

## Review Article

# The risks and benefits associated with the self-selection of pharmacy medicines (PMEDs): A rapid systematic review

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### Abstract

**Background:** Pharmacies in the UK are increasingly implementing a self-selection model for Pharmacy medicines (PMEDs) in physical pharmacies and allowing their purchase from online pharmacies. This model potentially weakens the additional level of protection recommended by the Medicines and Healthcare products Regulatory Agency (MHRA) by removing the opportunity for intervention, possibly risking patient harm. **Objective:** To assess the risks and benefits associated with a PMEDs self-selection model in pharmacy settings. **Methods:** A systematic search was conducted across three databases (PubMed/Medline, Embase, and Cochrane Library) from 01/10/2024 to 22/10/2024. The search terms comprised Medical Subject Headings (MeSH) terms and free text with wildcard truncations. Only studies published from 01/2014 – 10/2024 and published in English were eligible for inclusion. Studies identified were exported to Excel, where duplicates were removed. The Mixed Methods Appraisal Tool (MMAT) was used to assess the quality of all included studies. **Results:** A total of 54 studies of the 104 initially screened were included in the review. The country most frequently reported on was Australia (9/54; 16%), alongside multi-location/global studies (9/54; 16%). The majority (29/54; 54%) of studies focussed on the views and experiences of pharmacy professionals or students, and approximately half (26/54; 48%) focussed on patient views, experiences, or behaviours. The benefits identified from the included literature were relatively consistent, focussing on access to care, reducing pressure on health systems, and improved patient autonomy. However, the list of risks identified was heterogenous, covering a range of themes, including, adverse effects of medication, inappropriate use of medication, and reduced intervention opportunities, and self-diagnoses delaying required care. The risks associated with medication self-selection were more frequently discussed when compared with benefits. **Conclusions:** Although this review identified risks and benefits associated with medication self-selection more broadly, none of the included publications solely discussed PMEDs. More research is needed to fully understand the risks and benefits of the self-selection model for this classification of medicines.

## INTRODUCTION

In the UK, there are three classes of medicinal products for humans under the Human Medicines Regulations 2012, General Sales List (GSL) medicines, Pharmacy medicines (PMEDs), and Prescription Only medicines (POMs)<sup>1</sup>. These classifications are designed to ensure patients can access care with minimal risk

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to their health, through the required involvement of healthcare professionals (HCPs) to varying degrees. Typically, POMs are used for conditions that are formally diagnosed and managed closely by HCPs, whereas PMEDs can be advertised to the public and are for short-term treatment of medical conditions that are not chronic or likely to persist<sup>2</sup>. PMEDs must be sold from a registered pharmacy by a pharmacist, or by a person acting under the supervision of a pharmacist<sup>4</sup>. As such, PMEDs that are only available in pharmacies are typically stored and displayed differently from GSL medicines in order to reduce the risk of patient harm. The additional restrictions applied to PMEDs, such as limited pack sizes and pharmacist involvement in assessing appropriateness, indicate that these medicines are subject to additional safeguards at the point of sale<sup>2</sup>.

In community pharmacy settings, PMEDs have traditionally been stored behind the pharmacy counter, to enable pharmacist oversight and involvement in their sale. However, existing legislation does not prohibit pharmacy owners from placing PMEDs within public reach, enabling a form of self-selection<sup>4</sup>. This model is increasingly being adopted by brick-and-mortar pharmacies and online pharmacies, where the opportunity for direct intervention is further reduced. While the General Pharmaceutical Council (GPhC) adopts an outcomes-based regulatory approach that allows flexibility in meeting professional standards, it has clarified that open access to PMEDs (termed self-selection) is not automatically compatible with these standards. Safeguards must be in place to ensure continued pharmacist supervision and the safety of patients and the public. The GPhC favours the term “facilitated



self-selection” to emphasise the role of the pharmacy team in supporting the safe and appropriate supply of PMEDs. This includes implementing controls such as tills programmed to flag PMEDs, and documented risk assessments<sup>6</sup>. Medication errors are a common and preventable cause of patient harm<sup>7</sup>. Therefore, ensuring an appropriate sale model is implemented that allows easy access to medication while preventing patient harm is essential. A range of arguments have been proposed for and against the self-selection of PMEDs. Those for this model suggest that it is a more consumer-focused approach that could allow patients access to a wider selection of medication to consider while still allowing pharmacists an opportunity to refuse a sale if it would not be appropriate<sup>6</sup>. There is also the argument that open selection still allows patients to read the information that is provided by manufacturers, allowing them to make an informed decision<sup>1</sup>.

Those against the self-selection model emphasise that the separate classification is there to protect patients, as they have been deemed by the MHRA to require an additional level of protection because they have the potential for harm, which they believe are weakened by self-selection. Recent research from the Pharmacy Defence Association (PDA) found that over 90% of surveyed pharmacists surveyed (n = 1,323) oppose the self-selection model of PMEDs. The majority pharmacists who responded to this PDA survey expressed concerns about the availability of appropriate supervision in pharmacies, the risk of patients selecting medications inappropriately, and potential for disputes or violence if self-selected medication is questioned or its sale is refused<sup>8</sup>.

While the existing work reporting on the various opinions and concerns within the pharmacy profession provide great insight, there is still limited evidence exploring the real-world consequences of implementing a self-selection model in UK pharmacy settings. Evidence is needed to fully understand the potential implications of this trending change in medication display and sale processes.

The primary aim of this literature review is to explore the risks and benefits associated with medication self-selection across various health systems to better understand the potential implications of applying this model to PMEDS in UK pharmacies. A secondary aim was to identify what potential harms can result from specific medicines sold via self-selection, records of specific patient behaviours in relation to PMEDs, and pharmacy experiences.

## METHODS

### Database searching

This rapid systematic review of evidence was registered on PROSPERO (CRD42024600283) and follows the PRISMA 2020 mixed-methods systematic review reporting guidance (Appendix 1)<sup>9</sup>. The search terms shown in Table 1 were searched across three databases (PubMed/Medline, Embase, and Cochrane Library) from 01/10/2024 to 22/10/2024 to identify relevant literature for inclusion. A list of Medical

Subject Headings (MeSH) terms and free text with wildcard truncations were collated to ensure the desired scope of literature was captured. The terms (Table 1) were adapted to fit the requirements of each database searched.

To ensure our results were not duplicating the systematic review published by Eikenhorst L, et al. in 2017, only studies published from 01/2014 to 10/2024 and published in English were eligible for inclusion<sup>10</sup>. This allowed us to build upon the existing knowledge-base and provide a contemporary overview of the risks and benefits associated with PMEDs. This review includes findings concerning non-prescription medicines due to the limited availability of evidence relating to PMEDs specifically.

### Study criteria & data extraction

Included studies were conducted in UK and high-income countries with a similar community pharmacy context to the UK including Republic of Ireland, European Union and other relevant European countries, Australia, New Zealand, Canada, and the United States of America. Other high-income countries where the model of community pharmacy is different to the UK (e.g., Japan) were excluded. The participants/population of interest were pharmacists, pharmacy professionals, pharmacy technicians, pharmacy support staff and patients in the specified countries. The exposure of interest was the self-selection of medicines in pharmacy settings.

Studies identified using the search terms (Table 1) were exported to Excel, where duplicates were removed. The remaining records were exported to Mendeley reference managing software (v2.128.0) where the first reviewers screened all titles and abstracts based on the above inclusion/exclusion criteria<sup>11</sup>. Those which did not meet the inclusion criteria were discarded and documented as such. A secondary, blinded reviewer screened 20% of all exported studies to ensure appropriateness of the inclusion/exclusion process.

### Quality assessment

The Mixed Methods Appraisal Tool (MMAT) was used as a

<b>Table 1.</b> Key search terms used in rapid systematic review search. Terms and search queries were adapted as needed across the three databases: PubMed/Medline, Embase, and Cochrane Library	
<b>Theme</b>	<b>Search Terms</b>
Pharmacy location & staff	(Pharmac*) OR (online pharmac*) OR (website pharmac*) OR (remote pharmac*) OR (pharmacist*) OR (Online Pharmaceutical Service*) OR (Pharmaceutical Service, Online) OR (internet pharmacy) OR (e-pharmacy)
AND	
Medication	(non-prescription*) OR (OTC) OR (over counter*) OR (pharmac*only drugs) OR (pharmac* only medication) OR (P-med*) OR (P-medicines) OR (Pharmacy medicines)
AND	
Illness	(Self-care) OR (Self-care medicines) OR (Minor ailment*) OR (Minor illness) OR (Health management)



checklist for concomitantly appraising and/or describing studies included in systematic mixed studies reviews (limited to original qualitative, quantitative and mixed methods studies) was used to assess the included studies (Appendix 2). Papers which could not be assessed using the MMAT, such as systematic reviews and case series, were assessed using the JBI Critical Appraisal Tools. Included commentaries, perspectives, and evaluations were not subject to quality assessment.

## RESULTS

Narrative synthesis and analysis were used to summarise the results due to the observed heterogeneity among the selected studies. To support the narratives presented, illustrative quotes from the literature are included to exemplify the key points discussed in the summaries. While the primary aim of this review was to determine the risks and benefits associated with the self-selection model for PMEDs, it also aimed to identify what potential harms could result from specific medicines sold via self-selection, records of specific patient behaviours in relation to PMEDs, and pharmacy experiences. As such, the heterogeneity amongst selected studies was not investigated

and the amalgamation of data into a meta-analysis was not possible.

A total of 54 distinct studies of the 104 initially screened were identified as relevant and included in the final review (Figure 1). Forty-four studies were excluded during initial screening, and one paper could not be retrieved for full screening. An additional four studies were excluded for the following reasons: No identification of risks or benefits associated with medication (three studies); Does not concern population of interest (one study).

