Abstract

Objectives This study aim to evaluate published original studies in Saudi Arabia about knowledge, attitude, roles and practices of community pharmacists in providing patient centered care services.

Methods Systematic searching of original studies published between 1st January 2007 and 31st December 2017 using electronic databases: PubMed, International Pharmaceutical Abstracts (IPA), Scopus, Science Direct, Cochrane Library, TRiP database, Springer Link, and Google Scholar. Studies were included if they outlined community pharmacist’s knowledge, role, attitude and professional practice behaviors toward patient-centered care provided by pharmacists alone or in collaboration with other health care professional(s). The studies were identified and data was extracted independently by two reviewers. The modified Newcastle-Ottawa scale for cross-sectional studies was used to assess the quality of each study.

Key Findings Twenty-four original studies conducted in Saudi Arabia were included. Majority of studies were questionnaire-based surveys (62.5%). One quarter of the studies investigated knowledge, roles and attitude of community pharmacists about irrational dispensing and prescribing of antibiotics and prescription only medicines. Included studies highlighted numerous gaps in knowledge, attitude, roles and practices of community pharmacists in Saudi Arabia in providing efficient patient-centered care services. Lack of knowledge and time, absence of pharmacy information database, deficiency of continued professional development training, unavailability of adverse drug reaction reporting forms, and professional and cultural issues were some of the barriers in providing patient-centered care.

Conclusions The studies showed that though community pharmacists in Saudi Arabia do provide medicine counselling and other patient-centered care services, however these services need substantial improvement. This review may be useful for policy makers, regulators, pharmacy educators and researchers in understanding the work being done in the community pharmacy setting in Saudi Arabia.

Keywords: Community pharmacy, knowledge, patient-centered care, practices, Saudi Arabia
Introduction

The Kingdom of Saudi Arabia is a high-income country with a population of approximately 27 million and GDP per capita, PPP of US $54416. Ministry of Health (MOH) of Saudi Arabia provides free healthcare services and free of cost medicines to all citizens through primary, secondary and tertiary health care facilities. The extensive health care system of Saudi Arabia is facing challenges from a growing burden of non-communicable chronic diseases (hypertension, obesity and diabetes) which accounts for 71% of all mortality in Saudi Arabia. In addition, the urban population growth and socio-economic indicators in Saudi Arabia are leading to unhealthy eating habits, increased tobacco consumption and lifestyle-related communicable diseases. Therefore, demand for health care services such as periodic check-up of risk factors, monitoring of diseases and early disease detection is increasing.

The vision 2030 of Saudi Arabia is a broad comprehensive plan for reforming the entire economic structure of Saudi Arabia. Regarding healthcare, the vision 2030 of Saudi Arabia emphasizes on increasing private sector share of providing and improving primary healthcare services. As a result, the government of Saudi Arabia has taken measures to deal with the growing demand for primary healthcare from society. The ministry of health of Saudi Arabia has introduced Saudi Health Strategy in 2009, which focuses on supporting information systems in the health care sector and ensuring the quality and efficiency of health care services. The ministry of health is also promoting public-private health care partnership to relieve the pressure on the ministry of health in providing continually demanding efficient public healthcare system.

In Saudi Arabia, about 6000 privately owned community pharmacies offer dispensing of a wide range of pharmaceuticals. These community pharmacies can play a vital role in providing patient centered care services to patients. However, there is a need to revamp and reorganize community pharmacist’s professional role in providing patient centered care services effectively. In comparison with other developed and high-income countries, the patient centered care is in infancy stage in Saudi Arabia.

The MOH of Saudi Arabia ensures that that community pharmacists in Saudi Arabia follow its rules and regulations of drug dispensing and counselling. However, it is a common practice among community pharmacists to dispense prescription only medicines without a prescription from a physician. Medicines are easily accessible to the public and dispensed without proper counselling that could lead to potential harm to patients.

This systematic review documents the studies which evaluate community pharmacist’s roles, attitudes, knowledge and professional practice behaviors towards patient-centered care in Saudi Arabia. This is important in the context to assess the situation in the primary care setting across Saudi Arabia. The study findings would be useful to promote better community pharmacy practice in the country.
Methods

Scope of Review: Eligibility Criteria

PRISMA guidelines were followed in preparing and reporting this systematic review. The review protocol was registered with PROSPERO (Registration number CRD 42017073705). The key themes were community pharmacist’s knowledge, attitude, professional roles and practices towards patient-centered care in Saudi Arabia. The activities included in the scope of patient-centred care in this systematic review include community pharmacist’s effort to promote health, prevent, detect healthcare related problems and promote self-monitoring of diseases by patients. The primary outcome measures include community pharmacist’s knowledge, roles, attitude and professional practice behaviors. Studies reporting community pharmacist’s views regarding barriers to providing patient-centered care were also screened.

