SYSTEMATIC REVIEW

Primary Care

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

Kazeem B. Yusuff | Ahmed M. Makhlof | Mohamed I. Ibrahim

Department of Clinical Pharmacy and Practice, College of Pharmacy, QU Health, Qatar University, Doha, Qatar

Correspondence
Kazeem Babatunde, Yusuff, Department of Clinical Pharmacy and Practice, College of Pharmacy, QU Health, Qatar University, Doha, Qatar.
Email: kyusuff@qu.edu.qa; yusuffkby@yahoo.co.uk

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

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, antiemetic 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...
1 | INTRODUCTION

William Ostler (1891) stated that ‘a desire to take medicine is, perhaps, the great feature which distinguishes man from other animals’. 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. 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. 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. 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. 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 with the management of minor ailments can be mitigated with the use of other primary care professionals including community pharmacists to deliver minor ailment services. 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. 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. 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.

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. 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 reported. 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.

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. 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

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 a 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.

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.
management of minor ailments 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.22,23 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 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
| 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     | Iraq               | 2015                | 2018             | Cross-sectional                   | Convenience         | Community pharmacists: 75   | No                      | Simulated patient     | Not applicable         | Yes                 |
| Ayele       | Ethiopia           | 2016                | 2018             | Cross-sectional and Qualitative   | Simple random       | Community pharmacists: 22   | No                      | Simulated patient and Semistructured interviews | Not applicable | Yes |
| Mesquita    | Brazil             | 2010                | 2013             | Cross-sectional                   | Convenience         | Community pharmacists: 25   | No                      | Simulated patient     | Not applicable         | Yes                 |
| Hammad      | Jordan             | 2015-2016           | 2018             | Cross-sectional                   | Convenience         | Community pharmacists: 50   | No                      | Simulated patient     | Not applicable         | Yes                 |
| Okai        | Ghana              | Not stated           | 2019             | Cross-sectional                   | Three-stage cluster random | Consumers: 497           | No                      | Survey with questionnaire | No                   | Not stated |
| Da Rocha    | Brazil             | 2012                | 2015             | Cross-sectional                   | Purposive           | Community pharmacists: 80   | Yes                     | Simulated patient     | Not applicable         | Yes                 |
| Albassam    | Kuwait             | 2015                | 2018             | Cross-sectional                   | Convenience         | Community pharmacists: 192  | Yes                     | Survey with questionnaire | Yes                  | Yes |
| Wazaify     | Jordan             | 2016                | 2019             | Cross-sectional                   | Convenience         | Community pharmacists: 67   | No                      | Simulated patient     | Not applicable         | Yes                 |
| Elhoseeny   | Egypt              | Not stated           | 2013             | Cross-sectional                   | Purposive           | Community pharmacists: 335  | Yes                     | Survey with questionnaire | No                   | Yes |
| Ibrahim     | Qatar              | Not stated           | 2016             | Cross-sectional                   | Simple random       | Community pharmacists: 30   | No                      | Simulated patient     | Not applicable         | Yes                 |
| Karim       | Trinidad and Tobago| Not stated           | 2004             | Cross-sectional                   | Simple random       | Community pharmacists: 92   | No                      | Survey with questionnaire | No                   | Yes |
| Ogbo        | Nigeria            | 2008                | 2014             | Cross-sectional                   | Simple random       | Community pharmacists: 206  | Yes                     | Survey with questionnaire and simulated patient | No                   | Yes |
| Chui        | Singapore          | 2003                | 2005             | Cross-sectional                   | Purposive           | Community pharmacists: 44 Consumers: 181 | No | Survey with questionnaire | No | Not stated |
| Gutierrez   | Bolivia            | 1993                | 1995             | Cross-sectional                   | Convenience         | Community pharmacists: 498  | No                      | Simulated patient     | Not applicable         | No |
| Barron      | South Africa       | 1987                | 1989             | Cross-sectional                   | Simple random       | Community pharmacists: 60   | No                      | Survey with questionnaire | No | Yes |
| Berih       | Sudan              | 1988                | 1989             | Cross-sectional                   | Purposive           | Community pharmacists       | No                      | Simulated patients    | Not applicable         | Yes |

