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Public attitudes towards community pharmacy in Arabic speaking Middle Eastern countries: A systematic review

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ABSTRACT

Background: Over the last few years, pharmacy practice in the Arab regions of the Middle East has started to change and develop. There have been small but promising steps to recognize the importance of extending community pharmacists' roles to meet the expanding public healthcare demands.
Objectives: This systematic review aims to identify, synthesize and assess the quality of the literature in the Middle East concerning public attitudes on community pharmacist role and services and in relation to public perceptions on strategies to improve pharmacy services and the image of community pharmacist.
Methods: A systematic search of 11 electronic databases was conducted to identify all published relevant studies from inception till January 2020. Data was extracted using a designed and tested tool. Studies were assessed for quality using Crowe Critical Appraisal Tool.
Results: The final study results included 36 studies of which 31 adopted a cross-sectional-survey-based design. Included studies were published between 2004 and 2019. Most studies were done in Saudi Arabia (n = 11) or the United Arab Emirates (UAE) (n = 10). We identified four overarching themes across included studies 1) Use of Community Pharmacies; 2) Attitudes towards Community Pharmacist role; 3) Attitudes towards Current Community Pharmacy Services and 4) Strategies to Improve Community Pharmacy Practice. The most common reason for visiting a community pharmacy was to purchase a prescription or over-the counter-medication. The most common factors that affected patients' choice of a particular pharmacy included convenient pharmacy location, availability of a good range of products or medicines, friendliness of the pharmacy staff and convenient pharmacy opening hours. There was a general public perception of community pharmacist as a business oriented person. Expectations of pharmacist duties included treatment of minor health ailments, consultation on over-the-counter medications and parapharmaceutical products, and accuracy checking of dispensed medications. Overall satisfaction with community pharmacy varied between the studies and ranged from 33% to 67.1%. Most commonly reported recommendations to improve pharmacy practice were provision of diagnostic, screening and monitoring services, keeping patient records in the pharmacy, advice on minor illness and provision of a private area for consultation. Seven articles were considered of low quality and 13 articles were considered of high quality.
Conclusions: While the public in the Middle East has a good understanding of the basic duties of a community pharmacist, there is lack of awareness of advanced pharmaceutical services. Decision makers in Middle Eastern countries should set strategies to improve community pharmacist professional image and competence beyond medication dispensing.

Introduction

Community pharmacists are considered one of the most accessible healthcare professionals and the first point of contact for the public. They are in an ideal position to perform a variety of activities including promoting health, educating patients, encouraging appropriate use of

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medications, identifying, preventing, and resolving drug therapy-related problems.[1] The shift of community pharmacy practice away from traditional dispensing has had a positive impact on patient centered care.[2] Studies have shown that the implementation of pharmaceutical care services can advance patient health outcomes and decrease healthcare costs.[2–4] Moreover, when community pharmacists are involved in the management of chronic conditions including diabetes, hyperlipidemia, HIV/AIDS, cardiovascular and respiratory diseases, patient clinical outcomes are improved.[5]

Implementation of pharmaceutical care necessitates the establishment and the maintenance of a professional relationship between pharmacists and patients. This relationship is based on mutual care, trust, communication, and collaboration.[2] Challenges can occur when patients and pharmacists have different expectations of pharmacists' roles or services. It has been previously demonstrated that patients who have low expectations for receiving a pharmacist consultation usually receive a poor consultation.[6] Furthermore, to improve the use of comprehensive pharmacy services in the management of chronic health conditions, public understanding of community pharmacists' abilities is very crucial.

Given the patient centeredness of the pharmaceutical care process, patients' opinions and attitudes towards the provided care are important. Public perceptions are considered indicators of service quality.[6] Assessing public attitudes towards community pharmacy services is vital to improve the quality of pharmacy services, to assess the demand for new services and to enhance communication between pharmacists and patients.[7]

Several studies have assessed public satisfaction and expectations towards community pharmacy in the world. In Canada, the public had positive expectations of community pharmacists' knowledge and ability to expand their scope of practice.[8] On the other hand, Chinese patients were dissatisfied with their experiences with community pharmacists with a general distrust in pharmacists' qualification, knowledge, and skills.[9] Furthermore, a recent systematic review synthesized the studies that assessed patient and public perspectives on the role of community pharmacists in the United Kingdom (UK) and the different services they provide. It concluded that the general public had positive opinions regarding community pharmacy services and perceived these services as beneficial.[10] In another study, consumers visiting community pharmacies in Malta had positive overall perceptions of community pharmacists and their services.[11]

The Arab world consists of countries in the Middle East and North African region in which Arabic is the official language. Arabic-speaking Middle Eastern countries include the Gulf Cooperation Council (GCC) countries, Yemen, Iraq, Egypt, and Bilad Al-Sham (Syria, Lebanon, Jordan, and Palestine).[12] Being geographically close, these countries share a common history, language, climate, and culture. The similarities, in terms of challenges and opportunities in pharmacy practice and education, are far more than the differences between these countries.[13]

There are 104 pharmacy schools in the region. The number of pharmacy schools ranges from 1 in Qatar and Kuwait to 26 in Egypt.[14] Despite a small variability in educational and licensing requirements between the different countries in the region, the bachelor of pharmacy degree is the first professional degree to practice and is typically 5 years in duration.[15] In order to be licensed, the pharmacy graduate must complete a specified number of hours of practical experience.[15] Some countries, including Egypt, Lebanon, and Jordan have restrictions on the licensing of expatriates. However, in many cases pharmacy graduates from these countries work in other Arab countries such as UAE, Qatar, and Bahrain.[13]

The majority of pharmacists in the Middle East work in community settings, and almost all community pharmacies are privately owned.[13] Community pharmacy practice in these countries is normally governed by a national Ministry of Public Health or an equivalent governmental entity.[16] This governance is implemented through laws that describe community pharmacy ownership, physical requirements, practice and quality assurance, pharmacist registration, and licensure in addition to drug regulation and pricing.[16] The laws that govern community pharmacy in the region are outdated with some laws dating as far back as 1980 in some countries.[16] These laws do not reflect the advancement of the pharmacy profession over the last twenty years.[16]

The current scope of community pharmacy practice focuses on medication dispensing and basic counseling activities. The services offered by community pharmacists are mainly traditional with the minimal provision of patient centered or cognitive services. All the technical duties of preparing medications, compounding, dispensing medications and maintaining inventories are mainly handled by licensed community pharmacists.[15,17] While monitoring and screening services are not prohibited, they are not commonly offered.[16] There are no legal obligations for pharmacists to provide detailed medication information to patients. Furthermore, community pharmacies are not obligated by law to maintain patient medication records or any kind of computerized information database[13]

In terms of medication regulations, the majority of medications are available over the counter in community pharmacies in the Middle East. Only a few medications are classified as prescription medications including controlled drugs, narcotics, and psychotropic therapy.[16] Despite the limited services provided by community pharmacists and because of these relaxed regulations community pharmacists have a huge responsibility to ensure the safe, effective and rational use of medications and to offer the best quality care to patients.

Over the last few years, pharmacy practice in the Arab regions of the Middle East has started to change and develop. There have been small but promising steps from policymakers to recognize the importance of extending community pharmacists' roles to meet the expanding public healthcare demands. Several Middle Eastern countries have started crafting new roles for community pharmacies in offering advanced services including developing pharmacy strategies, updating current rules and regulations, and setting requirements for continuous professional development for pharmacists.[18] For instance, Qatar Ministry of Public Health launched Community Pharmacy Strategy as part of its national health strategy to establish a community pharmacy network and to increase the efficiency of community pharmacies and improve their integration with other healthcare providers.[19]

Moreover, community pharmacists in the Middle East started demonstrating positive attitudes towards pharmaceutical care activities and readiness to engage in patient-centered activities such as medication therapy management, diabetes care, and tobacco use cessation to optimize patients' therapeutic outcomes and quality of life.[20–24]

Advancement of community pharmacy practice in the Middle East through successful implementation of pharmaceutical care services requires an in-depth understanding of the patients' perceptions, attitudes, and expectations regarding the professional role of pharmacist and their satisfaction with the current pharmacy services. While many studies have been conducted to assess the public's attitudes toward the role and practice of community pharmacists in different Middle Eastern countries, there is need to synthesize this available evidence to obtain an aggregate and holistic picture of community pharmacist's image in this region. An insight into the public awareness and understanding of pharmacist role is vital for policymakers, researchers and pharmacists to secure optimal development and implementation of community pharmacy services that satisfy the patients' expectations and increasing healthcare needs.

This systematic review aims to identify, synthesize and assess the quality of the literature in the Middle East concerning public attitudes on community pharmacist role and services and in relation to public perceptions on strategies to improve pharmacy services and the image of community pharmacist.

Methods

Protocol and registration

The protocol for this systematic review was developed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.[25] The protocol was registered and is available on PROSPERO at the Centre for Reviews and Dissemination, University of York, United Kingdom (CRD42018111266).

Data sources and search strategy

A systematic and comprehensive search was conducted through the following databases and search engines from inception to January 2020: PubMed, Cochrane Central Register of Controlled Trials (CENTRAL), EMBASE, SCOPUS, ProQuest, Web of Science, Institute for Scientific Information (ISI), Elsevier Science Direct, Medline via Web of Science and via ProQuest, Prospero and Google Scholar. In addition, the bibliographies of key retrieved articles were manually searched to include other relevant articles that were not identified in the initial search. Different search terms were combined from 6 categories using Boolean operators.

The keywords were modified based on individual databases (for example: using MeSH terms in PubMed and Emtree in EMBASE databases). No restrictions were applied for this search in terms of language or publication date (Table 1: Search Terms).

