in outcomes and planned to pivot to a narrative review of findings if the data did not allow for the systematic presentation of findings. Our systematic search
of the literature, which included contacting professional bodies in countries where these PMAs are delivered, returned zero results. The most common reason for excluding papers that reached full-text review was that the association between outcomes and ethnicity was not examined. One study did report service provision by ethnicity although over 30% of records did not have ethnicity data recorded which makes review of equity of access by ethnicity difficult.20 The fact that no articles could be identified to include in a review is an important finding, but what are the mechanisms for reporting and publishing this finding in the ‘absence of evidence’?

Systematic reviews which return no results are also known as empty reviews. The importance of publishing empty reviews has been discussed, including empty reviews in the Cochrane database, with benefits including identifying gaps in knowledge and highlighting the state of evidence for interventions at a particular point in time.21 The likelihood of returning empty reviews is increased with narrow research questions and inclusion criteria, comprehensive exclusion criteria, and by only including certain types of studies, for example, randomised controlled trials. These aspects should be considered when empty reviews are returned, with the potential to revise questions and scope, however, none of these factors were present in our approach to reviewing the literature.

Despite PMAs being postulated to improve equity of health care, including for ethnic minorities which often experience reduced access to and lower quality health care, there is no publicly available evidence that can be used to evaluate the supposition that PMAS will equitably improve outcomes for ethnic minorities. In NZ, although many pharmacists provide clinical consultations for the management of minor ailments, these are not funded by the government, and pharmacists only recoup some of the related time-costs if patients purchase a medicine.22 If patients are required to purchase a medicine to best manage their minor ailment, financial means may affect one’s ability to access medicines.

The implementation of PMAS has been a NZ ‘priority’, included on the national Pharmacy Action Plan since at least 2016 where commissioning agencies were to “complete a business case to assess the matters involved in implementing a minor ailments and referral service”.23 The ability for health system organisations to undertake that type of work, when there is often a large focus on day-to-day operational functions, is limited. This is particularly the case in unforeseen circumstances, such as the COVID-19 pandemic. We therefore rely on systematic reviews to inform the implementation of innovative health services in a way that assesses for, and aims to eliminate, bias from the process. There is the potential that if PMAS review information was available to NZ commissioners of health services, and the evidence of PMAS in achieving medicines access equity had been established, then action to establish PMASs could have been taken sooner. How can we instigate services on a pretence of providing equitable care having not examined outcomes in relation to equity in the first instance?

We have provided our search strategy, methods and search results have been included as an appendix to this commentary. We are hopeful that this could be used in the not-too-distant future to explore our proposed research question and assess the ethnic variation in PMAS outcomes. We wish to highlight to researchers undertaking primary interventional research, and those designing and delivering pharmacy services, that it is important to both design for equity and to include mechanisms to assess for equity of access and outcomes resulting from interventions and services.

In response to ‘Twitter’: sometimes systematic reviews which return few, or nil, results serve a purpose additional to the research aim; they call out bias and racism in research funding, methods, reporting and publication. They provide evidence with which to advocate for equity. They provide evidence with which to advocate for change. In fact, it could be argued that, in contrast to the views of academic twitter in relation to empty reviews, the easier path is indeed the one that adheres to academic norms for publication and to epistemological traditions of mainstream scientific research as to what constitutes knowledge. Our research team is intentional in our approach to contribute to the achievement of health equity through transformative research practices, which includes highlighting through extensive and systematic literature review processes, a lack of evidence that PMAS deliver equitable health outcomes.

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Appendix A. A systematic review protocol to examine ethnic variation in Pharmacist Minor Ailment Service outcomes

This review aimed to assess the ethnic variation in pharmacist minor ailment service (PMAS) outcomes. A systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses - Equity (PRISMA-E 2012) guidelines.24 Best practice methods relating specifically to equity-focussed systematic reviews were used.25

A.1. Methods

A.1.1. Eligibility criteria

The participant population could consist of any patient type, with no limit placed on participant age. This review included intervention studies, where the PMAS occurred in the primary care setting, utilising pharmacists or trained pharmacy staff to deliver the service. The intervention may or may not have included the supply of medicine (for example, the consultation may have resulted in the provision of advice only). Where medicine supply was part of the PMAS, this had to occur without the requirement for a prescription from a designated prescriber (or equivalent). Studies were excluded if the intervention occurred in the secondary care setting, including outpatient clinics. The PMAS intervention had to include multiple (more than one) minor ailment conditions. There was no requirement for control or comparator groups. Due to the anticipated paucity and heterogeneity of studies, all reported outcomes were included. No restriction was placed on study design. Review articles, conference abstracts, editorials, methodology papers, and letters were excluded.