The study characteristics for the extracted papers are shown in Appendix 3.

### Study Characteristics

The 54 included studies provide insights from 24 named countries: Australia (9), United States of America (6), Poland (6), England (4), Sweden (4), Spain (3), Germany (3), Scotland (3), Canada (3), Mexico, Belgium, Croatia, Czech Republic, Denmark, Finland, France, Greece, Italy, Malta, New Zealand, Northern Ireland, Portugal, Romania, and Switzerland (1 each). Nine of the 54 included studies were global studies. The majority of study participants were either pharmacy professionals (24/54;

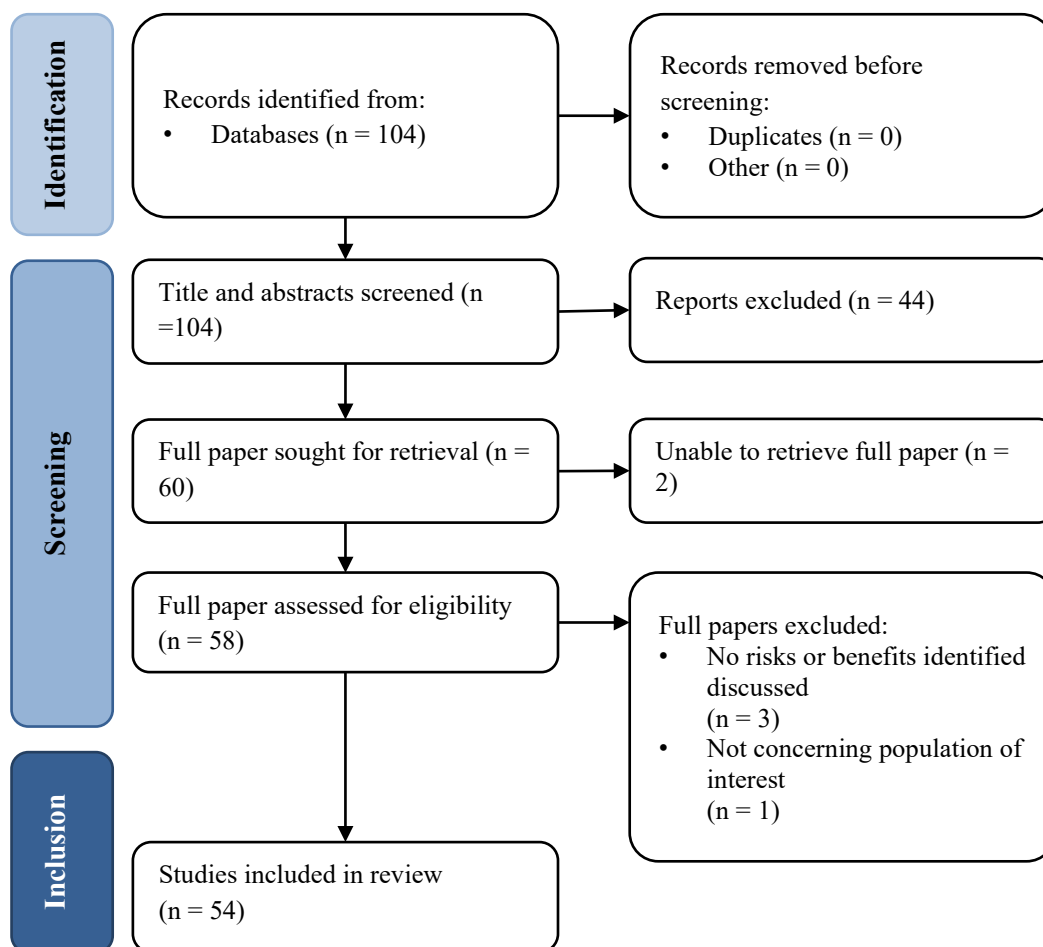


Figure 1. Flowchart detailing review selection process according to PRISMA guidelines

44%) or patients (26/54; 48%). Community pharmacies made up the majority of study settings (30/54; 54%).

### Quality Assessment

Of the included studies, 40% (22/54) were questionnaires or surveys, and a further 20% (11/54) were literature reviews of various types (including systematic reviews; 8/11), and 9% (5/54) were mystery shopper/patient simulation studies.

All eligible papers (26/54) were assessed using the MMAT (Table 2). The included studies varied in methodological rigour, with quantitative and qualitative studies scoring higher (mean MMAT scores: 70% and 72.5%, respectively) than mixed-methods studies (mean MMAT score: 56.6%).

The included studies which were not assessable using MMAT (9/54), such as case series and systematic reviews, were assessed using the JBI critical appraisal tool (Table 3). The included systematic reviews varied in methodological rigour, with the proportion of criteria met ranging from 20% to 90% (mean – 61.25%).

The remaining 19 studies included in this review that were not

critically appraised are commentaries or quality improvement studies, which are not assessable using the MMAT or JBI critical appraisal tools. As such, these papers should be interpreted with caution, as their methodological limitations could increase the risk of bias..

### Benefits of medication self-selection

The benefits of medication self-selection were explored by many of the included studies, categorised into four core narratives. The frequency of each of the identified narratives is shown in Table 4.

### Convenient Healthcare Access

Nineteen studies noted that the opportunity to self-select medicine increases healthcare accessibility, as patients are not restricted to prescription only following a medical consultation<sup>12-31</sup>. This wider access to medicines allows patients to manage minor ailments independently, resulting in prompt symptom relief and no delays to care as a result of HCP unavailability.

*“[Medicines] are available in pharmacies, and sometimes*

**Table 2.** Mixed Methods Appraisal Tool (MMAT) quality assessment results for eligible papers included in review (26/54)

Study	Study Design	MMAT Criteria Met (%)
Alexa, J.M., and Bertsche, T. (2023) <sup>41</sup>	Quantitative descriptive	90
Amador-Fernandez, N., et al. (2024) <sup>42</sup>	Mixed Methods	70
Babiarczyk, B., et al. (2022) <sup>48</sup>	Quantitative descriptive	70
Bedhomme, S., et al. (2023) <sup>37</sup>	Quantitative descriptive	90
Bowman, C., et al. (2020) <sup>13</sup>	Mixed Methods	60
Chan, V., et al. (2016) <sup>51</sup>	Quantitative descriptive	90
Dineen-Griffin, S., et al. (2020) <sup>46</sup>	Quantitative randomized controlled trials	70
Collins, J. C., et al. (2018) <sup>44</sup>	Qualitative	70
de Bolle, L., et al. (2015) <sup>45</sup>	Quantitative descriptive	60
Fielding, S., et al. (2018) <sup>43</sup>	Qualitative	70
Grebenar, D., et al. (2020) <sup>52</sup>	Quantitative descriptive	60
Hanna, L.-A., et al. (2021) <sup>16</sup>	Mixed Methods	40
Hedenrud, T., et al. (2019) <sup>17</sup>	Quantitative descriptive	60
Holmström, I. K., et al. (2014) <sup>35</sup>	Qualitative	90
Hope, D. L., et al. (2020) <sup>53</sup>	Quantitative descriptive	70
Inch, J., et al. (2017) <sup>54</sup>	Qualitative	60
Langer, B., et al. (2018) <sup>20</sup>	Quantitative descriptive	90
Nakhla, N., et al. (2024) <sup>23</sup>	Quantitative descriptive	70
Oinas, J. P., et al. (2024) <sup>24</sup>	Quantitative descriptive	70
Panda, D. S., et al. (2023) <sup>34</sup>	Quantitative descriptive	30
Piecuch, A., et al. (2017) <sup>50</sup>	Quantitative descriptive	70
Read, B., et al. (2023) <sup>25</sup>	Quantitative descriptive	90
Scuri, S., et al. (2019) <sup>26</sup>	Quantitative descriptive	10
Tan, R., et al. (2017) <sup>55</sup>	Quantitative descriptive	100
Tan, R., et al. (2018) <sup>56</sup>	Quantitative descriptive	70
Wiliński, J., et al. (2015) <sup>40</sup>	Quantitative descriptive	70



**Table 3.** Results of the JBI Critical Appraisal Tool Checklists for systematic reviews and case series included in the review (9/54).

Study	JBI Checklist Criteria Met (%)
<b>Systematic Reviews</b>	
Atkins, K., et al. (2022) <sup>57</sup>	80
Jerez-Roig, J., et al. (2014) <sup>47</sup>	80
Kennedy, C. E., et al. (2019) <sup>19</sup>	70
Oleszkiewicz, P., et al. (2021) <sup>35</sup>	20
Perrot, S., et al. (2019) <sup>31</sup>	20
Seubert, L. J., et al. (2018) <sup>58</sup>	60
van Eikenhorst, L., Salema, N. E., & Anderson, C. (2017) <sup>8</sup>	90
Zheng, Y., et al. (2023) <sup>29</sup>	70
<b>Case Series</b>	
Veiga, P., et al. (2015) <sup>27</sup>	60

supermarkets, enhancing convenience for patients<sup>19</sup>.

