

SYSTEMATIC REVIEW

Primary Care

Community pharmacists' management of minor ailments in developing countries: A systematic review of types, recommendations, information gathering and counselling practices

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Funding information

Qatar National Research Fund, UREP24-147-3043; Open Access funding provided by the Qatar National Library.

[Correction added on 26 July 2021, after first online publication: The funding information has been added to this version.]

Abstract

Aims: To conduct a systematic review of the management of minor ailments by community pharmacists in developing countries, and to identify the specific minor ailments encountered, the medications recommended or requested and the information gathering and counselling practices.

Method: Observational studies from developing countries published in English language from inception to 2019 and report the management of minor ailments by community pharmacists were systematically searched in PubMed, ScienceDirect and Cochrane Library.

Results: Thirty full-text studies, out of 7876 retrieved and screened, were included in the systematic review. Minor ailment-induced encounters by patients with community pharmacists are generally pervasive and involve mainly verbal request for specific medicines by name (60%). The most frequent minor ailments reported were respiratory, gastrointestinal and musculoskeletal conditions, and the most common medicines recommended or requested for were cough/cold preparations, antimotility and oral rehydration preparation, and analgesic/antipyretic. Inappropriate recommendation of antibiotics were reported for acute diarrhoea and cough/colds (40%) (10/25). Community pharmacists encountered 11-30 customers with minor ailments per day, with an average of about 4.8 (1.3-20.5) minutes per encounter. None of the studies reported the availability and/or use of a specific protocol to guide the management of minor ailments. There was wide variation in the type and depth of information gathered and used for the management of minor ailments; and the counselling information provided by community pharmacists, and there was no evidence of the documentation activities related to the management of minor ailments.

Conclusions: Community pharmacists' encounter with and management of minor ailments appear extensive in developing countries and probably present an opportunity to contribute significantly to reduce disease burden and enhance public health. However, the management process is currently unstructured, unguided by a specific

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protocol and vary in the quality of recommendations, information gathering and counselling practices.

1 | INTRODUCTION

William Ostler (1891) stated that 'a desire to take medicine is, perhaps, the great feature which distinguishes man from other animals'.¹ This aphorism seems appropriately captured by the phenomenon of self-medication for the management of medical conditions that are perceived as minor by patients. Minor ailments are common, self-limiting and uncomplicated conditions that are often diagnosed and treated without the intervention of a medical doctor, and they remain the centrepiece of self-care practices worldwide.²⁻⁴ However, minor ailments have become a major source of clinical and financial burden especially in high-cost settings, and these are related mainly to service delivery and cost of care.⁵ For instance, about 13% of the 340 million visits to general practitioners (GPs) in United Kingdom (UK) were related to minor ailments that were considered suitable for management by nonmedical professionals including community pharmacists.⁶ It has also been reported that up to 18% of the workload of GPs are related to minor ailments and cost the UK about 2 billion pounds annually, while about 8% of Emergency Department (ED) visits related to minor ailments cost about 136 million pounds per annum.^{7,8} Hence, the cost and service delivery burden associated with minor ailments are clearly substantial and appear to place enormous strain on the health care system.

However, the clinical and financial burden currently associated the management of minor ailments can be mitigated with the use of other primary care professionals including community pharmacists to deliver minor ailment services.^{5,9,10} Community pharmacists are healthcare professionals with medicine-related and clinical skillsets that uniquely placed them to manage minor ailments. The geographic and social access to community pharmacists, the impressive rates of symptoms resolution of minor ailments managed by community pharmacists, and patients' trust in and satisfaction with the recommendations and counselling services provided are well documented.¹⁰⁻¹⁴ Furthermore, the outcomes of minor ailments managed by community pharmacists equate that obtained at the high-cost settings such as ED and GPs and were substantially lower in cost.^{5,9,12} In addition, the ceding of the tasks of managing minor ailments to community pharmacists appeared well received by physicians as this could enable them to focus more effectively on complex medical cases, reduce waiting time and improve the efficiency.^{7,15,16,17}

Published evidence from developed countries such as UK, Canada, Australia and New Zealand showed that the use of specific protocols or frameworks for the management of minor ailments by community pharmacists achieved positive clinical outcomes at relatively lower cost.¹⁸⁻²⁴ However, no such published evidence from developing settings exist. Although, the information gathering and counselling activities of community pharmacists and nonpharmacist staff during the management of self-medication requests involving chronic medical conditions and minor ailments have been

What's known?

- Minor ailments remain a major source of clinical and financial burden especially in high-cost settings in both developed and developing countries, but this can be reduced with ceding the task of managing minor ailments to community pharmacists.
- Published evidence from developed countries showed that the use of specific protocols for the management of minor ailments by community pharmacists is associated with positive clinical outcomes at relatively lower cost.

What's new?

- Management of minor ailments by community pharmacists in developing countries is unstructured and not guided by a specific standard protocol.
- The absence of a specific standard protocol appeared responsible for the wide variation in information gathering and counselling practices by community pharmacists during the management of minor ailments in developing countries.
- There is dearth of published data related to the assessment of the outcomes of the management of minor ailments by community pharmacists in developing countries.
- There is a clear need for a standard protocol to guide the planning, delivery and evaluation of minor ailment services by community pharmacists in developing countries.

reported.^{25,26} In addition, some studies have also documented self-medication practices involving prescription-only medicines for communicable and noncommunicable diseases and its handling by community pharmacists and other staff members in developing countries.^{27,28}

However, no systematic review exists that is focused specifically on the community pharmacists' management of minor ailments in developing countries. In addition, the evidence is unclear regarding the information gathering and counselling practices associated with the community pharmacists' management of minor ailments in developing countries. Yet, minor ailment-induced encounters by patients with community pharmacists is a major component of health-seeking behaviour and self-care practices in developing countries.^{29,30} Hence, the current systematic review is warranted and will probably provide significant perspectives from developing countries that potentially adds to the published knowledge in the research area. The aim of the systematic review was to assess the

management of minor ailment by community pharmacists in developing countries, the types of minor ailments encountered, the medications recommended or requested and information gathering and counselling practices. In addition, the study also assessed the availability and/or the use of a protocol or guideline specifically for the management of minor ailments by community pharmacists in developing countries.