Eligibility criteria and studies selection

Studies were included in this systematic review if the study population included patients or members of the public and reported their perceptions of community pharmacist roles, care or practice in the Arabic speaking Middle Eastern countries. Countries included Bahrain, Egypt, Iraq, Jordan, Kingdom of Saudi Arabia (KSA), Kuwait, Lebanon, Oman, Palestine, Qatar, Syria, United Arab Emirates (UAE), and Yemen. These countries were selected based on their geographic proximity and similarities in language and culture. Reviews, letters, editorials, and commentaries and studies not published in English were excluded.

Search of electronic databases was conducted to identify studies that are potentially eligible for inclusion in the review. Titles and abstracts of studies were reviewed independently against the criteria listed above by two study investigators (RE and RM). Articles meeting the study objectives were selected.

Moreover, these two investigators (RE and RM) independently read the full-text of each study identified from the title/abstract screening for inclusion in the review. Any discrepancies or disagreements, at all the study stages of screening and retrieving studies, were resolved through discussions with a third peer reviewer (MH and/or AE).

Table 1
Search terms.

Category	Search terms
P	Patient OR public OR society OR customer OR person OR people OR consumer OR client OR buyer OR purchaser OR community
I	Pharmacist OR pharmacy
I	role OR performance OR service OR image OR practice OR advice OR care OR consult*
O	View OR perception OR use OR satisfaction OR attitude OR expect* OR understand* OR visit OR select* OR perceive OR perspective OR choice OR choose Or opinion OR trust OR evaluat* OR need
c	Not applicable
Context	Middle east OR ME OR Gulf OR Qatar OR Iraq OR Syria OR Lebanon OR Oman OR Jordan OR Palestine OR KSA OR UAE OR Bahrain OR Saudi Arabia OR United Arab Emirates OR Yemen OR Kuwait OR Egypt OR Arab OR GCC
S	Randomized clinical trial OR RCT OR Observational OR Retrospective OR Qualitative OR Quantitative OR Prospective OR Case Control OR Cohort OR Case series OR Surveys

Data extraction and quality assessment

A standardized data extraction form was developed by the study investigators based on the main items that should be reported in a systematic review as per PRISMA statement.[25] The form was piloted on three included studies. The following information were extracted from each study: authors, year of publication, country, objectives, study design and time of data collection, subject recruitment setting, inclusion and exclusion criteria, participants' characteristics, main study outcomes, study tool, study results, limitations and other information.

The quality for each included study was independently assessed by two study investigators (RE and RM). Disagreements were resolved through discussions and consensus with the project leader (MH). The studies were assessed using Crowe Critical Appraisal Tool (CCAT). CCAT is a validated tool that consists of eight categories with 22 items. The categories include: preliminaries, introduction, design, sampling, data collection, ethical matters, results, and discussion. A score from zero to five is given to each category with a maximum total score of 40. Total score in percentage (%) is also calculated for each study.[26] The reviewers read the CCAT user guide to help in their quality assessment process.

Data synthesis and analysis

Based on the extracted data, textual summaries and summarizing tables were developed in relation to the main study objectives and study characteristics including study design, study setting, year of publication, participants' characteristics and other relevant information.

Study results were synthesized and presented using descriptive statistics and themes based on Braun and Clarke's principles for thematic analysis to narratively describe and compare findings.[27] Prevalent common findings were considered for this higher order categorization and compared between studies to identify similarities or trends. Common themes were further assessed to understand their essential connotations.

The CCAT scores for each study were compared between the two study investigators (RE and RM) and a consensus was made on a final score for each study. Disagreements were resolved through discussions with the lead investigator (MH). Since there are no cut-off CCAT scores to decide about the quality of studies, Statistical Package for the Social Sciences (SPSS®) was used to calculate the 25th, 50th, and 75th percentiles of the scores. Studies with a score below the 25th percentile were considered of low quality. While studies with a score between the 25th and 75th percentiles were considered of moderate quality. Finally, studies with scores above the 75th percentile were considered of high quality. This approach has been previously used by Donnelly et al.[28]

Results

After the search of databases, 15,050 records were identified in addition to 14 records manually identified from other sources. After removing the duplicates, screening the abstracts, assessing the full texts of certain articles, 36 articles were eligible to be included in this review (Fig. 1).

Table 2 summarizes the characteristics, outcomes and main results of the included studies.[29–64] Two articles were related to the same study hence their results are combined in Table 2.[60,61]

Study date of publication and country

Included studies were published between 2004 and 2019. Most studies were done in Saudi Arabia (n = 11) followed by the United Arab Emirates (UAE) (n = 10). Other studies were conducted in Jordan (n = 5), Qatar (n = 2), Iraq (n = 2), Kuwait (n = 1), Lebanon (n = 1), Palestine

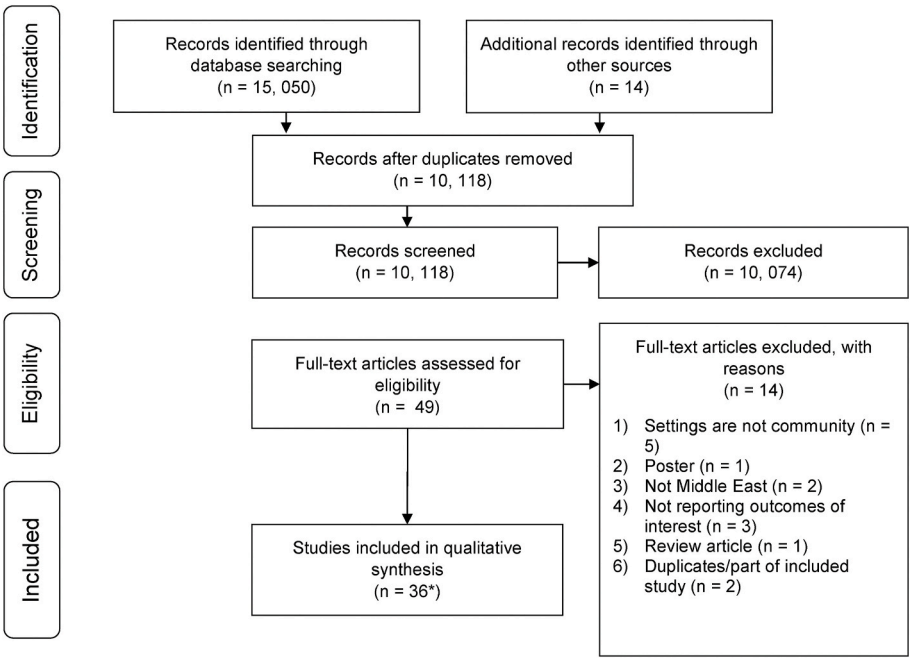

Fig. 1. Articles selection process.
*Two articles were related to the same study.

(n = 1), or Oman (n = 1). One study was conducted in collaboration between teams from UAE, Iraq, and Jordan.[52] No studies were available from Yemen, Syria, Bahrain or Egypt (Table 2).

Study design

The predominant study design was cross-sectional survey (n = 31). One study was multi-method design including literature review, phone interviews, and questionnaire.[29] One study explored patient opinions as part of an intervention trial where patients with diabetes received reminder packages,[30] another study reported a novel instrument for evaluating patient satisfaction with pharmacy services within the Arabic context,[42] and one study used a qualitative (phenomenology) approach employing focus groups.[44]

Study setting

Most studies were conducted exclusively at community pharmacies (n = 22). Two studies were conducted in both community pharmacies and public places/shopping centers.[29,38] Other studies recruited participants from a variety of other public places and government offices, as well as from other patient care settings.[39,42–44,47,50,51,58,60–62]

Participants' characteristics

The majority of studies reported recruitment of adult patients (above the age of 16) (n = 19). One study specifically enrolled only patients taking oral anti-diabetic therapy[30] and another study targeted adult female residents in Saudi Arabia.[33] The focus group study included students and alumni of one university in UAE.[44] The number of study participants ranged from 25 participants[44] to nearly 3000 participants.[48] The collaborative study between researchers in UAE, Iraq, and Jordan enrolled 2968 participants.[52]

Thematic analysis

We identified four overarching themes across included studies: 1) Use of Community Pharmacies; 2) Attitudes towards Community Pharmacist role; 3) Attitudes towards Current Community Pharmacy Services and 4) Strategies to Improve Community Pharmacy Practice. We describe each theme and outline corresponding subthemes below (Fig. 2).

Use of Community Pharmacies

The main reasons for visiting community pharmacies were to get prescription medications or to purchase over the counter medications. Less common reasons were to seek pharmacist advice or to buy para-pharmaceutical products or cosmetics. Community pharmacies were frequently visited from the public with at least one visit per month as reported in 10 studies. [28,36,39,47,53,56,58,59,62,64.] Being loyal to the same pharmacy was another reported finding. For instance, over 50% of participants in three studies indicated being loyal to the same pharmacy. [45, 46, 47.] The most common factors that affected patients' choice of a particular pharmacy included convenient pharmacy location, availability of a good range of products or medicines, friendliness of the pharmacy staff and convenient pharmacy opening hours. For example, proximity of pharmacy location was perceived as an important factor by over 50% of participants In 7 studies.[36,39,40,44,49,55,56]

Attitudes towards community pharmacist role

There was a general public perception of community pharmacists as a business oriented person. For instance, more than 30% of participants in 11 studies considered pharmacists as business people or mere vendors/dispensers of medications.[31,37,39,44,46,51,53,55,57,60,61,63]

Expectations of pharmacist duties included treatment of minor health ailments, consultation on over-the-counter medications and parapharmaceutical products, and accuracy checking of dispensed medications. For instance, over 60% of participants in 5 studies expected the pharmacist to treat minor illnesses.[39,40,44,54,55] Another expected task was medication counseling with over 70% of participants in 6 studies agreeing that the pharmacist should provide counseling directions on medication use.[39,40,52–54,63] Conducting screening for specific health conditions or diseases including hypertension and diabetes and monitoring or following up patient progress were not common

Table 2
Characteristics and outcomes of included studies.

Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
Al Aqeel, S. et al.[29]	2018	Saudi Arabia/Community pharmacies and different shopping centers	Mixed method (literature review + phone interviews + questionnaire)	n = 120	**Top Pharmacist attributes and their prioritization (RIS: Relative Importance Score)** - Quality of the information provided during consultation (9.7) - Type and depth of consultation (8.86) **Use of community pharmacies** Frequency of visiting a community pharmacy in the last month/- 0 times (30%) - 1–2 times (40%) Common reasons to visit a community pharmacy - Non-prescription medications (38%) - Cosmetics and baby (28%)
Abduelkarem, A. et al.[30]	2009	United Arab Emirates (UAE)/Community pharmacies	Intervention trial where diabetic patients received reminders packages + survey completed at 3 months	n = 5959	**Attitudes towards community pharmacist role** - "My pharmacist can help me decrease my blood glucose level" Response Mean ± SD (P < 0.001) o Baseline: 2.80 ± 1.11 o 3-months: 3.54 ± 1.2- "I like the idea of being able to have a diabetes test done in a pharmacy" Response Mean ± SD (P = 0.112) o Baseline: 3.19 ± 1.42 o 3-months: 3.58 ± 1.30
Al-Arifi, M. N.[31]	2012	Saudi Arabia/Community pharmacies	Cross-sectional survey	n = 169	**% of respondents who answered yes** **Attitudes towards community pharmacist role** - The pharmacist is a mere vendor/dispenser of prescription drugs (37.3%) - A pharmacist is an indispensable and effective part of the health care system (44.6%) **Attitudes towards current community pharmacy services** - The pharmacist is available at the designated hours (71.4%) - Counseling offered without asking (38.5%) - The pharmacist instructs about timings of drug administration (51.2%)
Alhaddad, MS[32]	2018	Saudi Arabia/Community pharmacies	Cross-sectional survey	n = 953	**Attitudes towards current community pharmacy services** - Pharmacists spend enough time with the patient during prescription dispensing/% of always (34.4%) - Pharmacists respond to all patient's questions/% of always (46.1%) **Use of community pharmacies** - "I buy medications from different pharmacies"/ Always% (47.6%) - "I ask pharmacists with all the information related to my medicines"/Always% (42.3%) **Strategies to improve community pharmacy practice** (SA&A**%) - MTM* would be beneficial for patient care (89%) "If the MTM* program is implemented in community pharmacies I would register in this program" (70.3%)
Alhaddad, M. S. et al.[33]	2018	Saudi Arabia/Community pharmacies	Cross-sectional study	n = 822	**Attitudes towards community pharmacist role** Source of information about medication - Pharmacist (49.9%) - Physician (52.6%) **Attitudes towards current community pharmacy services** Females' satisfaction with male community pharmacist's performance in community pharmacy (% yes: 35.3%)

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Table 2 (*continued*)

Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					Reasons of low satisfaction with male pharmacists Embarrassing to discuss with male pharmacist (39.9%) Major problems faced at community pharmacy - Embarrassing to discuss with male pharmacist to consult specific female needs (63%) **Strategies to improve community pharmacy practice** Respondents' need for the presence of female pharmacist in the community setting (SA&A**%) - Need of a female pharmacist to provide assistance in community pharmacy (77.3%) - Difficulty or embarrassment while talking to a male pharmacist (71%) - Presence of a female pharmacist in community pharmacy encourages more visits (69.8%)
Alhomoud, F.K. et al.[34]	2016	United Arab Emirates (UAE)/Community pharmacies	Cross-sectional, survey	n = 415	Cut-off point = 3 **Attitudes towards current community pharmacy services** Items on communication quality/mean ± SD = 3.18 ± 0.46 - Receiving medication with care and full attention/ mean ± SD = 3.26 ± 0.62 - Allocating time to answer patients' questions/mean ± SD = 3.08 ± 0.64 Items on consultation quality/mean ± SD = 2.92 ± 0.76 - Giving explanations on when and how to know if the medication is working/mean ± SD = 2.98 ± 0.77 - Providing medication counseling and encouraging patients to raise questions regarding medications/ mean ± SD = 2.84 ± 0.89 Overall satisfaction regarding community pharmacy services/mean ± SD = 3.22 ± 0.60
Alomar, M. J. et al.[35]	2015	United Arab Emirates (UAE)/Community pharmacies	Comparative study between male and female patients using a cross sectional survey	n = 500	**Attitudes towards current community pharmacy services** General preference of the gender of the pharmacist: - No preference (49.2%) - Female pharmacist (32.4%) "If you go to a pharmacy and find only a female pharmacist, would you ask your question?" (Yes%) - Female participants (93.7%)
Ibrahim IR. et al.[36]	2013	Iraq/Community pharmacies	Cross-sectional study	n = 410	**Attitudes towards community pharmacist role** Scores for all items indicated that the majority of respondents (79.8%) had negative attitudes (low scores) towards the current role of community pharmacist/(SA&A**%) - "Pharmacist takes my prescription and initiates a dialogue with me to obtain sufficient information" (43.2%) - "Pharmacist asks me about the disease that I suffer from" (38.8%) - "Pharmacist checks my prescription for accuracy in term of name of drug and dose" (35.7%) - "Pharmacist gives me enough time to discuss my problem and listen to me carefully" (43.2%) First person contacted: - Pharmacist (55.4%) - Physician (25.0%) **Attitudes towards current community pharmacy services** Required pharmacist characteristics: - Medication knowledge (57.3%) - Good understanding of consumers (24.0%) **Use of community pharmacies** Frequency of visiting community pharmacies - Visited community pharmacies once or more/ month (64.9%)

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Table 2 (*continued*)

Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					The main reasons for such visits - Purchase medicines (71.2%) Factors that would lead to select any particular pharmacy - Nearest location of a pharmacy (52.2%) - Knowledge of the pharmacist (20.2%)
Alotaibi HS et al.[37]	2014	Saudi Arabia/Community pharmacies	Cross section survey	Not reported	**Attitudes towards community pharmacist role** Pharmacists are committed to dispense medications with prescription: Yes (28%) Thoughts about community pharmacists: - Businessman (27%) - More attention to business side (34%) **Attitudes towards current community pharmacy services** "How did you get most of your needs of medications from pharmacies?" - With prescription (22%) - Without prescription (20%) "Do you feel embarrassed to ask the pharmacist a question related to your health?" Yes: (48%) "Do you think that the pharmacist in the community pharmacy gives you enough information about the medications?" Yes: (52%) Pharmacist behavior while dispensing: - Give instruction and encourage questions (22%) - Did not pay attention (36%) **Strategies to improve community pharmacy practice** "Do you support the development of private space for consultation to maintain consumer privacy?" Yes: (94%)
Al-Tannir M et al.[38]	2016	Saudi Arabia/Community pharmacies and public places	Cross-sectional study	n = 500	**Attitudes towards current community pharmacy services** Overall satisfaction with pharmacy services (41.21%) Patient satisfaction of pharmacy services (% of satisfaction) - Pharmacist asks on current medication (33.2%) - Explains dosage regimen (85.6%) - Explains side effects (24.6%) - Ensures understanding of dosage (40.6%) - Appropriate time spent counseling (53.4%) - Successful understanding of medication usage (67.4%) - Useful patient counseling (76.7%)
Awad AI et al.[39]	2017	Kuwait/Public ministries of Kuwait	A descriptive, cross-sectional study	n = 433	**Attitude towards community pharmacist role** Image of community pharmacists - They are interested in both health and business matters but tend to be more concerned with business matters (33.7%) - They know a lot about drugs and are concerned about and committed to caring for the public (21.5%) First person to contact in case of any drug-related question - Physician (52.9%) - Pharmacist (32.3%) I expect the community pharmacist to/(SA&A**%) - Counsel about the directions for use of medications (86.3%) - Answer drug-related questions (84.3%) - Label medications (76.2%) - Perform proper screening and monitoring for specific health conditions and diseases (54.7%) - Monitor my health progress to ensure the safe and effective use of medications (45.5%)

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Table 2 (*continued*)

Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					Respondents' confidence and trust in community pharmacists/(SA&A**%) - "I trust the community pharmacist" (58.9%) **Attitudes towards current community pharmacy services** Barriers to consulting the pharmacist as the first person - Physicians are more trusted than pharmacists (74.1%) - Lack of privacy in the pharmacy (67.9%) Views of the current community pharmacy services/ (SA&A%) - "When I am buying my prescription medication, privacy concerning my prescription is maintained by the pharmacist" (63.7%) - "When I am buying my prescription medication, the pharmacist provides me with thorough medication counseling and encourages me to ask questions" (60.7%) - "When I go to the pharmacy with a problem, the pharmacist gives me enough time to discuss my problem and listens to me carefully" (55.2%) Desirable qualities in a pharmacist - Honesty and professionalism (80.6%) - Knowledge about medications and diseases (77.8%) **Use of community pharmacies** Frequency of visiting a community pharmacy - At least once every few months (54.5%) Reason for visiting any community pharmacy - To purchase prescription medications (78.1%) - To purchase nonprescription medications (68.4%) Reasons for approaching the pharmacist before the physician - Pharmacists are more knowledgeable about the doses and side effects of medications (72.8%) Factors that influence choice of any particular pharmacy - Close to their home or workplace or shopping mall (82.9%) - Convenient pharmacy opening hours (70.2%) **Strategies to improve community pharmacy practice** - Drug information (92.6%) - Advice on minor illness ailments (86.1%) - Screening services (82.7%) - Communication with the doctor (81.3%)
El Hajj et al.[40]	2011	Qatar/Community pharmacies	A pilot study (questionnaire-based)	n = 58	**Attitudes towards community pharmacist role** Patient survey-respondent view of community pharmacists - Pharmacists have a good balance between health and business matters (45%) - Pharmacists are more concerned with the health of patients than with the business side of their work (28%) First person to contact in case of drug-related question - The physician (50%) - The pharmacist (41%) I expect the community pharmacist to/(SA&A**%) - "Counsel me about my disease" (71%) - "Counsel me about the main side effects of my medications and how to avoid them and about their potential interactions with other medicines" (76%) "Counsel me about directions for use of medications" (93%)