#### Reduced Pressure on Health Systems

Seven studies highlighted that the availability of medicine for self-selection may help to alleviate the burden on primary healthcare providers, such as general practitioners<sup>12,13,17,20,27,31-33</sup>. Access to over the counter (OTC) and PMEDs can without the need for a primary healthcare practitioner appointment allows individuals to manage minor ailments independently<sup>20</sup>. Using readily available medicines where appropriate can reduce waiting times for medical appointments, lower healthcare costs, and lessen the workload for doctors, supporting healthcare sustainability<sup>27</sup>. During the COVID-19 pandemic, for instance, there was:

*“...a sustained rise in respondents managing respiratory tract infection (RTI) symptoms with OTCs instead of consulting healthcare professionals. This trend aligns with public health messaging to reduce healthcare strain”<sup>27</sup>.*

#### Improvement in Patients’ Self-Care Capabilities

Ten of the 54 included studies explored how self-medication empowers patients to take control of their health by addressing common conditions autonomously, promoting self-reliance<sup>12,14,24,28,29,32,34-37</sup>. Improved access to medications allows individuals to take control of their health and address common, mild ailments without the need to see a primary care provider. This makes healthcare more convenient, timely, and patient-driven. This can be especially important for easily manageable, chronic conditions (e.g., heartburn) which can impact day-to-day life without intervention:

*“The prevalence of self-medication leads to a decrease in the share of healthcare in the treatment of mild disorders and has a positive impact on the quality of life of patients suffering from chronic and recurrent diseases. Examples where self-treatment can be implemented include a cold or flu, digestive disorders (including heartburn), and mild to moderate pains such as headaches and muscle pains”<sup>35</sup>.*

**Table 4.** Frequency of benefit narrative groups and associated with medication self-selection and example quotes identified from included studies

Benefits	n	Frequency (%)
Convenient healthcare access	19	35
Reduced pressure on health systems	7	13
Improves self-care capability	10	19
Equitability of care access	2	4

#### Equitability of Care Access

The advancements in self-care services have improved the equitability of healthcare access by offering interactive, patient-centred resources that facilitate autonomous healthcare decisions. Resources such as general practice apps have improved the accessibility of information on minor ailments and advice on the best course of action to take without having to consult a doctor directly. This is noted as an advantage in two of the included studies and is highlighted as being particularly significant for individuals who may face barriers to traditional healthcare access or seldom-heard patients.<sup>29,30</sup>

*“Expansion of digital self-care services improve care efficient and allows patients to take a more active role in their health management. Creates potential for more interactive, patient-centred, equitable healthcare systems”<sup>30</sup>.*

#### Risks of medication self-selection

The risks associated with medication self-selection were explored in many of the included studies and were categorised into seven narrative groups. The frequency of each of the identified narratives is shown in Table 5.

#### Adverse Events

Eighteen studies identified the occurrence of adverse events as a risk associated with OTC medication access, particularly for high-risk patient groups such as immunocompromised individuals, elderly patients, children, and poly-medicated patients<sup>12,14,15,17,18,20-22,29,31,33,35,36,38-42</sup>. If patients are poly-medicated, the use of self-selected medications may be contraindicated by existing medication, resulting in serious adverse events<sup>14-39</sup>.

**Table 5.** Frequency of risk narrative groups and associated with medication self-selection and example quotes identified from included studies

Risks	n	Frequency (%)
Adverse Events	18	33
Inappropriate use of medication	18	33
Health literacy	6	11
Self-diagnoses delaying medical attention	7	13
HCPs’ education/training on clinical evidence	4	7
Limited opportunity for pharmacist intervention	6	11
Counterfeit medications	2	4



*“OTC products can lead to adverse effects, misuse, and drug-related problems (DRPs), particularly when used without proper counseling or exceeding the recommended dosage or duration”<sup>14</sup>.*

Adverse events can occur in all patient types, not just those who are high-risk. Commonly reported adverse events included gastrointestinal symptoms (nausea, vomiting) and central nervous system issues (anxiety, insomnia)<sup>31</sup>. The included literature reported found a wide range of adverse reaction frequency relating to medication self-selection, with one study reporting:

*“The proportion of adverse drug reactions associated with self-medication ranged from 4.7 to 36%. Adverse reactions have been reported mainly involving the central nervous system (anxiety, irritability, insomnia, poor concentration, headache, dizziness, fatigue, and sleepiness) and the gastrointestinal system (nausea, vomiting, loss of appetite, diarrhea, bloating, constipation, and stomach pain or heartburn)”<sup>31</sup>.*

These symptoms can be distressing for patients and may not be immediately associated with the self-selected medication.

### **Inappropriate Use of Medication**

Eighteen studies highlighted that patients may struggle with selecting the most appropriate medication or medication dosage for their condition, risking misuse and subsequent harm<sup>10,12-14,16,25,26,28,33,35,38,39,41-46</sup>. Lack of knowledge about symptoms, product indications, and the mode of action of medications can lead to the inappropriate use of medications. Bertsche, T. et al.’s study found evidence that suggests that as much as 12% of OTC products sold in Germany have a potential for misuse<sup>12</sup>. In the study by Collins, J.C., et al., 49% of non-prescription medication requests required modification by a pharmacy team member, most commonly because the medication was deemed “not appropriate”<sup>46</sup>. In addition, the review from van Eikenhorst et al. also discussed why misuse was particularly frequent in pharmacy settings, but also how they could be uniquely placed to tackle the issue:

*“This review identified community pharmacy as both a main source of products that are misused but also a setting that provided a unique position to identify misuse. The identification of misuse depends on knowing/seeing/ being familiar with customers, which in turn was made possible where a pharmacy had a stable workforce especially of frontline staff”<sup>10</sup>.*

### **Self-Diagnosis Delaying Medical Attention**

Seven studies highlighted that patients may identify symptoms and associate them with the incorrect ailment, addressing them with self-selected, readily available medication rather than seeking appropriate care<sup>12,21,33,35,49,59</sup>. Taking a PMED or GSL medicine to address inconspicuous symptoms could potentially mask the progression of serious conditions, resulting in potentially irreversible consequences, as emphasised by Adis Medical Writers<sup>12-35</sup>.

*“Incorrect self-diagnosis may lead to delays in the diagnosis and treatment of serious illnesses by a healthcare professional”<sup>2</sup>*

### **Health Literacy Challenges**

Limited health literacy was noted as a barrier to safe self-medication in six of the 54 included studies<sup>10,12,15,16,38,39</sup>. Some studies highlighted that individuals lack knowledge about potential OTC side effects or are unable to fully understand the information provided on the medication packaging. The lack of literacy and/or knowledge can result in patients taking the incorrect medication for their symptoms and/or condition, allergic reactions, contraindications with other medication, or unexpected side effects. Albert, S.M., et al. effectively summarised these risks in their study:

*“Low health literacy is associated with medical errors and adverse events, which in turn are responsible for poor outcomes in chronic disease care... Poorer health literacy affects key competencies required for safe and effective use of OTC medications”<sup>38</sup>.*

Without effective consultation and tailored guidance on medication selection, there is a risk of harm to patients when medication is self-selected or dispensed.

### **Healthcare Professional Education and Training Gaps**

Four studies raised concerns focused on HCPs education and training<sup>33,50-52</sup>. For example, one study suggested that manufacturers may not always provide HCPs with sufficient clinical data for OTC products, affecting their ability to counsel patients effectively. Ensuring consultation information is accurate and comprehensive is also a notable finding from this review, with one study finding the following:

*“In this study, drug leaflets, work colleagues and pharmacists were the 3 most frequently listed sources of information about OTCs”<sup>50</sup>.*

The lack of knowledge or experience with medications may limit pharmacy teams’ ability and confidence to intervene or challenge the purchase of self-selected medication<sup>33,52</sup>.

### **Limited Opportunity for Pharmacist Intervention**

Six of the fifty-five studies highlighted the limited opportunities for pharmacist intervention when it comes to medication self-selection<sup>10,19,20,44,45,52</sup>. Staff availability, sale at self-checkout tills, and subject matter were noted as factors which may limit intervention opportunity<sup>19</sup>.

One study found that certain topics may make the patient and/or pharmacist uncomfortable, leading to ineffective counselling<sup>10</sup>. This study also questioned whether the availability of medication through self-selection is truly safe if this depends on a pharmacy professional having the opportunity to intervene:

*“One key feature this decision hinges on is the assurance that patient safety will not be compromised by this proposed change which is likely to result in a large number of currently available P medicines being sold without the opportunity for a pharmacist to intervene”<sup>10</sup>.*

### **Counterfeit Medications**

The rise of unregulated online pharmacies has led to concerns



about the availability of counterfeit medication. This raises additional safety concerns for self-selected medication as, if purchased from unverified sources, a patient may be unintentionally taking a dangerous or substandard product, which bears no similarity to what they ordered<sup>15</sup>. Although Bowman, C., et al. found that there is an awareness of the risks relating to counterfeit medications, they recommended further action to ensure patient safety and responsibility:

*“The majority of individuals declared that they are aware of counterfeit medicines online is a further understanding that most people are aware of what is offered on the internet and therefore the message that needs to be conveyed is that education needs to be targeted at different levels in an effective way. This in turn will be keep consumers alert and responsible for their decisions about access to quality and safe sourcing of medicines”<sup>15</sup>.*

This risk was mentioned in two of the fifty-five studies<sup>15,23</sup>.

## DISCUSSION

There is limited published literature exploring the risks and benefits associated with PMEDs specifically; however, this review has gathered evidence relating the self-selection of all OTC medication types, and patients’ relationships with medication and self-care. The included studies provide insight into how patients use easily accessible medications and discuss the risks and benefits associated with self-medication.

This review found that the benefits associated with medication self-selection were primarily focussed on individuals’ access to care.