2 | METHODS

A systematic review was conducted to synthesise evidence about the management of minor ailments by community pharmacists in developing countries. The search was specifically focused on the types of minor ailments and medications recommended by community pharmacists or requested for by patients and on the associated information gathering and counselling practices. A review protocol was developed based on the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) and reviewed for clarity and focus by the authors.³¹

2.1 | Literature retrieval

Three electronic databases (PubMed, ScienceDirect and Cochrane Library) were searched to identify relevant studies. The number of databases used for systematic literature search was in compliance with PRISMA statement 2009 and AMSTAR guidelines, which recommend full electronic search strategy for at least one database or at least two bibliographic databases, respectively.^{32,33} The key search terms used include 'community pharmacy', 'community pharmacies', 'community pharmacist', 'community pharmacists', 'pharmacist', 'pharmacists', 'minor ailments', 'minor illness', 'self-care', 'self-medication', 'self-treatment', 'information gathering', 'counselling', 'developing', and Boolean operators were used for diverse combinations of search terms. Furthermore, hand search of the reference lists of all included full-text articles was done to identify other relevant studies. In addition, grey literature including publications by the World Health Organization and International Pharmaceutical Federation³⁴⁻³⁷ were searched.

2.2 | Inclusion criteria

The systematic review covered studies published in English language from inception up until 2019. The criteria for inclusion are as follows: studies conducted in developing countries that surveyed community pharmacists and/or consumers about encounters associated with minor ailments, self-medication practices associated with minor ailments and managed by community pharmacists, and information gathering and counselling practices of community pharmacists related to the management of minor ailments in developing countries. The United Nations' World Economic Situation and Prospects (WESP)

classification was used to identify the developing countries included in the systematic search, and this classification was based on a model developed by the Department of Economic and Social Affairs of the United Nations Secretariat. The WESP classified countries essentially on the basic economic country indices into three major categories including developed, developing and in transition.³⁸

2.3 | Exclusion criteria

Studies were excluded if they were conducted in countries not classified by WESP as developing, focused on self-medication with prescription-only medicines or for medical conditions that are chronic or severe. In addition, studies that addressed activities or interventions not related to minor ailments among community pharmacists, interventions or practices related to minor ailments by non-pharmacist staff members in community pharmacies, or activities by clinical pharmacists or hospital pharmacists, systematic reviews, editorials, and commentaries were also excluded.

2.4 | Data extraction

The identified studies were uploaded to a citation management software (Mendeley) to remove duplicates. Two of the authors (K. B. Y. and A. M. M.) independently conducted the screening of the titles and abstracts to exclude ineligible articles, while the third author (M. I. I.) checked and verified the validity of the screening process. Full-text articles were read and examined independently by all the authors, and an agreement was reached regarding inclusion. The few discrepancy with the selections were discussed and resolved. Data extraction was done independently by two of the authors (K. B. Y. and A. M. M.) with a standard data extraction sheet that was developed for the review, and this was checked for validity and completeness by the third author (M. I. I.). The data extracted included the methodological and participant characteristics (Table 1), and the minor ailments encountered, medications recommended and the community pharmacists' information gathering and counselling practices (Table 2). The processes of screening, data extraction and presentation of results were guided with items recommended in the PRISMA statement and PRISMA checklist.

2.5 | Quality assessment of the included articles

The included articles were assessed for quality with the Crowe Critical Appraisal Tool (CCAT).⁶⁹ The tool focuses on eight domains for quality assessment, and these include preliminaries (title, abstract and text), introduction (background and objective), design (research design, intervention, treatment, exposure, outcome, output, predictor, measure and bias), sampling (sampling method, sample size, sampling protocol), data collection (collection method, collection protocol), ethical matters (participant ethics, researcher

TABLE 1 Methodological and Participants characteristics of all the included studies