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Table 2 (*continued*)

Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					- "Label my medications" (74%) - "Perform proper screening and monitoring for specific health conditions and diseases" (26%) **Attitudes towards current community pharmacy services** The top four community pharmacist qualities - Communication skills (100%) - Medication knowledge (98%) - Honesty & professionalism (97%) - Understanding of patients' concerns (93%) Patient perceived barriers for asking questions to pharmacists - Lack of privacy in the pharmacy (50%) - Doctors are more trusted than pharmacists (45%) The public views of the community pharmacy services currently provided in Qatar/(SA&A**%) - "When I am buying my prescription medications, the pharmacist hands me my prescriptions, provides me with thorough medication counseling, and encourages me to ask questions" (34%) - "When I am buying my prescription medications, privacy concerning my prescriptions is maintained by the pharmacist" (35%) - "When I go to the pharmacy with a problem the pharmacist gives me enough time to discuss my problem and listens to me carefully" (37%) - "When I go to the pharmacy to ask any drug-related question, the pharmacist is knowledgeable enough and always ready to answer my questions" (37%) **Use of community pharmacies** The reasons that would lead them to seek advice from their pharmacist before their physician - Minor health conditions (91%) - Short waiting time needed to see the pharmacist (78%) The main reasons for visiting a community pharmacy are - To obtain over the counter medications (93%) - To obtain prescription medications (83%) - To obtain para-pharmaceutical products (66%) Factors influencing the choice of any particular pharmacy - Location (90%) - Good range of products and services (79%) **Strategies to improve community pharmacy practice** Services which participants would most like to see provided by community pharmacists - Automatic processing of prescriptions (81%) - Diagnostic and screening services (81%) - Communication with the physician (78%)
El-Sharif et al.[41]	2017	United Arab Emirates (UAE)/Community pharmacies	Anonymous pre-piloted questionnaire-based study	n = 375	**Attitudes towards current community pharmacy services** "How do you describe your usual pharmacist?" - Experienced (27.7%) - Trustworthy (22.9%) - Confident (17.9%) Patient's satisfaction with the services provided by the community pharmacist (A**%) - Instructions were clearly labeled by the pharmacist on each medication (43.7%) - Pharmacist clearly explains all possible side effects (26.9%) - Pharmacist provides written/printed information about drug therapy and/or diseases (36.8%) - Place of pharmaceutical counseling respects privacy (38.4%) Use of community pharmacies

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Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
Hasan S et al.[42]	2013	United Arab Emirates (UAE)/public places such as malls and shopping markets	Development and validation of new tool (Questionnaire-based study)	n = 466	- To collect prescriptions (52.8%) **Attitudes towards community pharmacist role** (Excellent & Very Good %) - Confidence in the expertise of the pharmacy staff trust in the information provided by the pharmacy staff (35%) - Trust in the information provided by the pharmacy staff (35%) **Attitudes towards current community pharmacy services** Satisfaction with current services/(Excellent & Very Good %) - Explanation received from pharmacy staff about medications (41%) - Overall satisfaction with quality of information I receive at my usual pharmacy (21%) - Time that the pharmacy staff dedicates for attending to my needs (33%) - Availability of private consultation (explanation) area in my pharmacy (14%) - Satisfaction with overall pharmacy services (33%)
Hasan S et al.[43]	2015	United Arab Emirates (UAE)/Public places (malls and markets)	Questionnaire-based study (not stated directly)	n = 466	**Strategies to improve community pharmacy practice** Likelihood of using future services/(Likely& Very likely %) - Screening for conditions such as blood pressure, diabetes and high cholesterol (84%) - Monitoring of blood pressure, blood sugar or blood cholesterol (85%) - Receiving advice on how to self-monitor your condition (89%) - Receiving advice on how to use devices like inhalers or insulin injections (91%) - Pharmacist giving help in preventing disease, as in smoking cessation and weight control (85%) - Pharmacist explaining to you how to use your medications (98%) - Pharmacist keeping a file of all the medications you are taking and monitoring them, especially when a new medication is added (77%)
Rayes IK et al.[44]	2014	United Arab Emirates (UAE)/Private rented hall in Dubai.	Phenomenological qualitative study	n = 25 divided into 4 separate groups	**Attitudes towards community pharmacist role** Theme 1: Pharmacist as a Healthcare Professional in Public Minds Theme 2: Psychological Perceptions Towards Pharmacists - Participants believe to a certain extent that a pharmacist in Dubai has enough level of knowledge of medicines which makes him/her a trustworthy healthcare service provider **Attitudes towards current community pharmacy services** Theme 3: Important Determinants of a Pharmacist **Use of community pharmacies**/Theme 4: Effect of the pharmacy on the pharmacist
Iskandar K et al.[45]	2017	Lebanon/Community pharmacies	Cross-sectional study	n = 565	**Attitudes towards community pharmacist role** Patient perception of a community pharmacist - A community pharmacist is the one who counsels about drug use and administration (37.7%) - Checks drug interactions (42.3%) - Listens to patients' problems (46%) - Counsels about the diseases (46.9%) - Gives the non-pharmacological advice (47.4%) - Follows-up with the patient conditions (47.8%) **Attitudes towards current community pharmacy services** Barriers for asking questions - Do not trust the pharmacist (55.9%) - Considered that the pharmacist lacks the knowledge (45.7%)

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Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					- Considered that the pharmacist had no time counsel (46.5%) Patient experience with community pharmacy Pharmacist advises them about: - Use of medications (43.7%) - Non-pharmacologic treatment (51%) **Use of community pharmacies** Main reasons for visiting the pharmacy - The parking availability (46.2%) - The pharmacy reputation (46.2%) - The location proximity (44.6%)
Khdour MR & Hallak OH/[46]	2012	Palestine/Community pharmacies registered in the West Bank.	Survey methodology	n = 790	**Attitudes towards community pharmacist role** Source of consultation about health problem - Physicians (57.2%) - Pharmacists (23.8%) "I think that pharmacists": - Are primarily businesspeople who are more concerned with making money than with the health of their patients (13.9%) - Are interested in both health and business matters, but tend to be more concerned with the business side of things than health matters (33.9%) **Attitudes towards current community pharmacy services** Feeling at the pharmacy - Feeling at ease about asking the pharmacist for advice (66.8%) - Advice on medication/Customers that visited community pharmacies to dispense prescriptions reported that they received advice about their medications only when they asked for it (72.9%) - Pharmacists encouraged consumers to ask questions and express any concerns on dispensing (11.1%) When I go to the pharmacy with a problem the pharmacist - Gives me enough time to discuss my problem and listens to me carefully (33.9%) When I raise a personal/private matter the pharmacist - Uses a more private area within the pharmacy (11.1%) **Use of community pharmacies** The main reasons for using a pharmacy - Proximity of the pharmacy to the individual's home or work (31.8%) - Wide range of products/services (24.5%) Type of advice requested from the pharmacists - Prescription medication (55.3%) - OTC medication (42%) **Strategies to improve community pharmacy practice** Preferences for extended services to be provided in community pharmacies - Measuring weight, height and temperature (72.9%) - Monitoring glucose levels (87.5%)
Mukattash TL et al.[47]	2018	Jordan/urban and rural areas of Jordan in different public places	Cross-sectional quantitative questionnaire-based study	n = 1214	**Attitudes towards community pharmacist role** Knowledge of the concept of pharmaceutical care (45.6%) Preferred source for health information - General practitioner (82.2%) - Pharmacist (4.9%) Preferred source for medication-related information - General practitioner (26.7%) - Pharmacist (66.4%) Most important activity performed by the pharmacist - Dispensing medications: (46.2%)