(Continues)
| 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 |
|-------------|-----------|---------------------|------------------|--------------------|--------------------------|-----------------------------|--------------------------|-------------------------------------------------------------|------------------------|-----------------|
| Igun55      | Nigeria   | Not stated          | 1994             | Cross-sectional    | Purposive                | Community pharmacists: 58    | No                       | Survey with questionnaire and simulated patient             | Not applicable         | Yes             |
| Saramunee56 | Thailand  | 2013                | 2017             | Cross-sectional    | Convenience              | Consumers: 759              | No                       | Survey with questionnaire                                     | No                     | No              |
| Hassali57   | Malaysia  | 2009                | 2011             | Cross-sectional    | Simple random            | Consumers: 314              | Yes                      | Survey with questionnaire                                     | No                     | Yes             |
| Shehnaz58   | UAE       | Not stated          | 2013             | Cross-sectional    | Convenience              | Consumers: 324              | Yes                      | Survey with questionnaire                                     | No                     | Yes             |
| Abahussain59| Kuwait     | Not stated          | 2005             | Cross-sectional    | Single-stage cluster random | Consumers: 1110           | No                       | Survey with questionnaire                                     | No                     | Not stated      |
| Fuentes60   | Chile     | 2007                | 2008             | Cross-sectional    | Convenience              | Consumers: 909              | Yes                      | Survey with questionnaire                                     | No                     | Not stated      |
| Al-Ramahi61 | Palestine | 2010                | 2013             | Cross-sectional    | Convenience              | Consumers: 400              | Yes                      | Survey with questionnaire                                     | No                     | Not stated      |
| Mohamad62   | Sudan     | 2009                | 2014             | Cross-sectional    | Stratified random        | Community pharmacists: 183  | Yes                      | Survey with questionnaire                                     | Yes                    | Yes             |
| Santos63    | Brazil    | 2010                | 2013             | Cross-sectional    | Convenience              | Community pharmacists: 24   | No                       | Simulated patient                                             | Not applicable         | Yes             |
| Da Rocha64  | Brazil    | 2012                | 2014             | Cross-sectional    | Purposive                | Community pharmacists: 35   | Yes                      | Survey with questionnaire                                     | No                     |                 |
| Diwan65     | India     | 2012                | 2015             | Cross-sectional    | Convenience              | Community pharmacists: 164   | No                       | Simulated patient                                             | Not applicable         | Yes             |
| Foroughinia66| Iran      | 2015                | 2016             | Cross-sectional    | Simple random            | Community pharmacists: 90    | Yes                      | Survey with questionnaire and simulated patient             | No                     | Not stated      |
| Dabaghzadeh67| Iran      | 2017                | 2018             | Cross-sectional    | Purposive                | Community pharmacists: 97    | No                       | Simulated patient                                             | Not applicable         | Yes             |
| Apikoglu-Rabus68 | Turkey | Not stated | 2012             | Cross-sectional    | Purposive                | Community pharmacists: 667   | No                       | Survey with questionnaire                                     | No                     | Not stated      |
| Study          | Minor ailments                                                                 | Medications provided during MAS                                                                 | Duration of MA management |
|---------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------|
| Ibrahim39     | Diarrhoea                                                                       | Antispasmodic; antiamoebic; antibiotic; Oral rehydration salt                                    | Not stated                |
| Ayele40       | Back pain, acute diarrhoea, upper respiratory tract infection                    | Antiamoebic, antibiotics, anthelmintic, analgesics, NSAIDs, oral rehydration salt +zinc           | 3 min                     |
| Mesquita41    | Headache, fever, acute diarrhoea                                                | Analgesics, antipyretic antispasmodic, Oral rehydration salt                                     | 1.5 min                   |
| Hammad42      | Headache                                                                        | Analgesics, NSAIDs                                                                                | 2 min                     |
| Okai43        | Body aches and pains, cough and colds, diarrhoea, heartburn, skin irritation,   | Cough syrups, analgesics/antipyretics, antihistamines, antispasmodic, antidiarrhoeal, antacids, skin ointment | 6.9 min                   |
| Da Rocha44    | 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                  |
| Albassam45    | Cough and cold, constipation, haemorrhoid, diarrhoea, headache, fever, back    | Cough syrups, laxatives, topical creams, antispasmodic, analgesic, NSAIDs, antihistamine, vitamins and supplements, melatonin | Not stated                |
|               | pain, sore throat, varicose vein, vaginal itching, nausea and vomiting, insomnia |                                                                                                  |                           |
| Wazaify46     | Insomnia                                                                        | Paracetamol + diphenhydramine, valerian + lemon balm, flupenthixol + melitracen, herbal tea      | 2 min                     |
| Elhoseeny47   | Cough and cold, sore throat, heartburn, stomach ache, Skin rash, constipation,  | Cough syrups, analgesics/antipyretics, antihistamines, antispasmodic, antidiarrhoeal, antacids, skin ointment, laxative | Not stated                |
|               | diarrhoea, aches and pain                                                       |                                                                                                  |                           |
| Ibrahim48     | Acute diarrhoea                                                                  | Antibacterial, antidiarrhoeal, antiemetic, oral rehydration salt, adsorbent, analgesic, antibacterial + amoebicidal, vitamin, H2 receptor blocker, antimuscarinic agent | 2 min                     |
| Karim49       | Acute diarrhoea                                                                  | Oral rehydration salt, adsorbent, antispasmodic, antimicrobial, antimotility                      | Not stated                |
| Ogbo50        | Acute diarrhoea                                                                  | Oral rehydration salt, adsorbent, antispasmodic, antimicrobial, antimotility                      | Not stated                |
| Chui51        | Cough/cold, gastric discomfort, diarrhoea, constipation, skin irritation         | Not specified but medications recommended for 54.5% of patients                                  | –10 min                   |
| Gutierrez52   | Diarrhoea                                                                        | Antispasmodic, antidiarrhoeal, oral rehydration salt, antibiotics                                | Not stated                |