Original research articles of either survey-based and/or simulated patient methodology were included if they report one or more of the primary outcomes. The studies were excluded if they do not aim to investigate community pharmacist’s knowledge, attitude, roles and professional practices in providing patient-centered care in Saudi Arabia. They were also excluded if they were not available in full text, was not in English language and published before 1st January 2007. Studies with no clear details on community pharmacist’s roles, attitude, knowledge and practices and those investigating both community and hospital pharmacists were excluded. The studies included were published in past 10 years (2007-2017). We also excluded conference proceedings or abstracts, letters to the editors and short communications.

Information Sources

A literature search of published articles from 1st Jan 2007 till 31st December 2017 was undertaken between 1st November 2017 till 28th February 2018 in seven health-related databases: PubMed, Science Direct, ProQuest central (IPAs), Cochrane Library, Google Scholar, Scopus, and Turning Research into Practice (TRiP) database. Reference lists of articles identified in the search and relevant review articles were included and were subject to the same eligibility evaluation.

Searching

The search strategy identified research on knowledge, roles, attitudes and practice involving community pharmacists in providing patient-centered care. The lead author searched following keywords: “community pharmacy” or “pharmacy practice” or “community pharmacist” or “healthcare system” or “retail pharmacy” or “community pharmacy services” or “pharmaceutical care” or “community pharmacist’s knowledge” or “community pharmacist’s attitude” or “community pharmacist’s role” or “community pharmacist’s practices” and “Saudi Arabia”. Titles and abstracts were screened to remove studies that
were clearly irrelevant to the aim of the review. The full texts of the remaining studies were then examined to determine eligibility.

**Study Selection**

Two investigators (MKR and ZUB) assessed abstracts independently against eligibility criteria. Studies were conducted in community pharmacy settings with the involvement of pharmacists, and reported in English. Full papers of potential studies were independently assessed by the 2 investigators for their suitability. Studies involving the pharmacists in hospitals or other care settings were excluded as the nature and impact of the involvement could vary. After hand searching of retrieved studies for duplicate records, the remaining studies were screened at the title and abstract level by two authors. The two authors reviewed all the studies against the study eligibility criteria and were scrutinized by the lead author to check relevance to community pharmacist’s knowledge, attitudes, roles and practices in providing patient centered care to patients in Saudi Arabia. All studies selected for this systematic review were screened by two reviewers independently to validate the results. Any difference of opinion or disagreement between the authors over the eligibility of a particular study was agreed through mutual discussion.

**Data Collection Process**

The data from all the retrieved studies were subsequently collected and tabulated using a form developed by the lead author that was verified by the second reviewer. Extracted information from studies is mentioned in Table 1. The extracted information included study design, study participants and settings, objectives of the study, response rate and sample size, outcomes measured, summarized results and main findings of the study. Criteria for quality assessment of included studies in this systematic reviews were based on those of the NHS Centre for Reviews and Dissemination (CRD).  

**Assessment of Quality and Risk of Bias in Included Studies**

All authors showed 100% agreement in assessing the risk of bias in all 24 studies through modified Newcastle-Ottawa Scale for cross sectional studies. All authors also agreed in assigning points for the bias assessment. The lead author independently assessed the risk of bias of each of the included studies and discussed their assessments with other two authors to achieve consensus. The modified Newcastle-Ottawa Scale was selected because it was easier to use and considered reliable to measure biasness in cross-sectional studies. Each of the 24 selected studies was evaluated for selection, performance and detection and information bias. The lead author rated each paper using the NOS scale to assess methods for selecting study participants, methods to control confounding, using appropriate statistical methods and methods for measuring outcome variables. The legend of the scale ranges from 0 to 3, in which a score of 0 represents a high risk of bias and a score of 3 represents a low risk of bias.
Results

Search Results and Study Characteristics

The search yielded 211 unique abstracts. After application of eligibility criteria and removal of duplicate records, 28 studies were included. Of these, 4 studies were also excluded because they measured both community and hospital pharmacists’ roles. Finally, 24 studies were selected and included for analysis in this systematic review (Figure 1).

Twenty-four studies met the inclusion criteria of this systematic review. The Figure 1 illustrates the study selection process and Table 1 summarizes the studies included in this systematic review. The majority of studies were conducted in Riyadh, followed by five in Al-Ahsa and three in Al-Qassim region of Saudi Arabia. Two studies were performed in Makkah/Jeddah region. One study was performed each in Al-Kharj, Madina and Dwadmi. Three studies were conducted in multiple cities in Saudi Arabia. One study was conducted in Riyadh, Buraydah and Hail, one in Riyadh and Jeddah, and one in Riyadh, Jeddah, Makkah and Madina. Majority of studies were questionnaire-based surveys, while two studies used face to face interview and questionnaire-based survey as their evaluation method. The remaining two studies used both questionnaire based survey and simulated patient methodology. Three questionnaire based survey studies had a response rate of less than 70%, among them one had a response rate of only 36%. One study did not report the response rate at all.