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Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					- Patient counseling (34.6%) Respondents believed that their pharmacist had a role in providing healthcare services (85.5%) Pharmacist was well qualified to provide healthcare information and services (62.8%) Attitudes towards current community pharmacy services Satisfaction with services provided by pharmacists - Perception of the time spent with the pharmacist/ Convenient (84.8%) - Perception of maintenance of privacy/Privacy was maintained (60.1%) - Respondents needed a follow-up from a pharmacist during their medication-use period (47.6%) Use of community pharmacies Frequency of pharmacy visit - Visit a pharmacy at least once per month (52.5%) Frequency of choosing the same pharmacy - Always chose the same pharmacy (48.6%) The most important reasons for choosing the same pharmacy each time - Trust (46.4%) Strategies to improve community pharmacy practice - Respondents hope for improvements to areas of pharmaceutical care such as patient follow-up, keeping patient records, and screening for drug-related problems (87.4%)
Qunaibi E et al./ 2013 [48]	2013	Jordan/Community pharmacies	Single-phase observational study (survey based)	n = 2000	**Attitudes towards community pharmacist role** Choosing the health care professional that provided them most with advice on medication use *Western Amman (WA) results* - Pharmacist (52%) - Specialist (36%) *Eastern Amman (EA) results* - Pharmacist (54%) - Specialist (27%) Patient's trust in the healthcare professionals for advice related to medical conditions - Specialist (WA 66.8% vs EA 54.0%) **Attitudes towards current community pharmacy services/(A**%)** The pharmacist needs to provide longer counseling sessions (more than 2 min)/(WA 57.62% vs EA 57.86%) **Strategies to improve community pharmacy practice**/(A**%) - Willing to pay the pharmacists for this extra counseling service (MMR service) (WA 18.39% vs EA 20.94%) - Requirement to provide private counseling areas in the pharmacies (WA 40.3% vs. EA 54.4%)
Suleiman AK[49]	2013	Saudi Arabia/community pharmacies	Questionnaire-based study	n = 537	**Attitudes towards current community pharmacy services** I did not seek advice from a pharmacist because (SA&A**%) - The pharmacist is impatient (34.4%) - I feel shy and reluctant (58.3%) I would be encouraged to consult a pharmacist if (SA&A**%) - I could obtain counseling form the pharmacist (65%) **Use of community pharmacies**/Reasons for requesting advice from the pharmacist (A1ways&Often%) - For use of a non-prescription medication (25%) Factors that inform consumer choice in selecting a pharmacy (A1ways&Often%)

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Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					- Availability of medicinal products (56.6%) - Convenient location (58.9%) Reason for visit of a community pharmacy (A1ways&Often%) - To purchase non-prescription medication (67.2%) - To obtain prescription-only medication (71.5%)
Wilbur K et al./[50]	2010	Qatar/Qatar Petroleum private ambulatory care organization	Cross-sectional observational study	n = 570	**Attitudes towards community pharmacist role** - Did you know that some medical complains can be assessed/solved by pharmacist? (83.5%) - Would you be interested in a pharmacist OTC service? (85.3%) **Attitudes towards current community pharmacy services/(SA&A**%)** - A pharmacist gives reliable advice about drugs (79.6%)
Jose J et al.[51]	2015	Oman /police station, schools, government offices and houses	Cross- sectional survey	n = 390n	**Use of community pharmacies**/Patients preferences to seek therapy (OTC) directly from the pharmacist Cold and flu (52.9%) Pain (41.6%) **Use of community pharmacies**/Number of pharmacy visits in the last year -6-10:22.3% >10:34.6% **Attitudes towards community pharmacist role/ (SA&A**%) "pharmacist:"** - Is an integral part of the health care system like physicians and nurses (87.2%) - Should check my prescriptions for accuracy before dispensing the medication (93.9%) - Should let me know how to use my medication and warn me of any possible side effects and how to prevent it (96.2%) - Should answer my drug related questions (93.5%) **Attitudes towards current community pharmacy services/(SA&A**%) "I am satisfied with:"** - type and amount of information discussed by the pharmacist on drug related matters (69.3%) - questions asked by my pharmacist before dispensing medications (71.8%) - privacy maintained by pharmacist while discussing with patients and dispensing medications (66%) - level of knowledge that pharmacists demonstrate in drug related issues (57.4%) - amount of time spent by my pharmacist with each patient (64.9%)
Basheti IA et al.[52]	2014	Jordan, United Arab Emirates (UAE) and Iraq/ community pharmacies	A single-phase cross-sectional survey methodology	Jordan: n = 1000/UAE: n = 1000/Iraq: n = 968	**Attitudes towards community pharmacist role** Choosing the health care professional that provided them most with advice on medication use Jordan - Specialist (37.3%) Pharmacist (50.8%) UAE - Specialist (40.5%) Pharmacist (38.0%) Iraq - Specialist (36.7%) Pharmacist (41.9%) Patient's trust in the healthcare professionals Jordan - Specialist (62.1%) Pharmacist (16.2%) UAE - Specialist (74.4%) Pharmacist (8.7%) Iraq - Specialist (64%) Pharmacist (12.3%) The role of the community pharmacist involving provision of brief, up to 2 min, counseling (A**%) - *Jordan* (77%) *UAE* (79.3%) *Iraq* (88.1%) Attitudes towards current community pharmacy services The pharmacist needs to provide longer counseling sessions (more than 2 min) (A%) - *Jordan* (53.6%) *UAE* (57.1%) *Iraq* (63.6%) Strategies to improve community pharmacy practice Willing to pay the pharmacists for MMR counseling service (A**%) - *Jordan* (19.5%) *UAE* (24.7%) *Iraq* (2.3%)

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Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					Requirement to provide private counseling areas in the pharmacies (A**%) - *Jordan* (45.4%) *UAE* (41.7%) *Iraq* (32.6%)
El-Kholy A & Abdel-Latif MM[53]	2017	Saudi Arabia/Not reported	Cross-sectional study	n = 1000	**Attitudes towards community pharmacist role** The opinions of the customers about the general image of the community pharmacist - As a vendor of medicines (38.1%) - As a drug expert (38.4%) Perception of the society of the pharmacist's job (Yes %) - Customer's views on societal respect of the pharmacist/The society respects the doctors greater than the pharmacists (73.1%) - I trust the pharmacist's opinion regarding medications (71.3%) Respondents' response to clinical roles of community pharmacists (Yes%) The pharmacist: - asks information about my medications when preparing my prescription (45.5%) - measures/monitors one or more of the following services (blood pressure, blood sugar, temperature, weight) (24.3%) - provides clear instructions about the use of the medications (72.8%) - helps from the pharmacist in the selection of OTC and herbal medicines (66.2%) - solves any drug-related problems concerned me (40.7%) **Attitudes towards current community pharmacy services** Respondents' views on the community pharmacy (Yes %) - There is someone in the community pharmacy available to serve me (72.6%) - I could differentiate between the pharmacist and the non-pharmacists staff in the community pharmacy (71.5%) - The community pharmacy has a computer system/ software (71.7%) Customers' views on the community pharmacists (Yes %) The pharmacist: - spends enough time with me (56.7%) - answers all questions concerned me (71.7%) **Use of community pharmacies**/Primary reasons for costumers to visit a pharmacy - To purchase their medicines (36.7%) Factors contributing to choosing a particular community pharmacy - Location of the pharmacy (41.1%) Frequency of visiting a pharmacy - Every few months (20.4%) - Once a month (48.3%)
Rayes IK & Abduelkarem AR[54]	2017	United Arab Emirates (UAE)/community pharmacies	Quantitative study	n = 380	**Attitudes towards community pharmacist role** Perceptions about community pharmacists (SA&A** %) - Pharmacist is an important component of any medical team (85.5%) - Pharmacist is the right person to seek advices about medicines (68.5%) - I trust pharmacist's advice about medicine use (76.3%) Perceptions about community pharmacists' role (SA&A**%) - Providing patient consultation on the way the medication works (68.7%) - Suggesting the use of non-prescription medications (60.3%)

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Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					Expectations from community pharmacists and services provided (SA&A**%) I expect pharmacists: - to educate me about the appropriate and safe use of medicines (80.8%) - to monitor response of drug therapy and inform me whether it encounters any drug-related problems or not (58.4%) **Attitudes towards current community pharmacy services/(SA&A**%)** - My pharmacist seldom helps me to know how to use my medicines (72.4%) - I feel comfortable talking to the pharmacist about my minor illness (68.1%) - I am satisfied with the services provided by community pharmacies in Dubai (67.1%) - The pharmacist is good at explaining things in a way that I understand (78.7%)
Sharrad AK[55]	2017	Iraq/community pharmacies	Pilot study (cross-sectional analytical survey)	n = 107	**Attitudes towards community pharmacist role** Patient survey-respondent view of community pharmacists - Are primarily businesspeople who are more concerned with making money than with the health of their patients (58%) The first person you contact. In case of any drug related question - Physician (64.5%) - Pharmacist (32.7%) Consumers' attitude to the expanding role of community pharmacist Yes (%) - Healthy screening to be provided by pharmacist (blood pressure monitoring, cholesterol level) (66.3%) - Advice about non-drug ways to manage health (71.9%) **Attitudes towards current community pharmacy services** Barriers prevent you from asking any question to a pharmacist - The physicians are more knowledgeable (44%) **Use of community pharmacies**/The reasons to approach the pharmacist before the physician - Minor health problems (66%) The main reasons for visiting a community pharmacy - Get prescription medications (100%) - OTC drugs (100%) Factors influencing the choice of any particular pharmacy - Friend with pharmacists and/or staff (74%) - Location (90%)
Al-Hassan MI/[56]	2009	Saudi Arabia/Community pharmacies	Questionnaire-based survey	n = 152	**Attitudes towards community pharmacist role** Consumer views regarding pharmacists (SA&A**%) - Pharmacists are qualified health professionals (72.37%) - Pharmacists are primary source of information on medication (50%) - Pharmacy assistants are not competent about health care to advice the patient (63.82%) Attitudes towards current community pharmacy services Desired qualities of a pharmacist - Willing to offer advice (62%) - Knowledge/competence of the pharmacist (31%) Use of community pharmacies Reasons for visiting pharmacies - Convenience of the consumers (28.7%) - Minor ailment, not necessary to go to clinic (32.5%) Type of advice requested from pharmacists - OTC medication (50%)