This increased access to care was often described as supporting greater patient autonomy, particularly in the management of mild conditions that may not require practitioner input. This aligns closely with recently published Welsh strategy for health and social care, which emphasise the importance of empowering patients to be more involved in their own health and wellbeing in order to keep the wider population healthier and reduce the burden on existing health services<sup>35</sup>. The ease of access to medication instils a sense of autonomy in individuals, allowing them to take control of their health and make their own health decisions. Bertsche, T., et al (2023) noted this, and suggested that this is a more convenient way of managing common, transient health conditions<sup>12</sup>. This study also noted that the self-selection of medication also reduces the pressures placed on healthcare professionals, in cases where their involvement is likely not required and there is minimal patient risk. The overall reduction in health systems’ pressure was a very common benefit, with several publications pointing to the widely recognised workload burden experienced by healthcare professionals are typically overworked<sup>12,20,32</sup>. Easier access to medication could, therefore, contribute to a more efficient allocation of limited resources, allowing greater focus on more complex or critical services. However, reduced direct involvement of pharmacy professionals in the medication selection process may also limit opportunities for professional

intervention. While self-selection may increase patient autonomy and facilitate more timely access to treatment, maintaining appropriate opportunities for professional guidance remains important to support safe and effective medicine use<sup>10,44,45</sup>. The exact circumstances in which the self-selection of medicine can improve patient’s care access and autonomy while preserving the benefits of healthcare professional involvement requires further assessment, as this balance is not yet fully understood.

The evidence included in this review indicates that medication self-selection may be associated with several potential risks. The majority of the identified risk narratives (Table 5) relate to patient’s health outcomes, because of medication misuse or sourcing medication from illicit sources.

The most frequently reported concerns related to adverse events and potential contraindications, which may affect patient outcomes. By removing the involvement of qualified healthcare professionals from the medication selection process, patients are not able to receive advice on which medication is most appropriate for them, not only based on their symptoms, but also based on their current medications and medical history. This was noted throughout the included studies, which primarily focused on GSL products; however, it is likely that this might extend to PMEDs. Additionally, this is likely to have greater potential consequences due to the increased risks of harm associated with PMEDs<sup>4,6</sup>. Interestingly, publications, such as Bowman, C., et al. (2020), found that patients believe there is less risk associated with easily accessible medications, such as OTCs, compared to other medication classifications<sup>15</sup>. This lack of perceived risk may lead to inappropriate medication purchases. If a self-selection model were applied to PMEDs, patients may perceive these medicines similarly to other readily accessible products, which could influence risk perception and use.

As well as adverse reactions, incorrect self-diagnosis may mask symptoms of serious illnesses, delaying proper diagnosis and treatment by a healthcare professional<sup>12,35,49,59</sup>

This may have implications for patient outcomes and healthcare utilisation if undiagnosed conditions progress and later require more intensive intervention. In addition, the condition being masked or insufficiently treated may progress and cause significant health decline before the patient seeks appropriate care, resulting in more emergent conditions. This is of particular concern in vulnerable patients, such as those who are elderly or polymedicated<sup>49</sup>.

Similarly, the lack of training and availability for pharmacists and wider pharmacy teams was noted to reduce their capability to intervene in inappropriately self-selected medication sales, also risking potential harm to patients<sup>19,20,33,52</sup>.

The identified literature suggests that some of these risks may be mitigated through interventions such as improved staff training, clearer role responsibilities, and clearer product labelling. The included literature reports these narratives as risks due to the barriers which limit the ability to address these shortfalls in staff capability or material clarity<sup>43,52</sup>. These



results reinforce the results published by Eikenhorst, et al. (2017), who found that counselling on medication selections was inconsistent and, when provided, insufficient in addressing potential risks<sup>10</sup>.

The accessibility of the self-selection of medication was underscored during the COVID-19 pandemic, wherein pharmacies remained open, providing both advice and OTC medications when other healthcare services were strained<sup>10</sup>. For patients, this convenience translated to saved time, decreased work absenteeism, and lower prescription costs, all of which enhanced their overall quality of life. Moreover, self-selected medications often present more affordable alternatives, increasing accessibility for consumers.

For common ailments, for which standard of care is commonly understood among wider populations, access to medication allows patients to act autonomously and take control of their care promptly, removing an additional step which delays care access and burdens both the patient and health care system.

Since Eikenhorst, et al. (2017)'s publication, progress had been made in specifying the risks associated with limited pharmacist intervention and medication self-selection. However, the evidence base relating to PMEDs specifically is still extremely limited. The literature identified lacked documented incidents of harm and primarily provided acknowledgement of potential risks (e.g., adverse events, misuse) and safeguarding strategies (supervision, higher-risk exclusions). Further evidence is required to confirm the impact of a PMED self-selection model on patient outcomes, and the real-world impact the self-selection model has on pharmacy settings.

In addition to the published literature, professional acceptability may also represent an important implementation consideration for any future PMED self-selection model in the UK. Previous survey findings indicate substantial pharmacist opposition to PMED self-selection, with concerns centred on supervision, patient safety, and the potential for conflict where a self-selected medicine is subsequently refused<sup>17,52</sup>. Although such findings do not provide direct evidence of patient harm, they suggest that professional concerns may represent an operational barrier to implementation and should be explored further in future research.

## CONCLUSIONS

This literature review identified both benefits and risks

associated with the self-selection of medications. Benefits such as increased healthcare accessibility demonstrate the potential positive impacts for patient empowerment and care equity. However, the reported risks, including adverse events, inappropriate use, and health literacy barriers, indicate that education, communication, and professional support may be important considerations in any self-selection model.

Current evidence collated in this review is insufficient to draw conclusions relating to the use of PMEDs, as none of the evidence explored the consequences PMED self-selection specifically. Much of the literature instead discussed general sale/over-the-counter medications. As such, our results discuss the risks and benefits of medication selection more broadly, rather than the PMED classification of interest. It is therefore not possible for this review to conclude whether the benefits outweigh the risks of a self-selection model for PMEDs, given the literature that is available. Moreover, the heterogeneity of the study designs made comparison between publications challenging. Additionally, the samples of collated studies were limited to those available on the PubMed/Medline, Embase, and Cochrane Library databases, and published in English. This may have resulted in the inadvertent exclusion of relevant publications. Finally, due to the variation in study design within our included publications, multiple quality appraisal tools had to be used.

More targeted research is required to better understand the risks and benefits associated with the various sale models pharmacies can implement for PMEDs, focussing primarily on patient safety and health improvement, rather than economic factors. More information is needed to determine which sale model is best suited to providing equitable, safe access to medicines. Such research will also provide essential information that can guide how pharmacy professionals should be educated and supported ahead of any changes made to sale models in pharmacy settings.

## AUTHOR'S CONTRIBUTIONS

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Appendices  
Appendix 1. PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
<b>TITLE</b>			
Title	1	Identify the report as a systematic review.	
<b>ABSTRACT</b>			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	
<b>METHODS</b>			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	



Section and Topic	Item #	Checklist item	Location where item is reported
<b>RESULTS</b>			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	
Study characteristics	17	Cite each included study and present its characteristics.	
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	
<b>DISCUSSION</b>			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	
	23b	Discuss any limitations of the evidence included in the review.	
	23c	Discuss any limitations of the review processes used.	
	23d	Discuss implications of the results for practice, policy, and future research.	
<b>OTHER INFORMATION</b>			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	
Competing interests	26	Declare any competing interests of review authors.	
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	



**Appendix 2. Blank Mixed Method Appraisal Tool (MMAT)Table**

Category of study designs	Methodological quality criteria	Responses			
		Yes	No	Can't tell	Comments
Screening questions (for all types)	S1. Are there clear research question?				
	S2. Do the collected data allow to address the research questions?				
	<b>Further appraisal may not be feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.</b>				
1. Qualitative	1.1 Is the qualitative approach appropriate to answer the research question?				
	1.2. Are the qualitative data collection methods adequate to address the research question?				
	1.3. Are the findings adequately derived from the data?				
	1.4. Is the interpretation of results sufficiently substantiated by data?				
	1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?				
2. Quantitative randomized controlled trials	2.1. Is randomization appropriately performed?				
	2.2. Are the groups comparable at baseline?				
	2.3. Are there complete outcome data?				
	2.4. Are outcome assessors blinded to the intervention provided?				
	2.5 Did the participants adhere to the assigned intervention?				
3. Quantitative non-randomized	3.1. Are the participants representative of the target population?				
	3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				
	3.3. Are there complete outcome data?				
	3.4. Are the confounders accounted for in the design and analysis?				
	3.5. During the study period, is the intervention administered (or exposure occurred) as intended?				
4. Quantitative descriptive	4.1. Is the sampling strategy relevant to address the research question?				
	4.2. Is the sample representative of the target population?				
	4.3. Are the measurements appropriate?				
	4.4. Is the risk of nonresponse bias low?				
	4.5. Is the statistical analysis appropriate to answer the research question?				
5. Mixed Methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				
	5.2. Are the different components of the study effectively integrated to answer the research question?				
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				