(Continues)
| 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 = 42.7%; 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                                                                                      | 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 = 98.9%; 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        |
## TABLE 2 (Continued)

| Study | Minor ailments | Medications provided during MAS | Duration of MA management |
|-------|----------------|---------------------------------|---------------------------|
| Barron53 | Diarrhoea      | Antidiarrhoeal, oral rehydration salt | Not stated |
| Berih54  | Diarrhoea      | Antidiarrhoeal, oral rehydration salt, Antibiotics | Not stated |
| Igun55   | Diarrhoea      | Antidiarrhoeal, oral rehydration salt, Antibiotics | Not stated |
| Saramunee56 | Musculoskeletal pain, cough and colds, eye irritation, allergic rhinitis, dyspepsia, constipation, diarrhoea, ear problems, helminth | Cough syrups, analgesics, anti-diarrhoeal, laxative, antihistamines, antacids, anthelminthic | Not stated |
| Hassali57 | Pain, cough/cold, heartburn, diarrhoea, constipation, allergy/rashes | Cough syrups, analgesics, anti-diarrhoeal, laxative, antihistamines, antacids | Not stated |
| Shehnaz58 | Fever, Headache, cough/cold, sore throat, diarrhoea, constipation, skin rash, nausea, ear ache, eye irritation | Cough syrups, analgesics/antipyretics, antihistamines, antispasmodic, anti-diarrhoeal, laxatives | Not stated |
| Abahussain59 | Fever, headache, cough/cold, diarrhoea, Skin rash/allergies, athlete foot, dandruff | Cough syrups, analgesics, NSAIDs, Antihistamines, antifungal, antispasmodic, Antidiarrhoeal, antidandruff | Not stated |
| Fuentes60  | Headache, musculoskeletal pain, cold and catarrh, constipation, diarrhoea | Cough syrups, analgesics/antipyretics, NSAIDs, laxatives, antihistamines, antispasmodic | Not stated |
| Al-Ramahi61 | Fever, headache, body aches, heartburn cold/cough, diarrhoea, skin rash, constipation | Cough syrups, analgesics/antipyretics, antihistamines, antacids, antispasmodic, anti-diarrhoeal, laxatives | Not stated |
| Mohamad62  | Cough and colds, diarrhoea | Cough syrups, antihistamines, antispasmodic, anti-diarrhoeal | Not stated |
| Santos63   | Headache       | Analgesic (sodium dipyrone)       | Not stated |
| Da Rocha64  | Body aches and pains, cough and colds, diarrhoea, stomach ache, fever, headache | Cough syrups, Analgesics/antipyretics, Antihistamines, antispasmodic, anti-diarrhoeal | Not stated |
| Diwan65    | Acute diarrhoea | Antibiotic, antimotility, Lactobacillus acidophilus, oral rehydration solution, lactulose | 1.3 min |
| Foroughinia66 | Children diarrhoea | Oral rehydration salt, antibiotic | 20.5 min |
| Dabaghzadeh67 | Acne           | Isotretinoin                     | 2.8 min |
| Apikoglu-Rabus68 | Emergency contraception request | Emergency contraception pills | Not stated |

(Continues)
| 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          |
| 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          |
| Symptoms = 93.7%, age = 78.2%; medical history = 29.7%; 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 (≥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), three in North Africa (Egypt, Sudan, Ghana), and eight (26.7%) in Africa (Ethiopia, Nigeria). Two of the studies each were conducted in Latin America and Caribbean (Bolivia, Brazil, Chile and Trinidad and Tobago).