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Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					Reasons to select a specific pharmacy - Short distance from home (65%) Frequency of advice (times per year) - Zero (32%) - 1–3 (30%) Strategies to improve community pharmacy practice Products and services to be available in all pharmacies - Availability of all prescribed medicines (75%)
Bawazir SA[57]	2004	Saudi Arabia/Community pharmacies	Questionnaire-based study (not directly mentioned)	n = 911	**Attitudes towards community pharmacist role** I think that pharmacists are - Primarily businesspeople who are more concerned with making money than with the health of their patients (16.5%) - Interested in both health and business matters, but tend to be more concerned with the business side of things than health matters (39.6%) **Attitudes towards current community pharmacy services** When I am in the pharmacy: - I feel totally at ease about asking the pharmacist for advice and so will ask if I need to (69.7%) When I am buying my prescription medication the pharmacist: - hands me my prescription and will answer any questions but only if I ask (69%) When I go to the pharmacy with a problem the pharmacist: - Gives me enough time to discuss my problem and listens to me carefully (44.8%) **Strategies to improve community pharmacy practice**/Type of service - Measuring weight, height and temperature (66.8%) - Monitoring blood pressure (69.3%)
Wazaify M et al.[58]	2008	Jordan/Shopping areas in four urban centers in Jordan	Questionnaire-re-based study (not directly mentioned)	n = 1085	**Use of community pharmacies** - 67.4% reported visiting a pharmacy at least once per month (i.e., daily, weekly or monthly). - 62.7% reported that they would seek advice from a pharmacist rather than from a doctor when the condition was not serious enough to visit the doctor Primary reason for using pharmacy - To obtain prescription medicines (50.3%) Reason of using a particular pharmacy - Location (26.2%) **Strategies to improve community pharmacy practice** - Advice on minor ailments (36%)
Siddiqua A et al.[59]	2017	United Arab Emirates (UAE)/Community pharmacies	Cross-sectional survey	n = 500	**Use of community pharmacies** Frequency of visiting community pharmacies in the last 3 months: - 1–3 times (64.6%) - More than three times (35.4%)
Alomi YA et al.[60,61]	2018	Saudi Arabia/500-bed general hospital in Alhassa region, an ambulatory care pharmacy	Cross-sectional survey	n = 617	**Attitudes towards community pharmacist role** General ideas about the pharmacist (SA&A**) - I am calling the pharmacist to the doctor (69.5%) - Pharmacist for dispensing medication only (43.9%) - Pharmacist has a very high social level (60.4%) - Pharmacist participates in patient therapeutic plan part of the medical team (70.1%) - Pharmacist is the first person ask him about drugs (78.01%) **Use of community pharmacies** Reasons for patient ask the pharmacist before the physician. - To seek help in health diseases (73.08%) - The pharmacist knows more about drug doses and adverse drug reaction (38.16%)

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Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					Frequency of visiting community pharmacies in the last 12 months: - 10 or more times (36.04%) Attitudes towards current community pharmacy services (SA&A**%) The average score of patient's general perception of a pharmacist during pharmacy visit was found to be 3.74
Jaber D et al.[62]	2018	Jordan/outpatient clinics of a teaching hospital (Jordan University Hospital (JUH)	Cross-sectional study	n = 223	**Attitudes towards community pharmacist role** - Pharmacists have extensive knowledge about medications and diseases (65.0%) - Pharmacists should be committed to more counseling roles rather than dispensary activities (96.0%) Attitude score per pharmaceutical care service elements reported by study participants: The average total attitude score was 0.82 ± 0.19 (score out of 1.00) **Use of community pharmacies**/Reasons for visiting community pharmacies: - Mainly to buy a prescription (61.0%) Frequency of visiting community pharmacy: - On an average of 4 times per month (80.7%) Strategies to improve community pharmacy practice - The pharmacist should be reimbursed for providing a pharmaceutical care service that would potentially reduce medication-related problems by 50% (95.1%)
Ali HS et al.[63]	2019	United Arab Emirates (UAE)/Community pharmacies	An analytical, descriptive and cross-sectional study	n = 210	**Attitudes towards community pharmacist role (SA&A**%)** - I consider the pharmacists as an expert in matters related to drugs (61.9%) - Pharmacists as a mere vendor/dispenser of drugs (85.7%) - Pharmacist could provide extended services like health screening (80.9%) - Pharmacist should answer my drug related questions (96.1%) - I trust the pharmacist for the information on the use of medicines (35.2%) - Pharmacists should advice patients on general health issues other than drugs (20.9%) Patients' source of medicinal information: • Pharmacist:43.8% **Attitudes towards current community pharmacy services/(SA&A**%)** I am satisfied with: - type and amount of information discussed by the pharmacist on drug related matters (50.5%) - pharmacist counseling regarding the questions asked before dispensing medications (64.8%) - privacy maintained by pharmacist while discussing with patients and dispensing medications (7.1%) - with the level of knowledge that pharmacists demonstrate in drug related issues (48.6%) - by the amount of time spend by my pharmacist with each patient (31.9%)
GhattasDA & Al-Abdallah, GM/[64]	2019	Jordan/Community pharmacies	Descriptive analytical methodology/Inductive approach/ Quantitative approach/Survey strategy	n = 801	**Use of community pharmacies** Frequency of visiting community pharmacies: - 4 times or more per month: (36.3%) - 2–3 times per month: (37.3%) Factors influencing customers' decision in selecting a community pharmacy: - Customer service has the highest impact on customers' pharmacy selection among all other examined factors followed by qualified and

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Author/Year	Year	Country/Setting	Study design	Number of participants (n)	Outcome measures/main results
					experienced pharmacists and convenience respectively

*** MTM: Medication therapy Management ** SA: Strongly Agree A: Agree**

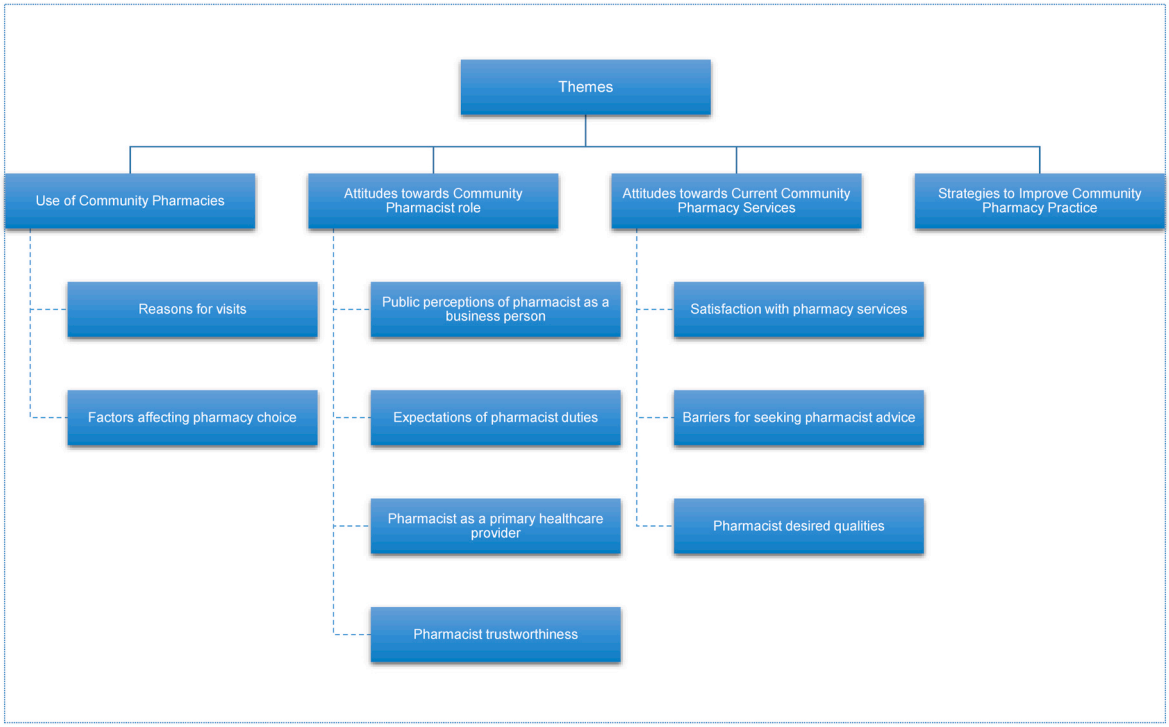

Fig. 2. Conceptual diagram of key themes and subthemes.

expectations for pharmacist. In fact, pharmacist involvement in monitoring or following up patient progress was only reported as an expected task in 4 studies with 45.5%, 47.8%, 50.8% and 39.3% of participants agreeing with this role[39,45,54,55] and with an average attitude score of 0.72 ± 0.23 out of 1 in one study.[62] Providing non-pharmacological advice on how to manage healthcare conditions was not commonly perceived as a pharmacist role. Only 47.4% and 31.5% of participants perceived it as a pharmacist role in 2 studies[45,53] and 71.9% of participants in another study.[55] Labeling medications was also not commonly perceived as a pharmacist role with only 2 studies reporting 76.2% and 74% of participants considering it as a pharmacist task.[39,40] Furthermore, collaborating or initiating dialogue with the physician to optimize patient medications was not a common expected role for pharmacist with 56.8% and 53% of participants agreeing on this role in 2 studies.[39,40]

The public choice of the pharmacist as a primary healthcare provider or source of health or medicinal information varied between the studies. Six studies reported that patients considered pharmacists as the second source of health or drug-related information after the physician.[33,39,40,46,53,55] One study was conducted in 3 different countries, Jordan, UAE and Iraq.[52] In UAE and Iraq, the pharmacist was chosen as the second source of information regarding medications after physicians. While in Jordan, the pharmacist was the first choice.[52] Six studies reported the pharmacist as a reliable or primary source of medicine information by over 50% of participants.[36,47,48,54,56,60,61]