Study	Country	Year data collected	Publication year	Study design	Sampling method	Participants and sample size	Sample size calculation	Data collection method	Reliability assessment	Content validity
Ibrahim ³⁹	Iraq	2015	2018	Cross-sectional	Convenience	Community pharmacists: 75	No	Simulated patient	Not applicable	Yes
Ayele ⁴⁰	Ethiopia	2016	2018	Cross-sectional and Qualitative	Simple random	Community pharmacists: 22	No	Simulated patient and Semistructured interviews	Not applicable	Yes
Mesquita ⁴¹	Brazil	2010	2013	Cross-sectional	Convenience	Community pharmacists: 25	No	Simulated patient	Not applicable	Yes
Hammad ⁴²	Jordan	2015-2016	2018	Cross-sectional	Convenience	Community pharmacists: 50	No	Simulated patient	Not applicable	Yes
Okal ⁴³	Ghana	Not stated	2019	Cross-sectional	Three-stage cluster random	Consumers: 497	No	Survey with questionnaire	No	Not stated
Da Rocha ⁴⁴	Brazil	2012	2015	Cross-sectional	Purposive	Community pharmacists: 80	Yes	Simulated patient	Not applicable	Yes
Albassam ⁴⁵	Kuwait	2015	2018	Cross-sectional	Convenience	Community pharmacists: 192	Yes	Survey with questionnaire	Yes	Yes
Wazaify ⁴⁶	Jordan	2016	2019	Cross-sectional	Convenience	Community pharmacists: 67	No	Simulated patient	Not applicable	Yes
Elhoseeny ⁴⁷	Egypt	Not stated	2013	Cross-sectional	Purposive	Community pharmacists: 335	Yes	Survey with questionnaire	No	Yes
Ibrahim ⁴⁸	Qatar	Not stated	2016	Cross-sectional	Simple random	Community pharmacists: 30	No	Simulated patient	Not applicable	Yes
Karim ⁴⁹	Trinidad and Tobago	Not stated	2004	Cross-sectional	Simple random	Community pharmacists: 92	No	Survey with questionnaire	No	Yes
Ogbo ⁵⁰	Nigeria	2008	2014	Cross-sectional	Simple random	Community pharmacists: 206	Yes	Survey with questionnaire and simulated patient	No	Yes
Chui ⁵¹	Singapore	2003	2005	Cross-sectional	Purposive	Community pharmacists: 44 Consumers: 181	No	Survey with questionnaire	No	Not stated
Gutierrez ⁵²	Bolivia	1993	1995	Cross-sectional	Convenience	Community pharmacists: 498	No	Simulated patient	Not applicable	No
Barron ⁵³	South Africa	1987	1989	Cross-sectional	Simple random	Community pharmacists: 60	No	Survey with questionnaire	No	Yes
Berih ⁵⁴	Sudan	1988	1989	Cross-sectional	Purposive	Community pharmacists	No	Simulated patients	Not applicable	Yes

(Continues)

TABLE 1 (Continued)

Study	Country	Year data collected	Publication year	Study design	Sampling method	Participants and sample size	Sample size calculation	Data collection method	Reliability assessment	Content validity
Igun ⁵⁵	Nigeria	Not stated	1994	Cross-sectional	Purposive	Community pharmacists: 58	No	Survey with questionnaire and simulated patient	Not applicable	Yes
Saramunee ⁵⁶	Thailand	2013	2017	Cross-sectional	Convenience	Consumers: 759	No	Survey with questionnaire	No	No
Hassali ⁵⁷	Malaysia	2009	2011	Cross-sectional	Simple random	Consumers: 314	Yes	Survey with questionnaire	No	Yes
Shehnoz ⁵⁸	UAE	Not stated	2013	Cross-sectional	Convenience	Consumers: 324	Yes	Survey with questionnaire	No	Yes
Abahussain ⁵⁹	Kuwait	Not stated	2005	Cross-sectional	Single-stage cluster random	Consumers: 1110	No	Survey with questionnaire	No	Not stated
Fuentes ⁶⁰	Chile	2007	2008	Cross-sectional	Convenience	Consumers: 909	Yes	Survey with questionnaire	No	Not stated
Al-Ramahi ⁶¹	Palestine	2010	2013	Cross-sectional	Convenience	Consumers: 400	Yes	Survey with questionnaire	No	Not stated
Mohamad ⁶²	Sudan	2009	2014	Cross-sectional	Stratified random	Community pharmacists: 183	Yes	Survey with questionnaire	Yes	Yes
Santos ⁶³	Brazil	2010	2013	Cross-sectional	Convenience	Community pharmacists: 24	No	Simulated patient	Not applicable	Yes
Da Rocha ⁶⁴	Brazil	2012	2014	Cross-sectional	Purposive	Community pharmacists: 35	Yes	Survey with questionnaire	No	Not stated
Diwan ⁶⁵	India	2012	2015	Cross-sectional	Convenience	Community pharmacists: 164	No	Simulated patient	Not applicable	Yes
Foroughinia ⁶⁶	Iran	2015	2016	Cross-sectional	Simple random	Community pharmacists: 90	Yes	Survey with questionnaire and simulated patient	No	Not stated
Dabaghzadeh ⁶⁷	Iran	2017	2018	Cross-sectional	Purposive	Community pharmacists: 97	No	Simulated patient	Not applicable	Yes
Apikoglu-Rabus ⁶⁸	Turkey	Not stated	2012	Cross-sectional	Purposive	Community pharmacists: 667	No	Survey with questionnaire	No	Not stated

TABLE 2 Minor ailments and medications provided, and information gathering and counselling practices by community pharmacists in developing countries