Majority of studies in this review investigated the knowledge, role and attitude of community pharmacists about irrational dispensing and prescribing of antibiotics and over the counter drug dispensing followed by the counselling practices of community pharmacists. Three studies investigated the knowledge of community pharmacists about proper use of inhalers and three studies explored the attitude and practices of adverse drug reaction reporting by community pharmacists in Saudi Arabia. Community pharmacist’s knowledge and practices of pharmaceutical care were evaluated by two studies. There were five studies which targeted specific areas of pharmaceutical care like community pharmacist’s knowledge attitude and practices to provide medication counseling and patient education in oral health, herbal products, pregnancy and mental illnesses. All studies included in this review represented community pharmacist’s knowledge, role, attitude and professional practices toward the patient centered care.

Outcome evaluation

Four main outcomes of community pharmacist’s knowledge, role, attitude and practice toward patient centered care were identified and their analysis were carried out accordingly. Most of the included studies in this systematic review evaluated more than one outcome which is mentioned in Table 1.
Pharmacist’s knowledge of patient centered care

Two studies observed that community pharmacist’s had inadequate knowledge to educate patients with asthma on correct use of inhalers. Another study showed similar results, however, the majority of community pharmacists in that study considered their basic knowledge about asthma as satisfactory. Three studies reported that adverse drug reactions are under reported by community pharmacists and only a small number (10-22%) of community pharmacists were even familiar with the adverse drug reaction reporting process in Saudi Arabia.

One study by Alrabiah et al., (2017) found that only 54% of the community pharmacists ask female patients about pregnancy status before dispensing medicines. Similarly, another study showed that only 53% of the community pharmacists surveyed had knowledge about the correct pregnancy risk category of medicines. Al-Kharfy et al., (2010) reported that despite the high proportion of herbal medicine use in community pharmacies of Saudi Arabia, the knowledge of community pharmacists about the safety of herbal medicines and herb-drug interactions was moderate. A study done by Abdulhak et al., (2011) showed that majority of the surveyed community pharmacists lacked the appropriate knowledge to provide effective counseling while dispensing antibiotics.

The majority of community pharmacists cited lack of time and deficiency of continuing professional development training as main barriers in providing appropriate medication counseling to patients.

Pharmacist’s attitude toward the patient centered care

The majority of community pharmacists in Saudi Arabia did not recognize that irrational use of antibiotics by patients can cause potential harm and could lead to antimicrobial resistance. One study revealed that only 26.5% of community pharmacists felt confident in providing oral health advice to patients. Similarly, in another study medication counseling provided to simulated cardiac patients were found to be inadequate. Another study reported that more than half of community pharmacists (56%) expressed concern about the safety of herbal products. In an another study, majority of community pharmacists dispensed psychotropic medications upon patient’s request without a prescription and without understanding the potential harm that may cause to the patients. In two studies, most of the participating community pharmacists believe that the adverse drug reaction reporting is the responsibility of the physician or the hospital pharmacist.

A study by Gillani et al., (2017) performed in four major cities of Saudi Arabia with a sample size of 1257 community pharmacists found that almost two-third of the surveyed pharmacists (66%) refused to provide pharmaceutical care services citing lack of knowledge and pharmacy information database. By contrast, another study showed a positive attitude in providing the patient centered care towards mentally ill patients, however, community pharmacists felt uncomfortable in counseling and following up of mentally ill patients in the study.
Pharmacist’s role in the patient-centered care

Two studies reported that despite acknowledging that reporting adverse drug reaction is part of the professional role of the community pharmacist, the majority of them didn’t report adverse drug reactions observed by patients. Similarly, four studies in this systematic review also showed that community pharmacists performed irrational prescribing and dispensing of antibiotics.

A study done by Al-otaibi et al., (2016) assessed that the role of community pharmacist in managing asthmatic patients was inadequate. Nine studies performed in different cities and regions of Saudi Arabia observed that the role of community pharmacists in providing effective medication counseling to pregnant women, cardiac and patients with diabetes and mentally ill patients specifically was limited and deficient of patient-centered care practices.