The perceptions of the public toward the pharmacist's trustworthiness of was also variable between the studies. Two studies, one of them conducted in three different countries (UAE, Iraq, Jordan), asked participants to choose the most trusted healthcare professional and the pharmacist was considered the least trusted.[48,52] Less than 30% of participants had confidence or trust in the information provided by the pharmacist in 3 studies.[41,42,63] On the other hand, 4 studies conducted in Kuwait, Oman, KSA and UAE reported that over 50% of participants trusted the pharmacist's advice on the use of medications.[39,51,53,54] Interestingly, one study in UAE reported that participants believed to a certain extent that a pharmacist in Dubai has enough level of knowledge of medicines which makes him/her a trustworthy healthcare provider. However, they had some difficulties communicating or trusting pharmacists with certain nationalities.[44]

Attitudes towards Current Community Pharmacy Services

Public satisfaction with community pharmacy services varied between the studies. Overall satisfaction with community pharmacy or community pharmacist services ranged from 33% to 67.1% in 7 studies.[33,34,38,42,53,54,60,61] More than 50% of participants reported a high level of satisfaction with the quality, amount, type or completeness of the information provided by pharmacists regarding health and medication use in seven studies[29,32,37–39,51,63] while less than 50% participants were satisfied with the pharmacist medication consultation in four studies.[34,41,42,45,] Satisfaction with the time spent in counseling was also variable. In 6 studies, 53%–84.8% of participants were satisfied with the time dedicated by the pharmacists to meet their needs.[34,38,39,47,51,53] However, the percentage of satisfied participants did not exceed 37% in another 6 studies[32,40,42,45,46,63] and longer counseling sessions with pharmacists were suggested by over 50% of

participants in 3 studies.[32,48,52]

Public satisfaction with pharmacist level of medication knowledge, data gathering skills, initiative and encouragement of patients to ask questions was in general low. For instance, 37%–57.4% of participants agreed that the pharmacist is knowledgeable and able to answer questions related to medications in 4 studies.[39,40,51,63] Less than 50% of participants were satisfied with pharmacist skills in data gathering in 3 studies.[31,38,45]

In four studies, 22%, 30.7%, 33.9% and 37% of the public agreed that the pharmacist gave them enough time and encouraged them to ask questions.[37,45,46,57] Satisfaction with the ability of the pharmacist to respond to patients' questions was variable with 4 studies reporting satisfaction[34,39,51,53] while 2 studies reported dissatisfaction.[32,45]

Several barriers or challenges were identified that prevent patients from seeking medical advice from pharmacists. The most reported barriers were that physicians are more trusted or knowledgeable than pharmacists and lack of privacy in the pharmacy. As an example, 44%, 45%, 55.9% and 74.1% of surveyed participants considered the trust in pharmacist abilities as a barrier.[39,40,45,55] One of the studies in KSA that focused specifically on female satisfaction identified embarrassment to consult a male pharmacist as one of the main barriers.[33] In another 2 studies in KSA, 48% and 58.3% of participants felt embarrassed to ask the pharmacist a question related to their health.[37,49] Moreover, 40% of participants in a study conducted in Qatar considered fear or intimidation as a barrier for asking the pharmacist questions.[40]

The desired qualities of the pharmacist as per the public are medication or disease related knowledge, good communication skills, honesty and professionalism, and willingness to offer advice. For instance, 57.3%, 77.8% and 98% of participants considered medication or disease knowledge as a desired pharmacist quality in three studies.[36,39,40] Moreover, in 2 studies when asked about their top quality for pharmacists, 57% and 100% of the surveyed public considered good communication skills and 80.6% and 97% of participants considered honesty and professionalism[39,40]

Strategies to improve community pharmacy practice

Strategies on how to improve community pharmacy practice were included in many studies. Most commonly reported strategies were provision of diagnostic, screening and monitoring services including monitoring weight, height, blood glucose, blood pressure and temperature, keeping patient records in the pharmacy, advice on minor ailment, provision of a private area for consultation and offering drug information services. For example, screening and monitoring services were suggested by over 60% of surveyed participants in five studies.[39,40,43,46,57,58] Furthermore, 56.6%, 59%, 77% and 87.4% of respondents suggested having medical records in 4 studies.[39,40,43,47] Patients' willingness to pay for pharmaceutical care services offered at community pharmacies was variable between the studies and ranged from 2.3% in one study in Iraq[52] to 93.3% in another study in Jordan.[62]

Quality of included studies

CCAT scores were computed to assess the quality of each included article (Table 3). The 25th, 50th and the 75th percentiles were 65%, 73% and 75% respectively. Seven articles were considered of low quality.[30,35,37,41,44,56,60,61] Thirteen articles were considered of high quality.[32,36,39,40,42,43,45,52,53,57–59,62] The remaining articles were of moderate quality.

The average scores for each section of the CCAT tool were calculated for the 36 articles. The lowest average score was 2.8 for sampling followed by 2.97 for ethical matters. The highest average score was 4 for introduction.

Discussion

To the best of our knowledge, this systematic review is the first to assess the public perspectives of community pharmacy services in the Middle East. We reviewed data from thirty-six studies mostly conducted over the past ten years. Published studies from Egypt, Yemen, Bahrain, and Syria were lacking.

Like findings reported elsewhere, the most common identified reason participants visited community pharmacies was to dispense their prescription or to purchase a non-prescription drug at least once a month.[11,65–68] These results are not surprising given that most medications requiring a physician's prescription in other countries are available over-the-counter for public self-selection at community pharmacies in the Middle East.[16]

Convenient pharmacy location, availability of a good range of products and friendly pharmacy staff were reported as important factors for consumers' choice of a particular pharmacy. This was consistent with other studies that reported that patients chose their pharmacy based on how close it is to their home or work.[11,65–68] A systematic review of peer-reviewed studies in the United States found that pharmacists' traits including friendliness, helpfulness, and trustworthiness and pharmacy convenience including location and availability of medications affected patient's choice of a particular pharmacy.[69] These findings imply that to advance pharmacy practice, community pharmacists in the Middle East should work on establishing a friendly, interpersonal and professional relationship with their patients. In addition, patients' preferences regarding the availability of products, pharmacy accessibility and convenience should be taken into consideration when designing community pharmacies.

The systematic review noted that the public had an overall good understanding of the basic services expected from the pharmacist including counseling on the use of medications, treating minor ailments and recommending an over the counter medication. This finding is consistent with the public opinion in studies conducted in Ghana, Bosnia, China and Estonia.[9,67,68,70] However, the public perceptions of the pharmacist's role in more advanced services including monitoring and screening patients for healthcare conditions and collaborating with physicians was low. Furthermore, the majority of studies noted general public perceptions of pharmacists as business people or mere vendors of medications. This could be attributed to the low involvement of community pharmacists in activities beyond medication dispensing in the Middle East. Community pharmacists in one study in Qatar eluded to the fact that their practice is business oriented and due to their heavy workload they have limited time to address patients' needs.[71] Despite several initiatives implemented in some Middle Eastern countries including Qatar, UAE and KSA to advance community pharmacy practice, pharmaceutical care provision in community pharmacies is still in its infancy stage.[20,22,72] There is also a wide gap in interprofessional collaboration and communication between community pharmacists and other healthcare providers.[20,73,74] Moreover, monitoring drug therapy and screening for health conditions are activities rarely performed by community pharmacists.[20,75] And several barriers for pharmaceutical care provision and for extending community pharmacy services in the Middle East have been published including the outdated pharmacy related legislations, limited scope of practice, negative public perceptions and social acceptance of pharmacists as healthcare providers, lack of time and lack of support staff, inconvenient access to patient medical information and need for pharmacist training.[20,22,72,75,76] To enhance pharmaceutical care provision in the Middle East, efforts should be exerted by all stakeholders including policy makers, governmental bodies and community pharmacists to increase public awareness about community pharmacists' professional role and to promote their potential contribution to the healthcare system beyond medication counseling and dispensing. Furthermore, pharmacists and physicians in the Middle East should collaborate more and interact to offer effective health services that meet the patients' needs especially that several studies have

Table 3
Quality of studies used assessed using Crowe Critical Appraisal Tool (CCAT).