Study	Minor ailments	Medications provided during MAS	Duration of MA management
Ibrahim ³⁹	Diarrhoea	Antispasmodic; antiamoebic; antibiotic; Oral rehydration salt	Not stated
Ayele ⁴⁰	Back pain, acute diarrhoea, upper respiratory tract infection	Antiamoebic, antibiotics, anthelmintic, analgesics, NSAIDs, oral rehydration salt +zinc	3 min
Mesquita ⁴¹	Headache, fever, acute diarrhoea	Analgesics, antipyretic antispasmodic, Oral rehydration salt	1.5 min
Hammad ⁴²	Headache	Analgesics, NSAIDs	2 min
Okai ⁴³	Body aches and pains, cough and colds, diarrhoea, heartburn, skin irritation, sore throat	Cough syrups, analgesics/antipyretics, antihistamines, antispasmodic, antidiarrhoeal, antacids, skin ointment	6.9 min
Da Rocha ⁴⁴	Dry cough and rib pain, facial pain, sore throat, Nasal stuffiness, headache	Expectorants, peripheral and central antitussives, topical gel, analgesic, NSAIDs, antihistamine	1.52 min
Albassam ⁴⁵	Cough and cold, constipation, haemorrhoid, diarrhoea, headache, fever, back pain, sore throat, varicose vein, vaginal itching, nausea and vomiting, insomnia	Cough syrups, laxatives, topical creams, antispasmodic, analgesic, NSAIDs, antihistamine, vitamins and supplements, melatonin	Not stated
Wazaify ⁴⁶	Insomnia	Paracetamol + diphenhydramine, valerian + lemon balm, flupenthixol + melitracen, herbal tea	2 min
Elhoseeny ⁴⁷	Cough and cold, sore throat, heartburn, stomach ache, Skin rash, constipation, diarrhoea, aches and pain	Cough syrups, analgesics/antipyretics, antihistamines, antispasmodic, antidiarrhoeal, antacids, skin ointment, laxative	Not stated
Ibrahim ⁴⁸	Acute diarrhoea	Antibacterial, antidiarrhoeal, antiemetic, oral rehydration salt, adsorbent, analgesic, antibacterial + amoebicidal, vitamin, H2 receptor blocker, antimuscarinic agent	2 min
Karim ⁴⁹	Acute diarrhoea	Oral rehydration salt, adsorbent, antispasmodic, antimicrobial, antimotility	Not stated
Ogbo ⁵⁰	Acute diarrhoea	Oral rehydration salt, adsorbent, antispasmodic, antimicrobial, antimotility	Not stated
Chui ⁵¹	Cough/cold, gastric discomfort, diarrhoea, constipation, skin irritation	Not specified but medications recommended for 54.5% of patients	~10 min
Gutierrez ⁵²	Diarrhoea	Antispasmodic, antidiarrhoeal, oral rehydration salt, antibiotics	Not stated

(Continues)

TABLE 2 (Continued)

Information gathered during MAS	Counselling information provided during MAS	Documentation of MAS	Standard Protocol used for MAS	Outcomes assessment
Symptoms duration = 78.7%; number of episodes = 82.7%; medical history = 77.3%; Medication history = 77.3%; presence of blood = 42.75; fever present = 46.7%	Dose and frequency = 44%; recommended lab test = 2.7%; refer to physician = 2.7%	Not stated	Not stated	Not stated
Symptoms = 26.2%; allergy to drug = 9.8%; medical history = 26.2%; medication history = 26.2%	Dose and duration = 73.9%; Side effects = 36.1%; nonpharmacological advice = 2.7%; refer to physician = 36.3%	Not stated	Not stated	Not stated
Signs and symptoms = 53%; allergies = 70.8%; medical history = 20.8%	Indication = 60.8%; dose = 34.3%; frequency = 36.7%; contraindication = 37.4%; refer to physician = 8%	Not stated	Not stated	Not stated
Symptoms = 23.7%; duration = 5.35; medical and medication history = 15.8%	Name of medication = 55.3%; dose = 36.8%; Timing of use = 2.6%; contraindication = 2.6%	Not stated	Not stated	Not stated
Not stated	Not stated	Not stated	Not stated	Not stated
Symptoms, location and duration = 65%; medical history = 5.6%;	Name and indication = 15%; dosage regimen = 7.5%; Side effects = 12.5%; drug interactions = 8.75%; refer to physician = 19.6%	Not stated	Not stated	Not stated
Symptoms = 67.7%	Nonpharmacological advice = 61.8%; refer to physicians = 67.7%	Not stated	Not stated	Not stated
Not stated	Name = 84.5%; dose = 56.9%; time to administer = 38.8%; sleep hygiene = 30%	Not stated	Not stated	Not stated
Not stated	Dose and frequency = 79.4; drug interactions = 16.1%	Not stated	Not stated	Not stated
Not stated	Name and indication = 34%; route of administration = 34%; dose = 34%; duration = 3.45%; onset of action = 1.65%	Not stated	Not stated	Not stated
Age = 98.95; medication history = 87%; symptoms and duration = 98.9%; recent diet = 96.7%; recent travel = 43.5%	Preparation (ORS) = 97.8%; dose and regimen = 96.7%; storage = 91.3%; when to stop ORS = 355; refer to physician = 25%	Not stated	Not stated	Not stated
Age = 76.7%; symptoms and duration = 76/7%; frequency of stooling = 76.7%;	Preparation and use of ORS = 26.4%; instruction on food and fluids intakes = 23.8%	Not stated	Not stated	Not stated
Age = 95.5%; symptoms = 88.6%; medical history = 86.3%; medication history = 84.1%	Dose and frequency = 97.7%; side effect = 72.7%	Not stated	Not stated	Not stated
Not stated	Increase fluid intake = 12.4%	Not stated	Not stated	Not stated

(Continues)

TABLE 2 (Continued)