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. About two-thirds of the studies used nonprobability sampling methods (convenience and purposive), 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 questionnaire, followed by the use of simulated patients (36.7%) (11/30), combination of survey and simulated patients (10%) (3/30) and semistructured interview and simulated patients (3.3%) (1/30). 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 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. 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. The most frequent minor ailments reported were respiratory conditions such as cough and cold; gastrointestinal disturbances such as nausea, vomiting, diarrhea, constipation and heartburn; headache and fever; musculoskeletal pain and minor injuries; allergy, skin problems. The most common medicines recommended or requested for were cough and cold preparations including antitussives and antihistamines, antiemetics, antidiarrhoea, laxatives, analgesics (including nonsteroidal anti-inflammatory drugs [NSAID]), antipyretic and skin preparations. 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. Three of the studies also reported occasional recommendation of nonpharmacological interventions by community pharmacists for the management of minor ailments (32.3%).

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. 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% of the studies reported that community pharmacists gathered patient-related information and provided counselling information to a varying degree. Such preliminary information include customers’ age (26.7%, 8/30), signs, symptoms and duration of minor ailments (46.7%, 14/30), 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). In addition, 23.3% (7/30) of the studies did not show evidence of information gathering or counselling to consumers during minor ailment encounters. 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%).

Only one study 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.

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. 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 (≥80%)39,40,43,44,45,46,48,50,51,52,53,54,55,56,57,58,59,60 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 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 consent44,45,47,50,57,58,60,61,62,64,66 could possibly mitigate the risk of bias. Furthermore, the use of simulated patients for data collection in 50% of the studies39,40,41,42,44,46,47,48,50,52,54,55,56,57,58,60,61,62,64,65,67 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.39,40,41,42,44,45,46,47,48,49,50,53,54,55,57,58,60,61,62,64,65,67 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 studies45,62 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 healthcare 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 ailments-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.38,39,40,41,42,43,44,45,46,47,48,49,50,52,53,54,55,56,60,61,62,63,64,65,66,69 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.\(^\text{38}\) The findings of this single study is consistent with those reported in developed settings,\(^\text{5,9,10}\) 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.