	Preliminaries [/5]	Introduction [/5]	Design [/5]	Sampling [/5]	Data collection [/5]	Ethical matters [/5]	Results [/5]	Discussion [/5]	Total [/40]
Al Aqeel, S. et al., /2018[29]	5	3	3	2	4	5	3	4	29/40 (73%)
Abduelkarem, A. et al.,/ 2009[30]	4	5	2	1	2	2	4	3	23/40 (58%)
Al-Arifi, M. N./2012[31]	4	5	3	3	5	3	4	3	30/40 (75%)
Alhaddad, MS/2018[32]	2	5	4	3	3	4	4	5	30/40 (75%)
Alhaddad, M. S. et al.,/ 2018[33]	4	3	3	4	4	3	5	3	29/40 (73%)
Alhomoud, F.K. et al.,/ 2016[34]	3	5	2	4	3	4	3	4	28/40 (70%)
Alomar, M. J. et al.,/2015[35]	3	3	2	3	2	1	3	4	21/40 (53%)
Ibrahim IR. et al., /2013[36]	4	5	4	3	4	2	4	4	30/40 (75%)
Alotaibi HS et al., /2014[37]	3	5	3	1	5	2	2	3	24/40 (60%)
Al-Tannir M et al., /2016[38]	4	5	4	3	4	2	3	4	29/40 (73%)
Awad AI et al., /2017[39]	4	5	5	4	5	4	5	3	35/40 (88%)
El Hajj et al., /2011[40]	4	5	4	4	5	4	5	4	35/40 (88%)
El-Sharif et al., /2017[41]	3	3	4	2	4	3	4	2	25/40 (63%)
Hasan S et al., /2013[42]	4	5	3	4	5	5	5	4	35/40 (88%)
Hasan S et al., /2015[43]	3	5	2	3	4	5	4	4	30/40 (75%)
Rayes IK et al., /2014[44]	2	3	3	1	4	3	2	3	21/40 (53%)
Iskandar K et al., /2017[45]	2	4	5	4	5	4	4	4	32/40 (80%)
Khdour MR & Hallak OH/ 2012[46]	3	4	3	2	5	4	3	4	28/40 (70%)
Mukattash TL et al., /2018[47]	3	3	5	4	3	5	4	1	28/40 (70%)
Qunaibi E et al., /2013[48]	4	3	3	3	5	1	3	4	26/40 (65%)
Suleiman AK/2013[49]	2	4	3	4	4	3	5	4	29/40 (73%)
Wilbur K et al., /2010[50]	4	3	3	3	3	4	4	4	28/40 (70%)
Jose J et al., /2015[51]	3	4	4	3	3	2	5	5	29/40 (73%)
Basheti IA et al., /2014[52]	3	4	4	4	4	3	4	4	30/40 (75%)
El-Kholy A & Abdel-Latif MM/2017[53]	3	5	4	2	2	4	5	5	30/40 (75%)
Rayes IK & Abduelkarem AR/2017[54]	4	1	4	4	4	3	5	3	28/40 (70%)
Sharrad AK/2017[55]	3	5	3	2	3	2	5	3	26/40 (65%)
Al-Hassan MI/2009[56]	3	1	3	1	3	0	4	3	18/40 (45%)
Bawazir SA/2004[57]	4	5	5	3	3	2	4	4	30/40 (75%)
Wazaify M et al., /2008[58]	4	4	3	4	4	3	4	4	30/40 (75%)
Siddiqua A et al., /2017[59]	5	5	5	3	5	3	4	3	33/40 (83%)
Alomi YA et al., /2018[60,61]	3	4	2	0	2	0	2	3	16/40 (40%)
Jaber D et al., /2018[62]	3	5	3	3	4	3	5	5	31/40 (78%)
Ali HS et al., /2019[63]	3	3	3	2	4	4	3	5	27/40 (68%)
Ghattas, DA & Al-Abdallah, GM/2019[64]	5	5	4	3	1	2	4	4	28/40 (70%)

demonstrated that interprofessional collaboration between pharmacists and physicians improve patient outcomes.[73,77,78]

This review also shows that pharmacists were considered the second source of health or medicine information after physicians. Public's preference for physicians over pharmacists was also demonstrated in other studies.[11,79] In addition, a systematic review conducted in the UK showed that most participants in the survey studies reported that they preferred physicians over pharmacists irrespective of what service is provided.[10] The results of this systematic review emphasize the old belief in the physician's capabilities and skills. This belief is maintained by the traditional healthcare system in the Middle East which is ruled by physicians.[16] There is an apparent need for policymakers, governmental entities and pharmacy organizations to integrate community pharmacists in the healthcare system and to intensify marketing and media campaigns to promote pharmacist approachability, clinical expertise and capacity to provide drug information and advanced services and to improve public knowledge of pharmacist's role.

There was a general public satisfaction with the quality, amount, type or completeness of information provided by pharmacists as well as by the accessibility and availability of pharmacists to meet patients' needs. However, the public satisfaction with the time that the pharmacists spent in counseling and with the pharmacist knowledge and trustworthiness was variable between studies. Furthermore, the satisfaction with pharmacist skills in information gathering, labeling and in asking questions was low. Additionally, considering physicians as more trusted or knowledgeable than pharmacists was a barrier for seeking pharmacist advice in several studies. Trust is an important element for building a therapeutic and mutual relationship between pharmacists and patients. In order for pharmacists to gain the public trust, a set of system and structural training strategies has to be implemented in the Middle East to build community pharmacists' capacity and to improve their skills and knowledge. These strategies should first target pharmacy students. The majority of undergraduate pharmacy curricula in the Middle East focus on pharmaceutical sciences with less emphasis on clinical sciences, behavioral, social, and administrative pharmacy sciences.[15] These curricula should be redesigned to include more simulated and real patient care activities with the ultimate goal of producing competent pharmacists capable of providing patient centered and effective pharmacy services. These strategies should also target practicing community pharmacists in the form of nationally or internationally accredited continuous education (CE) or continuous professional development (CPD) programs aimed at equipping the pharmacists with the knowledge and skills they need to play an important and impactful role in the community.[15] The governments should also take the initiative and work on expanding the current scope of practice of pharmacists in each Middle Eastern country in the form of policies or legislations or laws. These should help in increasing the public awareness about the pharmacist's role and will allow for closer monitoring of pharmacy practice by national pharmacy associations or councils.

Lack of privacy was one of the most common barriers that prevented the public from seeking advice from pharmacists. This barrier was also reported in studies conducted outside the Middle East.[10,65] A survey conducted among community pharmacy consumers in Australia showed that lack of privacy is a major barrier for community pharmacy-based mental health promotion.[80] Furthermore, a systematic review of pharmacists' and consumers' beliefs and attitudes towards pharmaceutical public health reported that the lack of a private counseling room is a barrier for offering advice on health promotion.[81] Given the conservative culture of the Middle Eastern population, it is highly recommended to dedicate private consultation rooms in most community pharmacies in the Middle East to encourage patients, especially females, to discuss their health-related issues with the pharmacists.

Members of the general public provided several recommendations to improve the community pharmacy practice in the Middle East including: provision of diagnostic, screening and monitoring services, advice on minor ailments, keeping patient medication records in the pharmacy, and having private consultation rooms. Similar suggestions were given by community pharmacy consumers in Malta.[11] Community pharmacists are increasingly taking an important role in providing support for patients with minor ailments. Minor ailment programs have been successfully implemented in Canada, United Kingdom, Ireland and other countries for the public to receive treatment and advice from a community pharmacist.[82] Community pharmacists have a great opportunity for the provision of health screening services and for monitoring for outcomes of treatment. Evidence has shown the clinical and economic benefits of these services.[83] Patient medication records are not readily available in community pharmacies in the Middle East.[16] To advance pharmacy practice in the Middle East and to provide pharmaceutical care, pharmacists should have access to patient's medical information. It is very encouraging and reassuring to see that the public is in favor of extending the role of community pharmacists in the Middle East and is willing to use pharmaceutical care services if offered. Therefore, the authorities should start putting strategies and plans in place to expand pharmaceutical care services in community pharmacies in the Middle East in line with the public recommendations.

The overall quality of studies was considered acceptable with the majority having moderate to high quality scores. The lowest scores were concerning sampling and ethical matters. Furthermore, the majority of studies adapted a cross sectional survey design with a very low number of studies that adapted qualitative research methodology. It is recommended to conduct robust large mixed method studies with a high representative sample of the population in order to have a comprehensive understanding of the public attitudes of community pharmacy in the Middle East especially with the limited qualitative research in the area. Moreover, future research should focus on developing community pharmacy based interventions in the Middle East, on assessing their feasibility and evaluating their impact on patient health outcomes.

Limitations

This systematic review had some limitations. Due to the heterogeneity of study results and outcomes we were not able to conduct a meta-analysis and comparing the study results was challenging. Restricting our search strategies to English only studies may have led to missing some studies that are published in Arabic or other languages. The search strategy initially included the following databases: Campbell Library, Database of Abstracts of Reviews of Effects (DARE), Health System Evidence, Global Health Database, Academic Search Complete, IPA, CINAHL, Trip, and Wiley Online Library. But due to the inability in accessing these databases they were excluded from the search. Therefore, we may have missed articles indexed in these databases. However these limitations were considered minor and did not impact the reliability or validity of the study results.

Conclusion

This systematic review provided an overview of the public attitudes towards community pharmacy in the Middle East. While the majority of studies indicated that the public has a good understanding of the basic tasks of a community pharmacist, there is a lack of awareness of advanced pharmaceutical services. Additionally, the pharmacist is considered a mere vendor or dispenser of medications and is the second source of health or medicine information after the physician. Despite the overall public satisfaction with the quality of counseling provided by pharmacists and with pharmacists' accessibility and availability, satisfaction with the duration of counseling and with the pharmacist knowledge and trustworthiness was variable between studies. Several barriers for the public to seek advice from a community pharmacist were identified including lack of privacy and considering physicians as more trusted or knowledgeable than pharmacists. The integration of community pharmacists in the healthcare system is essential and pharmacist's competence and experience beyond medication dispensing need to

be acknowledged and embraced.

To advance community pharmacy practice in the Middle Eastern countries, interventions must be developed and implemented to address all identified barriers. Continuous professional development programs should be implemented for community pharmacists to handle advanced roles. In terms of the new pharmacy graduates, there is a need for curricular reform to incorporate patient oriented program learning outcomes and to use innovative teaching approaches to cultivate future pharmacists' problem solving, interprofessional and communication skills. There is also a necessity for designing and implementing quality improvement strategies to assess clinical skills competencies in pharmacy schools in the Middle East. Moreover, broad marketing campaigns and social media initiatives should be implemented to enhance public awareness of pharmacist professional image, role and capability to offer patient centered services. Community pharmacy staff should reevaluate their daily practice to offer professional services to patients, which in turn would improve public awareness of their role.

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Declaration of competing interest

No conflict of interest to declare.

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