Study	Minor ailments	Medications provided during MAS	Duration of MA management
Barron ⁵³	Diarrhoea	Antidiarrhoeal, oral rehydration salt	Not stated
Berih ⁵⁴	Diarrhoea	Antidiarrhoeal, oral rehydration salt, Antibiotics	Not stated
Igun ⁵⁵	Diarrhoea	Antidiarrhoeal, oral rehydration salt, Antibiotics	Not stated
Saramunee ⁵⁶	Musculoskeletal pain, cough and colds, eye irritation, allergic rhinitis, dyspepsia, constipation, diarrhoea, ear problems, helminth	Cough syrups, analgesics, antidiarrhoeal, laxative, antihistamines, antacids, anthelmintic	Not stated
Hassali ⁵⁷	Pain, cough/cold, heartburn, diarrhoea, constipation, allergy/rashes	Cough syrups, analgesics, antidiarrhoeal, laxative, antihistamines, antacids	Not stated
Shehnaz ⁵⁸	Fever, Headache, cough/cold, sore throat, diarrhoea, constipation, skin rash, nausea, ear ache, eye irritation	Cough syrups, analgesics/antipyretics, antihistamines, antispasmodic, antidiarrhoeal, laxatives	Not stated
Abahussain ⁵⁹	Fever, headache, cough/cold, diarrhoea, Skin rash/allergies, athlete foot, dandruff	Cough syrups, analgesics, NSAIDs, Antihistamines, antifungal, antispasmodic, Antidiarrhoeal, antidandruff	Not stated
Fuentes ⁶⁰	Headache, musculoskeletal pain, cold and catarrh, constipation, diarrhoea	Cough syrups, analgesics/antipyretics, NSAIDs, laxatives, antihistamines, antispasmodic	Not stated
Al-Ramahi ⁶¹	Fever, headache, body aches, heartburn cold/cough, diarrhoea, skin rash, constipation	Cough syrups, analgesics/antipyretics, antihistamines, antacids, antispasmodic, antidiarrhoeal, laxatives	Not stated
Mohamad ⁶²	Cough and colds, diarrhoea	Cough syrups, antihistamines, antispasmodic, antidiarrhoeal	Not stated
Santos ⁶³	Headache	Analgesic (sodium dipyrone)	Not stated
Da Rocha ⁶⁴	Body aches and pains, cough and colds, diarrhoea, stomach ache, fever, headache	Cough syrups, Analgesics/antipyretics, Antihistamines, antispasmodic, antidiarrhoeal	Not stated
Diwan ⁶⁵	Acute diarrhoea	Antibiotic, antimotility, <i>Lactobacillus acidophilus</i> , oral rehydration solution, lactulose	1.3 min
Foroughinia ⁶⁶	Children diarrhoea	Oral rehydration salt, antibiotic	20.5 min
Dabaghzadeh ⁶⁷	Acne	Isotretinoin	2.8 min
Apikoglu-Rabus ⁶⁸	Emergency contraception request	Emergency contraception pills	Not stated

(Continues)

TABLE 2 (Continued)

Information gathered during MAS	Counselling information provided during MAS	Documentation of MAS	Standard Protocol used for MAS	Outcomes assessment
Not stated	Not stated	Not stated	Not stated	Not stated
Symptoms = 36.5%;	Not stated	Not stated	Not stated	Not stated
Not stated	Not stated	Not stated	Not stated	Not stated
Not stated	Not stated	Not stated	Not stated	Symptoms resolution, Total and unit costs
Medication history = 59.9%	Name of medication = 89.8%; side effects = 88.5%; drug interactions = 19.4%	Not stated	Not stated	Not stated
Not stated	Not stated	Not stated	Not stated	Not stated
Not stated	Not stated	Not stated	Not stated	Not stated
Not stated	Not stated	Not stated	Not stated	Not stated
Not stated	Not stated	Not stated	Not stated	Not stated
Symptoms = 93.7%, age = 78.2%; medical history = 29.75; medication history = 32.85; allergies = 45.3%; side effects = 34.4%	Dose and duration = 78.2%	Yes, in 15.6% of cases seen	None for list of minor ailments, medications and counselling	Not stated
Symptoms = 50%; medical history = 83.3%; medication history = 45.8%; allergies = 70.8%	Indication = 41.6%; refer to physician = 2.8%; regimen = 33.35; contraindication = 70.8	Not stated	Not stated	Not stated
Age = 19.6%; symptoms and duration = 19.6%	Mechanism of action = 21.7%; allergies = 21.7%; dose = 21.7%; refer to physician = 6.5%	Not stated	Not stated	Not stated
Age = 98.2%; symptoms and duration = 87.2%; presence of fever = 29.3%; presence of vomiting = 25.6%; blood or mucus = 9.1%	Not stated, refer to physicians = 29.9%	Not stated	Not stated	Not stated
Age = 67.8%; symptoms and duration = 72.2%	Not stated, refer to physicians = 27.8%	Not stated	Not stated	Not stated
Medical history = 4.85; medication history = 3.6%	Instruction for use = 23.8; drug interaction (with vitamin A) = 2.4%; refer to physician = 1.2%	Not stated	Not stated	Not stated
Not stated	Efficacy = 73.1; dosing = 85.7%; mechanism of action = 33.65; side effects = 50.1%; timing of use = 89.25; other methods for contraception = 48.2%	Not stated	Not stated	Not stated

Abbreviations: MA, minor ailment; NSAID, nonsteroidal anti-inflammatory drug.

ethics), Results (analysis, integration, interpretation method, essential analysis, outcome, output, predictor analysis), and discussion (interpretation, generalisation and concluding remarks). The CCAT tool was used to assess the quality of all the included articles in all the eight domains, and a total score was calculated and converted into a percentage for each article. The percentage scores were classified into three categories: High quality ($\geq 80\%$), medium-quality ($60\% - 79\%$), and poor-quality ($< 60\%$). The quality assessment was done independently by the authors, and disagreements were resolved with consensus.