### ORCID

Kazeem B. Yusuff https://orcid.org/0000-0001-6512-7879

### REFERENCES

1. Micheal B. William Ostler: A Life in Medicines. Oxford, England: Oxford University Press; 1999.
2. World Health Organization. Self-care in the context of primary health care. WHO Regional Office for South-East Asia; 2009:2-10. http://www.who.int/iris/handle/10665/206352
3. Hughes SA. Promoting self-management and patient independence. Nurs Stand [Internet], 2004;19:47-52.
4. Royal Pharmaceutical Society of Great Britain. Scottish Minor Ailment Service. http://www.rpsgb.org.uk/pdfs/pharmcasestudyminail.pdf. Accessed June 30, 2018.
5. Watson MC, Ferguson J, Barton GR, et al. A cohort study of influences, health outcomes and costs of patients’ health-seeking behaviour for minor ailments from primary and emergency care settings. BMJ Open. 2015;5:e006261.
6. Watson MC, Holland R, Ferguson J, et al. Community Pharmacy Management of Minor Illness (The MINA Study). London: Pharmacy Research UK; 2014.
7. Proprietary Association of Great Britain. PAGB Annual Review. London: PAGB; 2008.
8. Bednall R, McRobbie D, Duncan J, Williams D. Identification of patients attending accident and emergency who may be suitable for treatment by a pharmacist. Fam Pract. 2003;20:54-57.
9. Paudyal V, Watson MC, Sach T, et al. Are pharmacy-based minor ailment schemes a substitute for other service providers? A systematic review. Br J Gen Pract. 2013;63:e472-e481.
10. Mansell K, Bootsman N, Kunzy A, Taylor J. Evaluating pharmacist prescribing for minor ailments. Int J of Pharm Pract. 2015;23:95-101.
11. The Royal Pharmaceutical Society of Great Britain. Better management of minor ailments: using the pharmacist. http://www.rpsgb.org/search/index.asp?q=ailment&sortby=rank+id[d]. Accessed June 30, 2018.
12. Porteous T, Ryan M, Bond CM, Hannaford P. Preferences for self-care or professional advice for minor illness: a discrete choice experiment. Br J Gen Pract. 2006;56:911-917.
13. The World Health Organization. The Role of the Pharmacist in Self-care and Self-medication: Report of the 4th WHO Consultative Group on the Role of the Pharmacist. The Hague, Netherlands; 1998:26-28.
14. Rutter P. Role of community pharmacists in patients’ self-care and self-medication. Integr Pharm Res Pract. 2015;4:57-65.
15. Morris C, Cantrill J, Weiss M. Minor ailment consultations: a mismatch of perceptions. Int J Pharm Pract. 2001;9:R83.
16. Bayliss E, Rutter P. General practitioners’ views on recent and proposed medicine switches from POM to P. Pharm J. 2004;273:819-821.
17. Morris C, Cantrill J, Weiss M. GPs’ attitudes to minor ailments. Fam Pract. 2001;18:581-585.
18. NHS Grampian. Community pharmacy Minor Ailment Service (MAS) formulary. Aberdeen, 2007.
19. Paudyal V, Hansford D, Cunningham S, Stewart D. Pharmacy assisted patient self-care of minor ailments: a chronological review
of UK health policy documents and key events. *Health Policy*. 2011;101:253-259.

20. Pharmaceutical Society of Australia. Better Health Outcomes through Improved Primary Care: Optimising Pharmacy’s Contribution. Canberra, Australia: Pharmaceutical Society of Australia; 2014:67-72. [http://www.psa.org.au/download/](http://www.psa.org.au/download/)

21. Aly M, García-Cárdenas V, Williams K, Benrimoj SI. A review of international pharmacy-based minor ailment services and proposed service design model. *Res Soc Adm Pharm [Internet]*. 2018;14:989-998.

22. The Scottish Government, Primary and Community Care Directorate. *Additional pharmaceutical services, minor ailment service & public health service directions, service specifications and payment arrangements.* NHS Circular: PCA (P) (2008)17, Edinburgh, Scotland; 2008. www.scottishgovernment.gov.uk

23. Pharmaceutical Society of Australia. Towards a Sustainable Health System: Pharmacists Delivering Quality, Readily Accessibly Primary Care. Canberra, Australia: Pharmaceutical Society of Australia; 2012:3-9. [http://www.psa.org.au/do](http://www.psa.org.au/do)

24. Taylor JG, Joubert R. Pharmacist-led minor ailment programs: a Canadian perspective. *Int J Gen Med*. 2016;9:291-302.

25. Brata C, Gudka S, Schneider CR, Everett A, Fisher C, Clifford RM. A review of the information-gathering process for the provision of medicines for self-medication via community pharmacies in developing countries. *Res Soc Adm Pharm*. 2013;9:370-383.

26. Alhomoud FK. Self-medication and self-prescription with antimicrobial agents in the Middle East—do they really happen? A systematic review of the prevalence, possible reasons, and outcomes. *Int J of Infect Dis*. 2017;57:3-12.

27. Brata C, Gudka S, Schneider CR, Clifford RM. A review of the provision of appropriate advice by pharmacy staff for self-medication in developing countries. *Res Soc Adm Pharm*. 2015;11:136-153.

28. Sakeena MH, Bennett AA, McLachlan AJ. Non-prescription sales of antimicrobial agents at community pharmacies in developing countries: a systematic review. *Int J Antimicrobial Agents*. 2018;52:771-782.

29. World Health Organization. *Local production and access to medicines in low- and middle-income countries: a literature review and critical analysis*; 2011. [https://www.who.int/phi/publications/Local_Production_Literature_Review.pdf](https://www.who.int/phi/publications/Local_Production_Literature_Review.pdf). Accessed January 10, 2018.

30. World Health Organization (WHO). The *World Medicines Situation*. 3rd ed. Geneva, Switzerland: WHO; 2011.

31. Moher D, Liberati A, Tetzlaff J, Altman DG; The PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLOS Medicine*. 2009;6:e1000097.