**Appendix 3. Literature Review Study Characteristics Table**

Citation	Location	Participant Numbers	Participant Demographics	Setting	Aims	Study design	Outcome Measures	Data Analysis
Adis Medical Writers. (2015). <i>The Use of Over-the-Counter Medications to Treat Influenza Symptoms and Mitigate Socioeconomic Burden</i> . Springer International Publishing <sup>10</sup>	Various	Not specified	Patients with mild to moderate influenza symptoms	Pharmacies and health-care settings	To assess the impact of OTC medications on self-care	Literature review and analysis; patient self-care assessment	Economic burden of influenza; impact of OTC medications on self-care; role of pharmacists in advising patients	Review of existing literature; qualitative assessment of OTC medication use
Albert, S. M., Bix, L., Bridgeman, M. M., Carstensen, L. L., Dyer-Chamberlain, M., Neafsey, P. J., & Wolf, M. S. (2014). Promoting safe and effective use of OTC medications: CHPA-GSA national summit. In <i>Gerontologist</i> (Vol. 54, Issue 6). <a href="https://doi.org/10.1093/geront/gnu034">https://doi.org/10.1093/geront/gnu034</a> <sup>36</sup>	Washington, United States	Not specified	Experts in fields including cognitive science, health services research, nursing, pharmacy, and pharmaceutical industry, and the FDA.	Not specified	Identify critical areas for research on OTC medication use among older adults, including health literacy, decision-making, clinician roles, family involvement, and technologies to support OTC use.	Not specified	Not specified	Analysis of existing studies to inform future research interventions. Statistical measures not specified.
Alexa, J. M., & Bertsche, T. (2023). An online cross-sectional survey of community pharmacists to assess information needs for evidence-based self-medication counselling. <i>International Journal of Clinical Pharmacy</i> , 45(6). <a href="https://doi.org/10.1007/s11096-023-01624-7">https://doi.org/10.1007/s11096-023-01624-7</a> <sup>41</sup>	Germany	823	Community Pharmacists who advise patients on self-medication products	Community pharmacies	To assess the information needs of community pharmacists in five areas: general/specific needs, quality needs, utilization needs, implication needs, and access needs for evidence-based self-medication counselling.	Semi-quantitative, cross-sectional online survey; Participants invited anonymously	Quantitative - frequency of relevance/importance of times within predefined need areas, except access needs qualitative - open text responses	Kruskall wallis test correlation analysis cluster analysis of open text responses
Amador-Fernandez, N., Desselle, S., García-Cárdenas, V., Dineen-Griffin, S., & Benrimoj, S. I. (2024). Community pharmacy and selfcare provision: An international perspective. <i>Exploratory Research in Clinical and Social Pharmacy</i> , 100466. <a href="https://doi.org/10.1016/J.RC-SOP.2024.100466">https://doi.org/10.1016/J.RC-SOP.2024.100466</a> <sup>42</sup>	International (13 countries)	Not specified	Community pharmacists	Community pharmacies	To describe self-care policies, activities, and challenges	Thematic series commentary; review of 13 papers	Overview of self-care policies, services, and challenges in community pharmacies	Qualitative analysis



Amador-Fernández, N., Gastelurrutia, M. Á., & García-Cárdenas, V. (2023). Development of self-care in Spanish community pharmacies. In <i>Exploratory Research in Clinical and Social Pharmacy</i> (Vol. 12) <a href="https://doi.org/10.1016/j.rc-sop.2023.100337">https://doi.org/10.1016/j.rc-sop.2023.100337</a> <sup>30</sup>	Spain	Not specified	Community pharmacists	22198 community pharmacies across Spain	To describe and classify self-care services provided by Spanish community pharmacies based on the seven pillars of self-care	Descriptive study, uses classification of community pharmacy services according to seven pillars of self-care	Types of care services provided, - health promotion, disease prevention, medication safety monitoring	Descriptive analysis
Atkins, K., Kennedy, C. E., Yeh, P. T., & Narasimhan, M. (2022). Over-the-counter provision of emergency contraceptive pills: A systematic review. In <i>BMJ Open</i> (Vol. 12, Issue 3). <a href="https://doi.org/10.1136/bmjopen-2021-054122">https://doi.org/10.1136/bmjopen-2021-054122</a> <sup>57</sup>	Global	19 studies eligible	Individuals using emergency contraceptive pills (ECPs)	Pharmacies, drug shops, vending machines and online or telehealth services.	To synthesize evidence around over-the-counter (OTC) emergency contraceptive pills (ECPs) to expand the evidence base on self-care interventions.	Systematic review	ECP uptake, correct use, unintended pregnancy, abortion rates,	Qualitative synthesis; risk of bias assessed using Cochrane and Evidence Project tools; data summarization in GRADE Evidence Profile tables
Babiarczyk, B., & Sternal, D. (2022). Analysis of self-care strategies among nurses in southern Poland - a cross-sectional survey. <i>International Journal of Occupational Medicine and Environmental Health</i> , 35(1), 13–25. <a href="https://doi.org/10.13075/IJOMEH.1896.01802">https://doi.org/10.13075/IJOMEH.1896.01802</a> <sup>48</sup>	Poland	446	Primarily female registered nurses	Professional training centres	To analyse self-care strategies	Quantitative cross-sectional survey; Self-designed questionnaire	Self-care strategies, compliance with medical recommendations, self-medication patterns	Statistical analysis using R, SPSS, and MS Office 2019
Bedhomme, S., Vaillant-Roussel, H., Vorilhon, P., Lafarge, E., Pereton, B., Prunet-Spano, C., Pereira, B., Vennat, B., & Savanovitch, C. (2023). Pediatric pharmaceutical interventions in self-medication: a descriptive study in community pharmacies. <i>BMC Primary Care</i> , 24(1). <a href="https://doi.org/10.1186/s12875-023-02180-9">https://doi.org/10.1186/s12875-023-02180-9</a> <sup>37</sup>	France	3352 Pharmaceutical Interventions (286 Paediatrically), over 139 community pharmacies	Paediatric patients	Community pharmacies	To characterize Paediatric Pharmaceutical Interventions (PPIs) during self-medication requests in community pharmacies and evaluate pharmacist action	Descriptive study	Drugs involved, reason for intervention, referrals	Not specified
Bell, J., Dziekan, G., Pollock, C., & Mahachai, V. (2016). Self-Care in the Twenty First Century: A Vital Role for the Pharmacist. In <i>Advances in Therapy</i> (Vol. 33, Issue 10). <a href="https://doi.org/10.1007/s12325-016-0395-5">https://doi.org/10.1007/s12325-016-0395-5</a> <sup>11</sup>	Global	Not specified	Pharmacists and healthcare providers	Healthcare settings and community pharmacies	To explore the role of pharmacists in promoting self-care and OTC medication management	Review of existing literature	Economic benefits of self-care, pharmacists' role in healthcare	Qualitative analysis

Bertsche, T., Maria Alexa, J., Eickhoff, C., & Schulz, M. (2023). Self-care and self-medication as central components of healthcare in Germany – on the way to evidence-based pharmacy. In <i>Exploratory Research in Clinical and Social Pharmacy</i> (Vol. 9). <a href="https://doi.org/10.1016/j.rc-sop.2023.100257">https://doi.org/10.1016/j.rc-sop.2023.100257</a> <sup>12</sup>	Germany	Not specified	Patients using Community pharmacy services	Community pharmacies	To examine the role of self-care and self-medication in German healthcare	Literature review	Role of OTC medications, self-care practices, and pharmacist involvement	Qualitative analysis
Bowman, C., Family, H., Agius-Muscat, H., Cordina, M., & Sutton, J. (2020). Consumer internet purchasing of medicines using a population sample: A mixed methodology approach. <i>Research in Social and Administrative Pharmacy</i> , 16(6). <a href="https://doi.org/10.1016/j.sapharm.2019.09.056">https://doi.org/10.1016/j.sapharm.2019.09.056</a> <sup>13</sup>	Malta	2000(survey sample), 444 (response), 5 (interviews)	Adults (18+) who are residents of Malta	Online	Identify patterns around internet purchasing of medicine	Cross-sectional survey with a postal questionnaire and 5 semi-structured interviews. Survey	Percentage of participants purchasing medicines online (poms and otc), reasons for online purchases, and reasons for not purchasing medicines online.	Thematic analysis for interview data. Survey results analyzed using descriptive statistics and Chi-square analysis
Catlin, J. R., & Brass, E. P. (2018). The Effectiveness of Nonprescription Drug Labels in the United States: Insights from Recent Research and Opportunities for the Future. <i>Pharmacy</i> , 6(4). <a href="https://doi.org/10.3390/pharmacy6040119">https://doi.org/10.3390/pharmacy6040119</a> <sup>14</sup>	United States	Various selection of studies	General consumers	Real-world purchasing environments	To assess whether Drug Facts Label (DFL) information is effectively communicated to consumers for safe and appropriate use.	Label comprehension studies, self-selection studies, actual use studies using diaries, follow-up surveys, and consumer tests with labels	Rates of comprehension, self-selection, adherence to usage instructions, and ability to make decisions regarding OTC drug use.	Descriptive statistics, thematic analysis, analysis of self-selection errors, Chi-square for association analysis, and FDA regulatory assessment methods.
Chan, V., & Tran, H. (2016). Purchasing Over-the-counter medicines from Australian pharmacy: What do the pharmacy customers value and expect? <i>Pharmacy Practice</i> , 14(3). <a href="https://doi.org/10.18549/pharm-pract.2016.03.782">https://doi.org/10.18549/pharm-pract.2016.03.782</a> <sup>15</sup>	Brisbane, Australia	86	Pharmacy customers	Pharmacies	To explore key expectations and customer behaviour when purchasing OTC medications from pharmacies.	Self-administered questionnaires with demographic data, health/stress assessment, and Likert-scale questions on perceived benefits, risks, and trust	Customer trust in pharmacy/pharmacists, product trust, altruistic care	Descriptive statistics of questionnaire responses, thematic analysis, Likert-scale analysis,
Collins, J. C., Schneider, C. R., Wilson, F., de Almeida Neto, A. C., & Moles, R. J. (2018). Community pharmacy modifications to non-prescription medication requests: A simulated patient study. <i>Research in Social and Administrative Pharmacy</i> , 14(5). <a href="https://doi.org/10.1016/j.sapharm.2017.05.007">https://doi.org/10.1016/j.sapharm.2017.05.007</a> <sup>16</sup>	Sydney, Australia	61	Bachelor Pharmacy students	Community pharmacies	To determine the modifications pharmacy staff, make when presented with a request for non-prescription medicines and the factors influencing whether a modification is made.	Mystery shopping visits, recording interactions	Modifications to product requests	Descriptive statistics, chi-squared analyses, logistic regression