3 | RESULTS

3.1 | Systematic search and screening

The preliminary searches of the three electronic databases produced 7808 studies. Additional 56 studies were identified from grey literature and hand searches (Figure 1). Hence, 7867 studies were identified after the initial search, and 1975 duplicates were removed. Five thousand eight hundred ninety-two studies were included for the title/abstract screening, out of which 5744 were excluded due to ineligibility. In total, 148

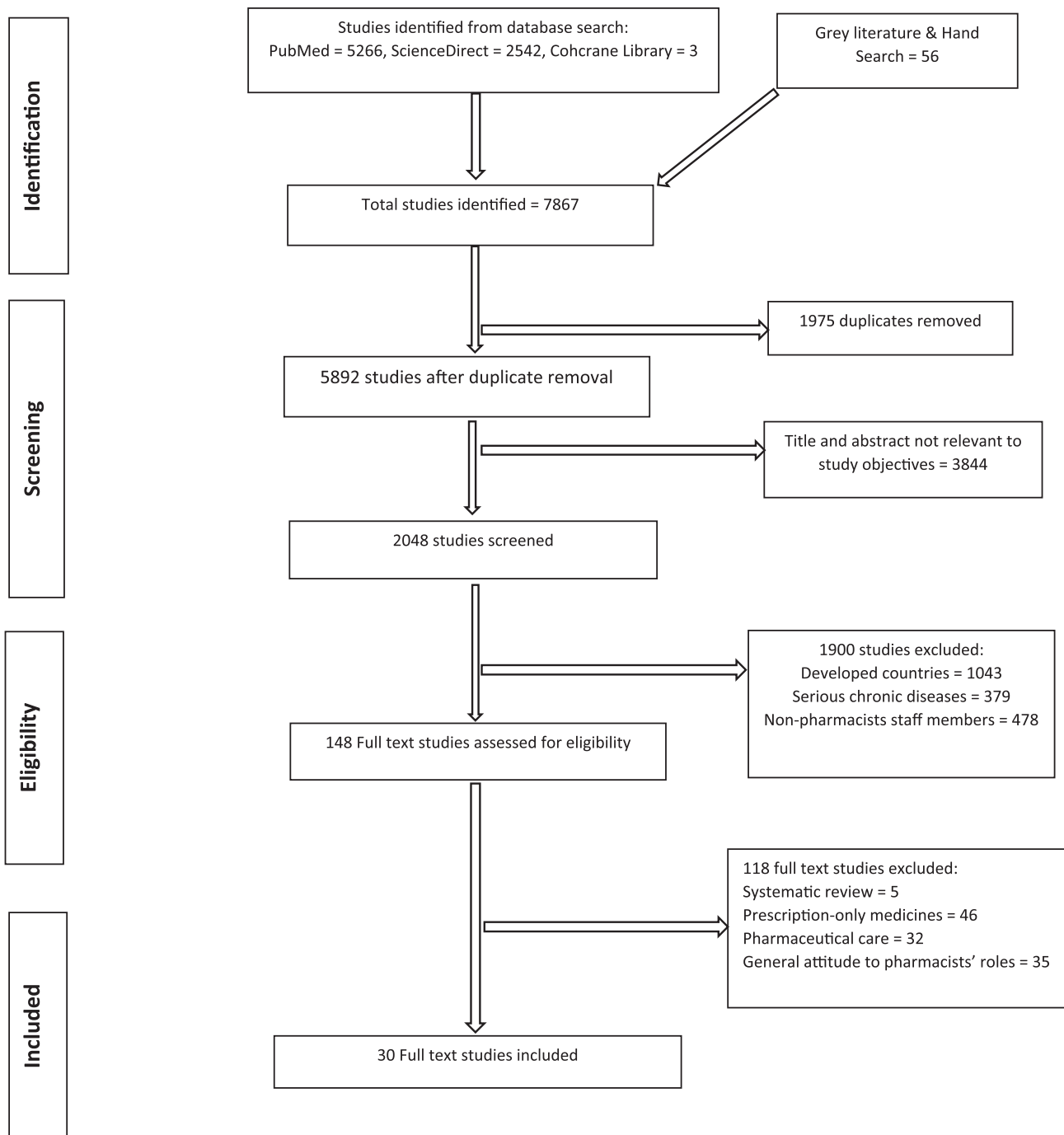


FIGURE 1 Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flowchart of literature search and study selection

studies were subjected to full-text reading, out of which 118 were excluded: systematic review (10), prescription-only medicines (41), pharmaceutical care (32), and general attitude to pharmacists' roles (35). Hence, 30 full-text studies were used for the systematic review (Figure 1).

3.2 | Study characteristics

The methodological and participant characteristics of all the included studies are as shown in Table 1. A majority of the studies were focused on community pharmacists (22/30) (73.3%) followed by consumers (7/30) (23.3%). Fifteen studies (50%) were conducted in Asia (Singapore, Malaysia, India, UAE, Kuwait, Thailand, Iraq, Palestine, Jordan, Qatar, Iran and Turkey)^{39,42,45,46,48,51,56,57,58,59,61,65,67,68}; eight (26.7%) in Africa (Ethiopia, Egypt, Sudan, Ghana, South Africa and Nigeria)^{40,43,47,50,53,54,55,62} and seven (23.3%) in Latin America and Caribbean (Bolivia, Brazil, Chile and Trinidad and Tobago).^{41,44,49,52,60,63,64} A majority (29/30) (96.7%) of the included studies were cross-sectional in study design while only one study used a combination of semistructured interview with cross-sectional design.⁵⁴ About two-thirds of the studies used nonprobability sampling methods (convenience and purposive),^{39,41,42,44,45,46,47,51,52,54,55,56,60,61,63,64,65,66,68} and a priori sample size calculation was done in 36.7% (11/30) of all the studies. The data collection method used in half of the studies (50%) (15/30) was survey with self-administered questionnaires,^{41,43,45,47,49,51,53,56,57,58,59,60,61,62,64,68} followed by the use of simulated patients (36.7%) (11/30),^{39,41,42,44,46,48,52,54,63,65} combination of survey and simulated patients (10%) (3/30)^{50,55,56} and semistructured interview and simulated patients (3.3%) (1/30).⁴⁰ However, the majority of the questionnaire-based surveys appeared not to have conducted the reliability analysis of the questionnaires used for data collection as only two studies^{45,62} reported the use of Cronbach alpha for the assessment of the reliability of the questionnaires used.