32. Moher D. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Ann Intern Med*. 2009;151:264-269.

33. Manno SE, Schlesinger LE, Wells G, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *BMJ*. 2017;358:j4008.

34. FIP. *Standards for Quality of Pharmacy Services*. The Hague, the Netherlands: International Pharmaceutical Federation; 1993.

35. FIP. *Good Pharmacy Practice in Developing Countries: Recommendations for Stepwise Implementation*. The Hague, the Netherlands: International Pharmaceutical Federation; 1996.

36. WHO. *The Role of the Pharmacist in the Health Care System*. Geneva, Switzerland: World Health Organization; 1988.

37. WHO. *Good Pharmacy Practice: Guidelines in Community and Hospital Settings*. Geneva, Switzerland: World Health Organization; 1996.

38. The United Nations (UN), *World Economic Situation and Prospects* 2019. United Nations, New York; 2019:164-171. [https://www.un.org/development/desa/dpdw/wp-content/uploads/sites/45/WESP2019_BOOK-web.pdf. eISBN: 978-92-1-047611-9](https://www.un.org/development/desa/dpdw/wp-content/uploads/sites/45/WESP2019_BOOK-web.pdf. eISBN: 978-92-1-047611-9)

39. Ibrahim IR, Palaian S, Ibrahim MI. Assessment of diarrhoea treatment and counselling in community pharmacies in Baghdad, Iraq: a simulated patient study. *Pharm Pract*. 2018;16:1313.

40. Ayele AA, Mekuria AB, Tegegne HG, Gebreslassie BM, Mekonnen AB, Erku DA. Management of minor ailments in a community pharmacy setting: Findings from simulated visits and qualitative study in Gondar town, Ethiopia. *PLoS One*. 2018;13:e0190583.

41. Mesquita AR, Oliveira Sa DAB, Lima Santos APA, Almeida Neto A, Lyra DP Jr. Assessment of pharmacist’s recommendation of non-prescription medicines in Brazil: a simulated patient study. *Int J Clin Pharm*. 2013;35:647-655.

42. Hammad EA, Elayeh E, Tubeileh R, Watson M, Wazaify M. A simulated patient study assessing over the counter supply and counseling in Jordan: responding to headache complaints. *Int J Clin Pharm*. 2018;40:982-986.

43. Okai GA, Abekah-Nkrumah G, Asming PO. Perceptions and trends in the use of community pharmacies in Ghana. *J Pharm Policy Pract*. 2019;12:25.

44. da Rocha CE, Bispo ML, dos Santos AC, Mesquita AR, Brito GC, de Lyra DP Jr. Assessment of community pharmacists’ counseling practices with simulated patients who have minor illness: a pilot study, *Simul Healthcare*. 2015;10:227-238.

45. Albasam A, Awad A. Community pharmacists’ services for women during pregnancy and breast feeding in Kuwait: a cross-sectional study. *BMJ Open*. 2018;8:e018980.

46. Wazaify M, Elayeh E, Tubeileh R, Hammad EA. Assessing insomnia management in community pharmacy setting in Jordan: a simulated patient approach. *PLOS One*. 2019;14:e0226076.

47. Elhoseeny TA, Ibrahim SZ, Abo El Ela AM. Opinion of community pharmacists on use of nonprescription medications in Alexandria, Egypt. *J Egypt Public Health Assoc*. 2013;88:79-84.

48. Ibrahim MI, Palaian S, Al-Sulaiti F, El-Shami S. Evaluating community pharmacy practice in Qatar using simulated patient method: acute gastroenteritis management. *Pharm Pract*. 2016;14:800.

49. Karim P, Ramadhin P, Boodoo JR, Kochhar A, Pereira LMP. Community pharmacists’ knowledge and dispensing recommendations for treatment of acute diarrhoea in Trinidad. *West Indies*. *Int J Clin Pract*. 2004;58:264-267.

50. Ogbo PU, Aina BA, Aderemi-Williams RI. Management of acute diarrhoea in children by community pharmacists in Lagos, Nigeria. *Pharm Pract*. 2014;12:376.

51. Chui WK, Li SC. Advice-giving on self-medication: perspectives of community pharmacists and consumers in Singapore. *J Clin Pharm Ther*. 2005;30:225-231.