De Bolle, L., Mehuys, E., Christiaens, T., van Tongelen, I., Remon, J. P., & Boussery, K. (2015). Characterisation of patient encounters in community pharmacies (with special focus on self-medication). <i>International Journal of Pharmacy Practice</i> , 23(3). <a href="https://doi.org/10.1111/ijpp.12138">https://doi.org/10.1111/ijpp.12138</a> <sup>45</sup>	Belgium	1650	Pharmacy customers	Community pharmacies	To characterize patient encounters during routine drug dispensing and assess the prevalence of self-medication encounters, especially in vulnerable populations.	Cross sectional survey	Frequency of self-medication requests from vulnerable populations	Data encoded using the International Classification of Primary Care (ICPC-2)
Dineen-Griffin, S., Benrimoj, S. I., Rogers, K., Williams, K. A., & Garcia-Cardenas, V. (2020). Cluster randomised controlled trial evaluating the clinical and humanistic impact of a pharmacist-led minor ailment service. <i>BMJ Quality and Safety</i> , 29(11). <a href="https://doi.org/10.1136/bmjqs-2019-010608">https://doi.org/10.1136/bmjqs-2019-010608</a> <sup>46</sup>	Australia	894	Patients using MAS and usual pharmacist care	Community pharmacies	To evaluate the clinical and humanistic impact of a Minor Ailment Service (MAS) in community pharmacies compared with usual pharmacist care (UC).	Cluster randomised controlled trial with telephone follow-up at 14 days. Data collected on referrals, symptoms, consultations, EQ-5D VAS,	Appropriate referrals, symptom resolution, improved human outcomes	Relative risk analysis (RR), descriptive statistics, regression models,
Fielding, S., Slovic, P., Johnston, M., Lee, A. J., Bond, C. M., & Watson, M. C. (2018). Public risk perception of non-prescription medicines and information disclosure during consultations: a suitable target for intervention? <i>International Journal of Pharmacy Practice</i> , 26(5). <a href="https://doi.org/10.1111/ijpp.12433">https://doi.org/10.1111/ijpp.12433</a> <sup>43</sup>	Scotland	927	Adults (18+) responding from the Scottish Electoral Register	Communities	Explore the association between the public's risk perception of nonprescription medicines (NPMs) and their likelihood of disclosing relevant information during consultations.	Postal questionnaires exploring risk perception, information disclosure, and demographics	Risk perception	Exploratory factor analysis, descriptive statistics, and comparison of risk perception and disclosure across demographics.
Grebenar, D., Nham, E., & Likić, R. (2020). Factors influencing pharmacists' over-the-counter drug recommendations. <i>Postgraduate Medical Journal</i> , 96(1133). <a href="https://doi.org/10.1136/postgrad-medj-2019-136969">https://doi.org/10.1136/postgrad-medj-2019-136969</a> <sup>52</sup>	Croatia	206	Community pharmacists	Community pharmacies	To investigate factors influencing pharmacists' over the counter (OTC) drug recommendations	Cross-sectional study using an online questionnaire with a five-point Likert scale	How influential different factors were (medical, social, marketing)	Descriptive statistics, regression analysis
Hanna, L.-A., Murphy, A., Hall, M., & Craig, R. (2021). Future Pharmacists' Opinions on the Facilitation of Self-Care with Over-the-Counter Products and Whether This Should Remain a Core Role. <i>Pharmacy</i> , 9(3). <a href="https://doi.org/10.3390/pharmacy9030132">https://doi.org/10.3390/pharmacy9030132</a> <sup>16</sup>	Belfast, Northern Ireland	78	Final year pharmacy students at Queens university	Classroom	To investigate pharmacy students' views on the role of pharmacists in facilitating self-care with OTC medicines and establish personal practice.	Questionnaire	Use of OTC medicines	Descriptive statistics and non-parametric tests

Hansen, R. N., Nørgaard, L. S., & Rosasing, C. V. (2023). Danish community pharmacies supporting self-care for patients. In <i>Exploratory Research in Clinical and Social Pharmacy</i> (Vol. 12). <a href="https://doi.org/10.1016/j.rc-sop.2023.100343">https://doi.org/10.1016/j.rc-sop.2023.100343</a> <sup>38</sup>	Denmark	33	Pharmacy staff	Community pharmacies	To describe self-care activities and services delivered by Danish community pharmacies, focusing on health promotion	Surveys and published papers	Types of self-care activities	Thematic analysis
Hedenrud, T., Andersson Sundell, K., Martinsson, J., & Håkonsen, H. (2019). Attitudes towards sales and use of over-the-counter drugs in Sweden in a reregulated pharmacy market: a population-based study. <i>International Journal of Pharmacy Practice</i> , 27(1). <a href="https://doi.org/10.1111/ijpp.12457">https://doi.org/10.1111/ijpp.12457</a> <sup>17</sup>	Sweden	4058 invited, 2597 responded	Swedish adults	Online	To analyse attitudes towards sales and use of over the counter in the Swedish adult population	Survey	Use of OTC drugs and attitudes towards sales and use of OTC drugs	Spearman's rank correlation and multinomial logistic regression
Holmström, I. K., Bastholm-Rahmner, P., Bernsten, C., Röing, M., & Björkman, I. (2014). Swedish teenagers and over-the-counter analgesics - Responsible, casual or careless use. <i>Research in Social and Administrative Pharmacy</i> , 10(2). <a href="https://doi.org/10.1016/j.sapharm.2013.06.004">https://doi.org/10.1016/j.sapharm.2013.06.004</a> <sup>35</sup>	Sweden	77	Swedish teenagers (16-19)	Focus group	Research views of 16-19-year-old Swedish teenagers on OTC drugs, with special regard to analgesic drugs, how and where did they acquire their knowledge on OTC medication and perceptions did they have about OTC use?	Focus group discussions, descriptive design	Gaps in knowledge, attitudes towards OTC drugs, influences on drug use	Manifest qualitative content analysis,
Hope, D. L., Woods, P., Mey, A., Kelly, F. S., Townshend, J., Baumann-Birkbeck, L. M., & King, M. A. (2020). Australian pharmacists: ready for increased non-prescription medicines reclassification. <i>International Journal of Pharmacy Practice</i> , 28(3). <a href="https://doi.org/10.1111/ijpp.12594">https://doi.org/10.1111/ijpp.12594</a> <sup>53</sup>	Australia	235	Pharmacists - community, hospital, consultant, academic	Online survey	Identify Australian pharmacists' opinions on the current state of medicines reclassification; the prescription medicines consumers requested without prescription; the medicines pharmacists believed should or not be considered for reclassification; and perceived barriers to reclassification	Online survey	Frequency of requests for prescription medicines, opinion on medicine reclassification, barriers to reclassification	Responses were coded thematically, SPSS22 for means and medians of Likert Scale responses

Inch, J., Porteous, T., Maskrey, V., Blyth, A., Burr, J., Cleland, J., Wright, D. J., Holland, R., Bond, C. M., & Watson, M. C. (2017). It's not what you do it's the way that it's measured: quality assessment of minor ailment management in community pharmacies. <i>International Journal of Pharmacy Practice</i> , 25(4). <a href="https://doi.org/10.1111/ijpp.12305">https://doi.org/10.1111/ijpp.12305</a> <sup>54</sup>	England, Scotland	18 pharmacies, 72 visits	Minor ailment patients	Community pharmacies	To explore the appropriateness of minor ailment management in community pharmacies	Prospective, observational study of simulated patient (SP) visits to community pharmacies, for four minor ailments. Digital recordings of the consultation and a data collection form.	Each SP consultation was assessed for appropriateness against product licence, practice guidelines and study-specific consensus standards developed by a multi-disciplinary consensus panel.	Independent accuracy tests on SPSS20. Descriptive statistics
Jerez-Roig, J., Medeiros, L. F. B., Silva, V. A. B., Bezerra, C. L. P. A. M., Cavalcante, L. A. R., Piuvezam, G., & Souza, D. L. B. (2014). Prevalence of Self-Medication and Associated Factors in an Elderly Population: A Systematic Review. <i>In Drugs and Aging</i> (Vol. 31, Issue 12). <a href="https://doi.org/10.1007/s40266-014-0217-x">https://doi.org/10.1007/s40266-014-0217-x</a> <sup>47</sup>	Global	38 in meta-analysis	English, observational studies were included in the review if they provided the frequency or prevalence of selfmedication in the elderly (age ≥60 years). Between 2016 and 2021	Online	This study aimed to estimate the prevalence of selfmedication in the elderly, its related factors, and common drugs used in this regard.	Literature review - search of PubMed, Scopus and Web of Science	Self-medication in elderly	A random effect model was used to estimate the pooled prevalence of selfmedication. Heterogeneity among studies was assessed using both the I2 statistic and the χ2 test. Also, a metaregression model was used to investigate the potential sources of heterogeneity of the studies.
Kamekis, A., Symvoulakis, E., Papadakis, N., Zoras, O., & Lionis, C. (2020). Over-the-counter medicines, economic conditions, and citizens most in need in Greece: Is it a challenge for primary care research? <i>In Currents in Pharmacy Teaching and Learning</i> (Vol. 12, Issue 12). <a href="https://doi.org/10.1016/j.cptl.2020.07.010">https://doi.org/10.1016/j.cptl.2020.07.010</a> <sup>18</sup>	Greece	Not specified	Low-income citizens	Community pharmacies, private pharmacies	Analyse the link between extensive use of OTC medicines and socio-economic conditions in Greece	Not specified	OTC use	Qualitative analysis