A.1.2. Identification of studies

A search of the Ovid Medline, SCOPUS, Web of Science, and Embase databases was undertaken from the year 2000 until 4th October 2021. The strategy had a language limit set to only include studies reported in the English language. The search strategy was developed by the authors through review of other literature relating to PMAS and the adaption of search strategies used in previous equity-focussed systematic reviews26,27 and used subject heading and keyword searches (title and/or abstract). Search terms related to ‘minor ailments’ AND ‘pharmacy’ AND ‘(ethnicity OR ethnicity)’. Adaptation of the search strategy was made for the syntax requirements of each database (Table A1 shows the Ovid Medline search strategy). A systematic approach to grey literature searching was undertaken.28 The professional pharmacy bodies in New Zealand, Australia, the United Kingdom, and Canada were contacted directly to identify reports that were not publicly available. Hand-searching of references lists within the included studies was also undertaken to identify other studies for potential inclusion.
Table A1
Results for OVID Medline.

| ID | Search term                                                                 | Results |
|----|-----------------------------------------------------------------------------|---------|
| 1. | Pharmacy/or Community Pharmacy Services/                                    | 13,803  |
| 2. | Pharmacists/                                                                 | 18,885  |
| 3. | Pharmacy.mp.                                                                | 68,585  |
| 4. | Limit 3 to abstracts                                                        | 42,417  |
| 5. | Pharmacies.mp.                                                              | 18,047  |
| 6. | Limit 5 to abstracts                                                        | 12,841  |
| 7. | Pharmacist$.mp.                                                             | 41,603  |
| 8. | Limit 7 to abstracts                                                        | 32,450  |
| 9. | Combine 1 or 2 or 4 or 6 or 8 with OR                                       | 76,622  |
| 10.| Self Medication.mp                                                         | 7515    |
| 11.| Minor ailment$.mp.                                                          | 535     |
| 12.| Minor illness$.mp.                                                         | 588     |
| 13.| Minor injury$.mp.                                                          | 2,165   |
| 14.| Non-urgent.mp.                                                              | 1347    |
| 15.| Common illness$.mp.                                                        | 1065    |
| 16.| Common ailment$.mp.                                                        | 435     |
| 17.| ((minor or common or self-limiting or non-urgent or nonemergency or non-emergency or ambulatory) adj3 (ailment or illness or sickness or symptom or injury or condition or problem)).mp. | 61,175  |
| 18.| Limit 17 to abstracts                                                      | 60,345  |
| 19.| Over-the-counter.mp.                                                        | 9485    |
| 20.| Limit 19 to abstracts                                                      | 8690    |
| 21.| Otc.mp.                                                                    | 5437    |
| 22.| Limit 21 to abstracts                                                      | 5075    |
| 23.| Non-prescription.mp.                                                       | 1187    |
| 24.| Limit 23 to abstracts                                                      | 1108    |
| 25.| Combine 10–16, 18, 20, 22, 24 with OR                                       | 83,303  |
| 26.| (ethnic* or race or racial* or racis*).mp.                                  | 300,585 |
| 27.| (equit* or inequit* or inequal* or disparit* or equality).mp.               | 171,169 |
| 28.| Vulnerable Populations/                                                    | 12,022  |
| 29.| Health Status/                                                              | 86,048  |
| 30.| Indigenous Canadians/ or Health Services, Indigenous/ or Indigenous Peoples/ or indigenous.mp. | 38,494  |
| 31.| Racism/ or Ethnic Groups/ or Cultural Diversity/                           | 80,206  |
| 32.| Oceanic Ancestry Group/                                                    | 11,167  |
| 33.| Population Groups/                                                         | 5179    |
| 34.| Combine 26–33 with OR                                                      | 569,210 |
| 35.| Combine 9 AND 25 AND 34                                                    | 99      |
| 36.| Limit 35 to last 21 years AND to English language                          | 87      |

A reference management system (Zotero™) was used to group the results and exclude duplicates. Titles and abstracts were independently reviewed by two reviewers (JH and RH) and papers which did not meet the pre-defined criteria were excluded. The full text of the remaining papers were reviewed for inclusion, independently by JH and RH. Disagreements regarding exclusion/inclusion were resolved by discussion between the two reviewers.

A.1.3. Data extraction and synthesis

Data extraction was performed by two reviewers using a form guided by the Cochrane Effective Practice and Organisation (EPOC) group standards. Extracted data consisted of participant characteristics including method for assigning ethnicity, study aims, conditions included for treatment, target population, who delivered the intervention, intervention setting, study type, and all reported outcomes. Outcomes were grouped according to the EPOC guidelines into the following patient outcomes; quality of care; utilisation, coverage or access; resource use; health care provider outcomes; social outcomes; adverse effects or harms; satisfaction. Equity was considered across all of these outcomes. Due to likely heterogeneity of outcomes, a narrative approach to presentation of findings was taken if there was a lack of similar outcome measures.

A.2. Results

Biomedical database searching yielded 372 unique results, grey literature searching identified 7 studies for further review and professional pharmacy organisation supplied 2 additional reports. No studies met the pre-defined inclusion criteria and therefore hand-searching of reference lists was not undertaken (See Fig. A1 for PRISMA flowchart).
Fig. A1. PRISMA flowchart of screening and assessment of papers.