52. Gutierrez ADM, Liendo AMA, Vladica DC. Attitudes of Bolivian pharmacists in dealing with diarrhoea cases. *Bull PAHO*. 1995;29:322-327.

53. Barron PM, Ehraim G, Hira M, Kathawaroo S, Thomas C. Dispensing habits of Johannesburg pharmacists in treating acute infantile diarrhoea. *S Afr Med J*. 1989;76:487-489.

54. Beril AA, McIntyre L, Lynk AD. Pharmacy dispensing practices for Sudanese children with diarrhoea. *Public Health*. 1989;103:455-458.

55. Igun UA. Report and actual prescription of oral hydration therapy for childhood diarrhoeas by retail pharmacists in Nigeria. *Soc Sci Med*. 1994;39:779-806.

56. Saramunee K, Ploylearmsang C, Chaïyasong S, Phimarn W, Sookanekun P. Unit cost of common illness management: a comparison between a primary care unit and a community pharmacy in Thailand. *Prim Health Care Res Dev*. 2017;18:376-385.

57. Hassali MA, Shafie AA, Al-Qazaz H, Tambahappa J, Palaian S, Hariraj V. Self-medication practices among adult population attending community pharmacies in Malaysia: an exploratory study. *Int J Clin Pharm*. 2011;33:794-799.
58. Shehnaz SI, Khan N, Sreedharan J, Issa KJ, Arifulla M. Self-medication and related health complaints among expatriate high school students in the United Arab Emirates. Pharm Pract. 2013;11:211-218.

59. Abahussain E, Matowe LK, Nicholls PJ. Self-reported medication use among adolescents in Kuwait. Med Princ Pract. 2005;14:161-164.

60. Fuentes Albarrán K, Villa ZL. Analysis and quantification of self-medication patterns of customers in community pharmacies in southern Chile. Pharm World Sci [Internet]. 2008;30:863-868.

61. Al-RR. Patterns and attitudes of self-medication practices and possible role of community pharmacists in Palestine. Int J Clin Pharmacol Ther. 2013;51:562-567.

62. Mohamed SS, Mahmoud AA, Ali AA. The role of Sudanese community pharmacists in patients’ self-care. Int J Clin Pharm. 2014;36:412-419.

63. Santos AP, Mesquita AR, Oliveira KS, Lyra DP Jr. Assessment of community pharmacists’ counselling skills on headache management by using the simulated patient approach: a pilot study. Pharm Pract. 2013;11:3-7.

64. da Rocha CE, Bispo ML, dos S. Alcantara T, de C Brito G, Vieira MJ, de Lyra DP Jr. What do Brazilian community pharmacists know about self-medication for minor illnesses? A pilot study in the northeast of Brazil. J Appl Pharm Sci. 2014;4:012-020.

65. Diwan V, Sabde YD, Byström E, De Costa A. Treatment of pediatric diarrhea: a simulated client study at private pharmacies of Ujjain, Madhya Pradesh, India. J Infect Dev Countries. 2015;9:505-511.

66. Foroughinia F, Zarei P. Evaluation of knowledge, attitude, and practice of community pharmacists toward administration of over-the-counter drugs for the treatment of diarrhea in children: a pretest-posttest survey. J Res Pharm Pract. 2016;5:200-204.

67. Dabaghzadeh F, Hajjari R. Practice of community pharmacists related to multivitamin supplements: a simulated patient study in Iran. Int J Clin Pharm. 2018;40:190-195.

68. Apikoglu-Rabus S, Clark PM, Izzettin FV. Turkish pharmacists’ counseling practices and attitudes regarding emergency contraceptive pills. Int J Clin Pharm. 2012;34:579-586.

69. Crowe M, Sheppard L, Campbell A. Comparison of the effects of using the Crowe Critical Appraisal Tool versus informal appraisal in assessing health research: a randomised trial. Int J Evid Based Health. 2011;9:444-449.

70. Pharmaceutical Services Division, Ministry of Health, Malaysia. Community Pharmacy Benchmarking Guideline. Second Edition, Selangor, Malaysia. 2016:19-21. https://www.pharmacy.gov.my/v2/sites/default/files/document-upload/community-pharmacy-benchmarking-guideline.pdf

How to cite this article: Yusuff KB, Makhlouf 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;75:e14424. https://doi.org/10.1111/ijcp.14424