3.3 | Perceived minor ailments and medications recommended by community pharmacists or requested by the consumers

All the included studies were focused on the minor ailment encounters that community pharmacists had with customers.³⁹⁻⁶⁸ Most of the minor ailment encounters involved consumers making verbal request for specific medicines by name (60%), followed by showing the old package or leftovers of medicines used during previous minor ailment episodes. Community pharmacists encountered 11-30 customers per day with minor ailments with an average of 4.8 (1.3-20.5) minutes per encounter.^{40,41,42,43,44,46,48,51,65,66,67} The most frequent minor ailments reported were respiratory conditions such as cough and colds; gastrointestinal disturbances such as nausea, vomiting, diarrhoea, constipation and heartburn; headache and fever; musculoskeletal pain and minor injuries; allergy, skin problems.³⁹⁻⁶⁸ The most common medicines recommended or requested for were cough and cold preparations including antitussives and antihistamines, antiemetics, anti-diarrhoea, laxatives, analgesics (including

nonsteroidal anti-inflammatory drugs [NSAID]), antipyretic and skin preparations.^{39,40,41,42,43,44,45,46,47,48,49,50,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68}

However, some recommendations including antibiotics, analgesic and combination of first generation antipsychotic and antidepressant made by community pharmacists were considered inappropriate and reported by 44.4% (12/27) of studies for acute diarrhoea cough /colds, headache and insomnia, respectively.^{39,40,46,48,49,50,52,54,55,63,65,66} Three of the studies also reported occasional recommendation of nonpharmacological interventions by community pharmacists for the management of minor ailments (32.3%).^{40,45,52}

3.4 | Information gathering and counselling practices by community pharmacists and the protocol/framework used to guide the management of minor ailments

The information gathering and counselling practices of community pharmacists during the management of minor ailments in developing countries is as shown in Table 2. None of the studies reported the availability and/or use of a specific protocol or framework for the management of minor ailments.³⁹⁻⁶⁸ The type and depth of information gathered and used for the planning and recommendations and counselling during the management of minor ailments vary widely among community pharmacists. About 80% (23/30) of the studies reported that community pharmacists gathered patient-related information and provided counselling information to a varying degree.^{39,40,41,42,43,44,45,46,47,48,49,50,51,52,54,57,62,63,64,65,66,67,68} Such preliminary information include customers' age (26.7%, 8/30), signs, symptoms and duration of minor ailments (46.7%, 14/30), information on past/concurrent medical conditions (33.3%, 10/30) and medication history (23.3%, 7/30). Furthermore, some studies showed that community pharmacists provided information relating to regimen (53.3%, 16/30), drug interactions (13.3%, 4/30), side effects (20%, 6/30) and contraindications (10%, 3/30).^{39,42,44,46,47,49,51,57,63,68} In addition, 23.3% (7/30) of the studies did not show evidence of information gathering or counselling to consumers during minor ailment encounters.^{53,55,56,58,59,60,61} Furthermore, there was evidence of lack of the documentation of activities of community pharmacists related to the management of minor ailments by the majority of the studies (98.3%).^{39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,63,64,65,66,67,68} Only one study⁶² reported documentation for about 15.6% of customers and about one-third (33.3%) of the studies reported the referrals made by community pharmacist to physicians.^{40,41,44,45,49,63,64,65,66,67}

3.5 | Impact assessment of minor ailment services provided by community pharmacists

Only one of the studies from developing countries reported outcome assessment of the clinical, economic impact of the management of minor ailments by community pharmacists.⁵⁶ However, a study

reported that a majority of customers (90%) were satisfied with the management of minor ailments by community pharmacists.⁵¹

3.6 | Quality assessment and risk of bias

Fifteen studies were categorised as high quality ($\geq 80\%$)^{39,40,43,44,45,46,48,50,61,62,63,65,66,67,68} while thirteen studies were of medium quality (60%-79%)^{41,42,47,49,52,53,54,55,56,57,58,59,60} and two studies were classified as poor in quality.^{51,64} Hence, the methodological quality of the included studies appeared generally adequate. However, the use of nonprobability sampling methods (convenience and purposive) in about two-thirds of the studies^{39,41,42,44,45,46,47,51,52,54,55,56,58,60,61,63,64,65,67,68} could significantly increase the risk of bias and also compromise the internal and external validity of the findings reported. Notwithstanding, the a priori sample size calculation in two-fifth (40%) of all the studies and the adjustment of the final size for possible decline of consent^{44,45,47,50,57,58,60,61,62,64,66} could possibly mitigate the risk of bias. Furthermore, the use of simulated patients for data collection in 50% of the studies^{39,40,41,42,44,46,48,50,52,54,55,63,65,66,67} will also increase the internal validity of the findings presented and therefore reduce the risk of bias. This is because the simulated patient method reduces the risk of Hawthorne effect and enable the collection of data that are valid for the research objective and mirror the real-world practice of study participants. Furthermore, a majority of the studies (66.7%) reported validation and pre-testing of the data collection tools.^{39,40,41,42,44,45,46,47,48,49,50,53,54,55,57,58,62,63,64,65,67} In addition, the quality of reporting of the protocol used for the development of data collection tool and simulated patient cases were good, and appeared compliant with the established standards in the research area. However, only two studies^{45,62} out of 20 that used survey with questionnaires as data collection methods reported the result of the psychometric measurement (reliability analysis) of the questionnaire used. This major weakness could potentially compromise the precision of measurement and internal validity of the findings reported.