Kennedy, C. E., Yeh, P. T., Gonsalves, L., Jafri, H., Gaffield, M. E., Kia-rie, J., & Narasimhan, M. L. (2019). Should oral contraceptive pills be available without a prescription? A systematic review of over-the-counter and pharmacy access availability. In <i>BMJ Global Health</i> (Vol. 4, Issue 3). <a href="https://doi.org/10.1136/bmjgh-2019-001402">https://doi.org/10.1136/bmjgh-2019-001402</a> <sup>19</sup>	United States, Mexico	5197	Woman seeking contraception	Pharmacies	Assess OTC availability of oral contraceptives to inform WHO guidelines.	Literature review	OC continuation rates, consumer satisfaction	Comparative analysis
Langer, B., Bull, E., Burgsthaler, T., Glawe, J., Schwobeda, M., & Simon, K. (2018). Assessment of counselling for acute diarrhoea in German pharmacies: a simulated patient study. <i>International Journal of Pharmacy Practice</i> , 26(4). <a href="https://doi.org/10.1111/ijpp.12405">https://doi.org/10.1111/ijpp.12405</a> <sup>20</sup>	Germany	21 pharmacies, 84 visits	Patients seeking self-medication for acute diarrhoea	Community pharmacies	Assess the quality of counselling provided for acute diarrhoea and to evaluate the role of the patient's approach and different user groups in determining the outcome of counselling.	Simulated patient completed post visit assessment form dichotomous scales,	Performance feedback	SPSS22, descriptive statistics then mixed model ANOVA
Lasota, D., Mirowska-Guzel, D., & Goniowicz, M. (2022). The Over-the-Counter Medicines Market in Poland. <i>International Journal of Environmental Research and Public Health</i> , 19(24). <a href="https://doi.org/10.3390/IJERPH192417022">https://doi.org/10.3390/IJERPH192417022</a> <sup>21</sup>	Poland	Not specified	Consumers in Poland	Retail market	To analyse market trends and regulations	Review article	Trends in OTC drug market and consumer behaviour	Qualitative analysis
Lind, J., Schafheutle, E., Hägg, A. N., & Sporrang, S. K. (2016). General sale of non-prescription medicinal products: Comparing legislation in two European countries. <i>Research in Social and Administrative Pharmacy</i> , 12(1). <a href="https://doi.org/10.1016/j.sapharm.2015.03.002">https://doi.org/10.1016/j.sapharm.2015.03.002</a> <sup>22</sup>	Sweden, UK	Not specified	General public	Non-pharmacy outlets	To compare specific requirements under the legislation, rationales and outcomes regarding the sale of NPMs through non-pharmacy outlets between Sweden and the UK	Document review	Non-prescription medicine availability	Content analysis
Nakhla, N., & Taylor, J. (2024). Self-care and minor ailments: The view from Canada. In <i>Exploratory Research in Clinical and Social Pharmacy</i> (Vol. 13). <a href="https://doi.org/10.1016/j.rcsop.2024.100412">https://doi.org/10.1016/j.rcsop.2024.100412</a> <sup>32</sup>	Canada	Not specified	Not specified	Not specified	The study examines self-care readiness, consumer behaviours, and the role of pharmacists in managing minor ailments.	Not specified	Insights into self-care practices, the OTC market, and health-care policies.	Not specified

Nakhla, N., Houle, S. K. D., Richard, F., & Taylor, J. (2024). Survey of community pharmacists' opinions on drug scheduling in Ontario and Québec. <i>Journal of Pharmaceutical Policy and Practice</i> , 17(1). <a href="https://doi.org/10.1080/20523211.2024.2385936">https://doi.org/10.1080/20523211.2024.2385936</a> <sup>23</sup>	Ontario and Quebec	715	Community pharmacists	Online	Examine community pharmacists' agreement with the scheduling of agents used in managing allergic rhinitis, heartburn, and vulvovaginitis.	Survey	Agreement with scheduling status	Descriptive statistics, dissatisfaction index
Newlands, R. S., Power, A., Young, L., & Watson, M. (2018). Quality improvement of community pharmacy services: a prioritisation exercise. <i>International Journal of Pharmacy Practice</i> , 26(1). <a href="https://doi.org/10.1111/ijpp.12354">https://doi.org/10.1111/ijpp.12354</a> <sup>59</sup>	Scotland	74	Pharmacy organisation representatives, senior community pharmacists, policy makers, academics, researchers, stakeholder members	Online	Identify and prioritize community pharmacy services requiring improvement.	E-Delphi survey	Priority topics for improvement	Systematic analysis
Ngwerume, K., Watson, M., Bond, C., & Blenkinsopp, A. (2015). An evaluation of an intervention designed to improve the evidence-based supply of non-prescription medicines from community pharmacies. <i>International Journal of Pharmacy Practice</i> , 23(2). <a href="https://doi.org/10.1111/ijpp.12118">https://doi.org/10.1111/ijpp.12118</a> <sup>49</sup>	England	16	Pharmacists and pharmacy assistants	Community pharmacies, private pharmacies	To conduct the proof-of-concept study and to develop and evaluate an educational intervention that promotes the evidence-based supply of non-prescription medicines	Direct overt observation, vignettes, self-reported behaviour, interviews	Recommendations made	Descriptive statistics,
Oinas, J. P., Wazaify, M., & Laaksonen, R. (2024). Preventing the Abuse and Misuse of Over-the-Counter Medicines: A Survey of Community Pharmacists in Finland. <i>Substance Use and Misuse</i> , 59(3). <a href="https://doi.org/10.1080/10826084.2023.2275564">https://doi.org/10.1080/10826084.2023.2275564</a> <sup>24</sup>	Finland	442	Community pharmacists	Online	Xplore the experiences of community pharmacists of use, abuse, and misuse of OTC medicines, and identify prevention strategies.	Online survey	Prevention strategies	Descriptive statistics
Oleszkiewicz, P., Krynski, J., Religioni, U., & Merks, P. (2021). Access to medicines via non-pharmacy outlets in european countries—a review of regulations and the influence on the self-medication phenomenon. In <i>Healthcare (Switzerland)</i> (Vol. 9, Issue 2). <a href="https://doi.org/10.3390/healthcare9020123">https://doi.org/10.3390/healthcare9020123</a> <sup>33</sup>	Europe	30 countries	Not specified	Non-pharmacy outlets	To review the legal regulations enabling the non-pharmacy trade in OTC	Literature review	Category of pharmacy trade	Comparative analysis

Panda, D. S., & Alotaibi, N. H. (2023). COVID-19 self-medication treatment: Media's adverse effect based on people's level of education. <i>Journal of Emergency Management</i> , 21(7). <a href="https://doi.org/10.5055/jem.0696">https://doi.org/10.5055/jem.0696</a> <sup>34</sup>	Poland	1722	Community pharmacists		The objective of this study was to explore the interplay between selected constructs (pharmacist's patient-centredness and competence) that may influence the provision of medication information by pharmacists	Survey	Questions about the relationship between pharmacists and physician, pharmacist-patient communication, socio-demographic questions.	Chi-square test
Perrot, S., Cittée, J., Louis, P., Quentin, B., Robert, C., Milon, J. Y., Bismut, H., & Baumelou, A. (2019). Self-medication in pain management: The state of the art of pharmacists' role for optimal Over-The-Counter analgesic use. In <i>European Journal of Pain (United Kingdom)</i> (Vol. 23, Issue 10). <a href="https://doi.org/10.1002/ejp.1459">https://doi.org/10.1002/ejp.1459</a> <sup>31</sup>	Global	49 papers reviewed	Community pharmacists and patients	Community pharmacies	Analyse the role of pharmacists in pain management self-medication	Literature review	Intervention effectiveness	Not specified
Piecuch, A., Makarewicz-Wujec, M., & Kozłowska-Wojciechowska, M. (2017). Improving the provision of OTC medication information in community pharmacies in Poland. <i>International Journal of Clinical Pharmacy</i> , 39(1), 70–77. <a href="https://doi.org/10.1007/S11096-016-0397-Z">https://doi.org/10.1007/S11096-016-0397-Z</a> <sup>50</sup>	Poland	1496	Licensed pharmacists in community pharmacies and dispensaries	Community pharmacies	To identify factors influencing OTC medication information provision	Auditor survey with a self-administered questionnaire; Structural equation modelling	Factors influencing OTC medication information provision	Structural equation modelling using Statistical 10 and LISREL 8.80
Read, B., McLeod, M., Tonkin-Crine, S., Quigley, A., Brown, C. S., Lecky, D. M., & Ashiru-Oredope, D. (2023). Changes in public health-seeking behaviours for self-limiting respiratory tract infections across England during the COVID-19 pandemic. <i>European Journal of Public Health</i> , 33(6). <a href="https://doi.org/10.1093/eurpub/ckad136">https://doi.org/10.1093/eurpub/ckad136</a> <sup>25</sup>	England	2022	General public	Participants home, electronically	Assess health-seeking behaviours for RTIs during and after the pandemic	Telephone surveys, in-person interviews	RTI reported, GP consultation rates	Pearsons-chi squared