Pharmacist’s professional practice behaviors with respect to patient-centered care

Although community pharmacists in Saudi Arabia were approached frequently by the patients for advice on health and drug related problems, only a few of the community pharmacists surveyed provided appropriate medication counseling and health related advice to patients. The majority of community pharmacists in their current practice did not report adverse drug reactions to the MOH of Saudi Arabia. Studies in this systematic review showed that majority of the surveyed community pharmacists dispensed and prescribed antibiotics, antipsychotics, antihypertensive, anti-diabetics and other non-over the counter medications upon patient’s request only and without a prescription from a physician. A study by Abdulhak et al., (2011) observed that majority of the community pharmacists dispensed antibiotics for common infections without asking about the associated symptoms. Another study done by Alfadl., (2018) et al reported that medication counseling skills of the majority of surveyed community pharmacists were of the poor standard. It was observed by Nahid et al., (2016) that taking patient history before dispensing medications was performed by half of the community pharmacists, while only 16.5% asked about medication allergy history and only 12.5% monitored the outcome of patient’s drug therapy. By contrast, one study showed that 89% of the community pharmacists asked about pregnancy status before dispensing a medication which can have an adverse effect on pregnant patients. In another study, Bawazir et al., (2014) observed that majority of community pharmacists provided medication counselling to patients based on their personal experiences with the medicine rather than scientific knowledge.

Risk of bias in included studies

Four studies in this systematic review were thought to be unrepresentative of the general population because they included a small sample population size of community pharmacists. Half of the selected studies in this systematic review received a high risk of detection bias for assessment of statistical methods in studies because...
it is thought that they didn’t use statistical methods appropriately. Seven studies received high risk of bias in the assessment of their outcomes.

Discussion

The present study found that community pharmacists in Saudi Arabia are frequently approached by patients and the general public to seek health-related advice, medication counselling, and for multiple drugs or disease related problems. However, the knowledge and attitude of the majority of community pharmacists in Saudi Arabia are inadequate and unsatisfactory to provide quality patient-centered care services. By contrast, a study by Salah Abu Ruz et al., (2012) evaluated that community pharmacists in Jordan have very good attitude and understanding of the pharmaceutical care.

This review documented that community pharmacists in Saudi Arabia provide inadequate and poor quality medication counseling and instructions on medicines to patients. Similar results were found in a previous study done by Hasan et al., (2012) in the United Arab Emirates, which reported that only 28% of the surveyed community pharmacist provided medication counseling to patients. In comparison, a previous study by van Eikenhorst et al., (2017) reported that community pharmacists in the United Kingdom and other developed countries do provide medication counseling but only to a limited number of patients. Providing appropriate medication counselling and instructions to patients, for example, proper inhaler techniques to achieve therapeutic outcomes is a vital area for pharmacists for further improvement.

The results of this review evaluated that majority of community pharmacists had insufficient knowledge of the pharmacy laws and regulations regarding adverse drug reaction reporting in Saudi Arabia. As a result, the majority of community pharmacists are not aware of adverse drug reaction reporting procedures of the MOH of Saudi Arabia. Hence adverse drug reactions are either under reported or not reported at all by community pharmacists. This is very different in Canada where the majority of community pharmacists are familiar with adverse drug reaction reporting process and almost two third of them report it as well.

This review assessed that the community pharmacist in Saudi Arabia commonly prescribes and dispenses a wide variety of prescription only medications such as but not limited to antibiotics, cardiovascular and antidiabetic medications. This is consistent with the practice of community pharmacists in other parts of the Middle East where prescription only medicines are dispensed without prescription quite commonly. This practice could lead to misuse of medicines, treatment failures, over or under dosage, unnecessary costs and antimicrobial resistance in Saudi Arabia.

This review evaluated that the majority of the community pharmacists in Saudi Arabia is of the view that they need additional training and continued professional programs to deliver patient centered care effectively. One of the study in this review found that
continue professional development of community pharmacists are necessary because overwhelming majority of them are expatriates with diversity in educational background and training from their respective countries 29. According to the results of this review, specific area of continue professional development need to be targeted that can be beneficial for community pharmacists in providing adequate patient centered care.

The results of this review showed that majority of community pharmacists cited logistical barriers like unavailability of adverse drug reaction reporting forms, lack of time and professional environment and cultural barriers as main barriers in providing effective patient centered care services 24,26,27,29–32,38.

Future research is needed around issues such as factors impacting pharmacist’s attitude as well as what constitute better knowledge and skills for pharmacists’ care services in Saudi Arabia. Knowledge gaps can then be identified to determine relevant and specific continued professional development programs for their training and development of clinical competencies.

**Limitation of the review**

There were very few studies in Saudi Arabia on the topic depicting that more mature validated work is needed on the issue. Some of the included studies either had the poor sample size, inadequate statistical measurements, poor response rate or inappropriate outcomes. This may lead to inconsistencies in the survey findings.

**Conclusion**

The studies showed that though community pharmacists in Saudi Arabia do provide medicine counselling and other patient-centered care services, however these services need substantial improvement. This review may be useful for policy makers, regulators, pharmacy educators and researchers in understanding the work being done in the community pharmacy setting in Saudi Arabia.

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**References**