4 | DISCUSSION

Evidence from this systematic review generally suggests that minor ailment-induced encounters is widespread and seems to present a good opportunity for community pharmacists to contribute significantly to reducing disease burden in developing countries. Indeed, the fact that most of the minor ailments-related encounters reported were unguided and involved mostly verbal requests for specific medicines strongly warrants the involvement of a primary health care professional with medicine-related and direct patient care competencies such as community pharmacists. Such interventions by community pharmacist may enhance the achievement of positive outcomes and potentially improve public health.^{26,27}

The extent of minor ailments-induced patients' requests encountered by community pharmacists in developing countries seem

consistent with trends in developed countries. In addition, the range of minor ailments and medicines recommended by community pharmacists in developing settings also appear consistent but not as comprehensive relative to developed settings.^{5,6,9,10,11,12} This suggests that minor ailments probably continue to be a critical driver of clinical burden in both developed and developing settings. However, the lack of published evidence about the availability and/or use of a specific protocol to guide the management of minor ailments by community pharmacists is inconsistent with trends in developed countries.¹⁹⁻²⁹ Hence, it is unsurprising that the management of minor ailments by community pharmacists in developing settings is unstructured and seems based on individual preferences or initiatives. The absence and/or non-usage of a specific protocol may also be responsible for the wide variation observed in the frequency and depth of patient information gathered during the planning phase; and the counselling information provided to consumers. In fact, the observation that the counselling on side effects, drug interactions and contraindication were the least provided clearly underscores the need for a specific minor ailment-specific standard protocol to serve as a guide and reminder to community pharmacists. Indeed, the development and use of such a minor ailments-specific standard protocol may potentially reduce variation in the quality of service delivery by community pharmacists during the management of minor ailments and ensure a more efficient use of available healthcare resources at the primary care level.

The lack of documentation of the interventions and referrals made by community pharmacists during the management of minor ailments is probably connected to the non-availability or non-usage of a minor ailments-specific protocol that should specify a priori the standards that must be met during service delivery. Hence, there is no incentive or mandate for community pharmacists to document their activities. Therefore, there is a clear need for the development and use of a minor ailments-specific standard protocol to serve as guide and reminder to community pharmacists. This may potentially reduce variation in service delivery and improve effectiveness. However, it is important to ensure that community pharmacists are actively involved in the development of such a standard protocol from the start. This is more likely to create a sense of ownership among community pharmacists and enhance the prospect of the use of such a protocol to guide their management of minor ailments.

However, it is noteworthy that majority of the community pharmacists obtained patient information and provided counselling to varying degree during the management of minor ailments^{38,39,40,41,42,43,44,45,46,47,48,49,50,52,55,60,61,62,63,64,65,66,69} This is probably related to the pharmaceutical care-related competencies of pharmacists and/or their probable self-awareness of their professional obligations based on the benchmarks related to good pharmacy practice.^{34,35,37,70}

Finally, the lack of sufficient published evidence related to the assessment of the outcome of the management of minor ailments by community pharmacists in developing countries is inconsistent with trends in developed settings.^{5,9,10} This is because only one study reported a limited outcome assessment for minor ailments managed by community pharmacists in Thailand. The Thailand study showed

that two-third of the patients with minor ailments (77.9%, 539/692) managed by community pharmacists reported complete recovery at lower unit cost relative to physicians and nurses.⁵⁸ The findings of this single study is consistent with those reported in developed settings,^{5,9,10} and this is probably expected as community pharmacists, irrespective of settings, are expected to guide the effective and safe management of minor ailments based on the entry-level knowledge, skills and competences acquired during the undergraduate pharmacy training.

4.1 | Strengths and limitations

The synthesis of evidence from the eligible studies was conducted with a systematic protocol based on PRISMA. Duplicate screening, selection of eligible studies, data extraction, and assessment of methodological and reporting quality were undertaken with strict adherence to the established standards for systematic reviews; and this most likely mitigated any potential risk of reviewer's error or bias. However, the findings presented should be interpreted with caution due to critical gaps in methodological quality of a significant proportion of the included available published studies from developing countries in the research area. More importantly, because of the gaps in the sampling procedure, and the accuracy and precision of the data collection tools used. A significant improvement is required in these areas, and this is more likely to increase the internal and external validity of the findings reported. In addition, despite the strict adherence to the PRISMA guide for conducting and reporting the systematic review, and best effort to identify, screen and include all the papers that met the specified criteria, the possibility of interference due to inclusion of only English language articles, combinations of the search term used and the databases searched remain a possibility. Notwithstanding, this is the first comprehensive systematic review of evidence about the extent and types of minor ailments managed specifically by community pharmacists in developing countries, and the recommendations, information gathering and counselling practices. This perspective may potentially add significantly to global knowledge in the research area.

5 | CONCLUSION

Community pharmacists' encounter with and management of minor ailments appear extensive in developing countries and probably present an opportunity to contribute significantly to reduce disease burden and enhance public health. However, the management process is currently unstructured, unguided by a specific protocol and vary in the quality of recommendations, information gathering and counselling practices. There is a clear need for a standard framework to guide the planning, delivery and outcome assessment of minor ailment-related services provided by community pharmacists in developing countries.

DISCLOSURE

No potential conflict of interest was reported by the authors.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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How to cite this article: Yusuff KB, Makhlof AM, Ibrahim MI. Community pharmacists' management of minor ailments in developing countries: A systematic review of types, recommendations, information gathering and counselling practices. *Int J Clin Pract*. 2021;00:e14424. <https://doi.org/10.1111/ijcp.14424>