Rutter, P., & Barnes, N. (2024). Facilitating self-care through community pharmacy in England. In <i>Exploratory Research in Clinical and Social Pharmacy</i> (Vol. 13). <a href="https://doi.org/10.1016/j.rc-sop.2023.100404">https://doi.org/10.1016/j.rc-sop.2023.100404</a> <sup>60</sup>	England	Not specified	Not specified	Community pharmacies	Examine the role of community pharmacies in self-care promotion	Literature review	Patient outcomes	Not specified
Sansgiry, S., Bhansali, A., Bapat, S., & Xu, Q. (2016). Abuse of over-the-counter medicines: a pharmacist's perspective. <i>Integrated Pharmacy Research and Practice</i> , Volume 6, 1–6. <a href="https://doi.org/10.2147/IPRP.S103494">https://doi.org/10.2147/IPRP.S103494</a> <sup>39</sup>	United States	Not specified	Not specified	Pharmacies	Review the potential for abuse of OTC medications and the role of pharmacists in educating patients and managing OTC use.	Literature review	Pharmacist interventions	Narrative analysis
Scuri, S., Petrelli, F., Tanzi, E., Nguyễn, T. T. C., & Grappasonni, I. (2019). European university students of pharmacy: Survey on the use of pharmaceutical drugs. <i>Acta Biomedica</i> , 90(1). <a href="https://doi.org/10.23750/abm.v90i1.7572">https://doi.org/10.23750/abm.v90i1.7572</a> <sup>25</sup>	Italy, Spain, Czech Republic, Romania	4099	Pharmacy students	Universities	Investigate self-medication habits and antibiotic usage among pharmacy students	Questionnaire	Pharmaceutical drug usage, consultation followed	Descriptive statistics, chi squared analysis, odds ratio
Seubert, L. J., Whitelaw, K., Hattingh, L., Watson, M. C., & Clifford, R. M. (2018). Interventions to enhance effective communication during over-the-counter consultations in the community pharmacy setting: A systematic review. In <i>Research in Social and Administrative Pharmacy</i> (Vol. 14, Issue 11). <a href="https://doi.org/10.1016/j.sapharm.2017.12.001">https://doi.org/10.1016/j.sapharm.2017.12.001</a> <sup>58</sup>	Australia	60	Community pharmacists, pharmacy assistants, consumers	Community pharmacies	To determine barriers and facilitators for information exchange during OTC consultations	Focus groups	Themes relating to consumer understanding pharmacists' roles	Independent duplicate analysis
Shea, L. A., Lourenço Freitas, E., Nguyen, T., Salawu, D. W., & Soquinase, N. (2023). Over-the-counter <i>Pediculus humanus capitis</i> treatment: The nit comb is not appropriate for all hair types! In <i>Journal of the American Pharmacists Association</i> (Vol. 63, Issue 1). <a href="https://doi.org/10.1016/j.japh.2022.09.005">https://doi.org/10.1016/j.japh.2022.09.005</a> <sup>61</sup>	United States, Brazil, Iran, worldwide - 18 countries total	1442	8 different hair types		Identify the gap in research in care for Americans seeking self-care treatment of pediculosis capitis	Literature review	Process recommended by OTC products for pediculosis capitis	Not specified

Straw, A., Mills, J., Winters, R., van de Roovaart, H., & Chen, A. M. H. (2023). Community pharmacies and the empowerment of self-care in the United States. In <i>Exploratory Research in Clinical and Social Pharmacy</i> (Vol. 10). <a href="https://doi.org/10.1016/j.rc-sop.2023.100266">https://doi.org/10.1016/j.rc-sop.2023.100266</a> <sup>62</sup>	United states	Not specified	Patients	Community pharmacies	To describe the structure and function of self-care within community pharmacies in the U.S.	Literature review	Recognition of pharmacists' roles in self-care,	Qualitative analysis
Tan, R., Cvetkovski, B., Kritikos, V., Price, D., Yan, K., Smith, P., & Bosnic-Anticevich, S. (2017). Identifying the hidden burden of allergic rhinitis (AR) in community pharmacy: a global phenomenon. <i>Asthma Research and Practice</i> , 3(1). <a href="https://doi.org/10.1186/s40733-017-0036-z">https://doi.org/10.1186/s40733-017-0036-z</a> <sup>55</sup>	Sydney, Australia	296	Patients with nasal symptoms	Community pharmacies	Identify the burden of allergic rhinitis in the community pharmacy and key opportunities for intervention	Questionnaire	Prevalence of allergic rhinitis symptoms, diagnosis status, medication purchasing patterns	SPSS22 descriptive statistics
Tan, R., Cvetkovski, B., Kritikos, V., Yan, K., Price, D., Smith, P., & Bosnic-Anticevich, S. (2018). Management of allergic rhinitis in the community pharmacy: Identifying the reasons behind medication self-selection. <i>Pharmacy Practice</i> , 16(3). <a href="https://doi.org/10.18549/pharm-pract.2018.03.1332">https://doi.org/10.18549/pharm-pract.2018.03.1332</a> <sup>56</sup>	Sydney, Australia	296	Patients diagnosed with allergic rhinitis	Community pharmacies	To compare demographics, clinical characteristics, and medication selection between self-selecting pharmacy customers and those who consult pharmacists for AR treatment; to identify factors associated with medication self-selection behaviour.	Survey	Demographics, symptom severity, impact on quality of life (QOL), and medication selection behaviour.	Logistic regression, descriptive statistics, Pearson chi-squared test (categorical variables) and independent sample t-test (continuous variables), univariate logistic regression, multivariate logistic regression, Hosmer and Lemeshow test
Taylor, J. G., & Joubert, R. (2016). Pharmacist-led minor ailment programs: A Canadian perspective. In <i>International Journal of General Medicine</i> (Vol. 9). <a href="https://doi.org/10.2147/IJGM.S99540">https://doi.org/10.2147/IJGM.S99540</a> <sup>62</sup>	Canada	Not specified	Pharmacists and patients	Pharmacies	To examine the value and implications of pharmacist prescribing for minor ailments in Canada and provide guidance for other jurisdictions considering similar measures.	Review	Pharmacists' intervention rate, access to care, patient satisfaction	Descriptive statistics



Van Eikenhorst, L., Salema, N. E., & Anderson, C. (2017). A systematic review in select countries of the role of the pharmacist in consultations and sales of non-prescription medicines in community pharmacy. In <i>Research in Social and Administrative Pharmacy</i> (Vol. 13, Issue 1). <a href="https://doi.org/10.1016/j.sapharm.2016.02.010">https://doi.org/10.1016/j.sapharm.2016.02.010</a> <sup>8</sup>	UK, Ireland, Australia, New Zealand	83 studies	Community pharmacy staff- pharmacists and non-pharmacy staff	Community pharmacies	Examine the importance of pharmacist interventions in NPM sales and assess their role in maintaining patient safety and improving consultation quality	Systematic review	Contributions of pharmacists versus non-pharmacist staff in NPM consultations; quality of consultations; effect of pharmacist counselling on patient safety	Qualitative analysis of extracted data
Veiga, P., Lapão, L. V., Cavaco, A. M., & Guerreiro, M. P. (2015). Quality supply of non-prescription medicines in Portuguese community pharmacy: An exploratory case study. <i>Research in Social and Administrative Pharmacy</i> , 11(6). <a href="https://doi.org/10.1016/j.sapharm.2014.12.009">https://doi.org/10.1016/j.sapharm.2014.12.009</a> <sup>27</sup>	Portugal	10 Simulated patient visits	Pharmacy staff	Community pharmacies	To explore the interaction and dependability of pharmacy staff's use of oral language, and their assessment of underlying reasons for their behaviour during NPM consultation	Covert patient simulation, interviews	Differences in technical and interpersonal performance between symptom-based and product-based scenarios; staff's cognitive, affective, and behavioural dimensions in performance evaluation	Descriptive statistics, thematic analysis
Westerlund, T., & Söderlund, L. Å. (2023). Role of community pharmacy and pharmacists in self-care in Sweden. In <i>Exploratory Research in Clinical and Social Pharmacy</i> (Vol. 12). <a href="https://doi.org/10.1016/j.rcsop.2023.100362">https://doi.org/10.1016/j.rcsop.2023.100362</a> <sup>28</sup>	Sweden	Not specified	Swedish healthcare authorities, pharmaceutical organisations, community pharmacies, Swedish parliament	Healthcare authorities, community pharmacy	To describe self-care policies and strategies among Swedish healthcare authorities, pharmaceutical organizations, and community pharmacies	Search for self-care policy documents and strategies on websites of healthcare authorities and community pharmacies, and personal contacts with key persons	Community pharmacies' involvement in self-care counselling, role of the Medical Products Agency, gaps in self-care policies, opportunities to integrate self-care into national health strategy	Descriptive summary, gaps in research and opportunities for future study
Wiliński, J., Lechowicz, M., Kameczura, T., Glowacki, M., Kameczura, A., Chrapusta, A., & Wiliński, B. (2015). Non-steroidal anti-inflammatory drugs and paracetamol in self-therapy of various disorders in students of different fields of study. <i>Folia Medica Cracovien-sia</i> , 55(2) <sup>40</sup>	Poland	250	Young adult students	Universities	Explore the use of nsaids and paracetamol in self-therapy among students, including inappropriate use in contraindicated conditions and knowledge of side effects	Questionnaire	Use of nsaids, inappropriate use, adverse reactions, awareness of drug safety measures, habits of reading medication leaflets, combination with alcohol	Kolmogorov-Smirnov test; Student-t test or Mann-Whitney U test for quantitative variables; Chi-square test for qualitative variables;

<p>Zheng, Y., Liu, J., Tang, P. K., Hu, H., &amp; Ung, C. O. L. (2023). A systematic review of self-medication practice during the COVID-19 pandemic: implications for pharmacy practice in supporting public health measures. In <i>Frontiers in Public Health</i> (Vol. 11). <a href="https://doi.org/10.3389/fpubh.2023.1184882">https://doi.org/10.3389/fpubh.2023.1184882</a><sup>29</sup></p>	<p>Global</p>	<p>4752 reviewed, 62 articles met inclusion criteria</p>	<p>General population</p>	<p>Community and pharmacy</p>	<p>Overview of research about self-medication during COVID-19 and the role of pharmacists in ensuring drug safety during self-medication.</p>	<p>Literature review</p>	<p>Prevalence of self-medication</p>	<p>Descriptive statistics, medications used, associated factors (age, gender, education), role of pharmacists</p>
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