

RESEARCH ARTICLE

OPEN ACCESS

PHARMACY PROFESSION AND PRACTICE IN ARABIAN GULF COUNTRIES: CHALLENGES AND OPPORTUNITIES

*Wafa Alsaeedi, Hanan Alshaikh, Amina Almesaifer and Omar Alsamani

Pharmacists, Pharmaceutical Services Department, King Hamad University Hospital, Bahrain

ARTICLE INFO

Article History:

Received 19th December, 2019
Received in revised form
21st January, 2020
Accepted 06th February, 2020
Published online 30th March, 2020

Key Words:

Pharmacy profession; GCC; Perspective;
Pharmacy practice; Community awareness.

*Corresponding author: Wafa Alsaeedi

ABSTRACT

Background: With the onset of drug industries and medical guidelines, pharmacists' rule has become unsteady and ambiguous. Defining the role of the pharmacists was a big conflict, as in some regions the pharmacists are seen as drug experts practicing the pharmaceutical care principles declared by the American Pharmacist Association (APhA). While in other countries the pharmacists are still seen as a 'Dispenser'. Therefore, this study aimed to evaluate the Arabian Gulf community perspective on pharmacist's practice and their field. **Method:** A cross-sectional study conducted among Gulf Cooperation Council (GCC) citizens and residents through an online survey consists of 18 close-ended questions. It distributed randomly in the period between the 7th of October 2018 and 23rd of November 2018. 839 completed surveys obtained. **Results:** pharmacists were highly accessible, and their services meet public expectations. Most of the GCC communities (67.22%) had a positive viewpoint toward the pharmacy profession as a reliable health profession. Among healthcare practitioners and non-healthcare practitioners, 72.12% and 72.58% respectively believed that the pharmacists have adequate experience and knowledge required to meet patient's interests and needs compared to 27.88% and 27.42% believe that they require more training and education. Surprisingly, 70.05% of the general population with no medical background and 55.29% with medical background prefer physicians as a source of drug-related information versus 26.31% and 39.4% respectively relay on the pharmacists. **Conclusion:** A gap between pharmacy services and the community has been noticed, which showed to affect pharmaceutical services quality. Although, with a high prevalence of the pharmacists, accessibility and accepted trust level, pharmacists still not the preferred professionals to be consulted in their specialty. Pharmacy profession in GCC countries still young and there are variable and achievable improvements to implement starting from educational and health authorities to monitoring bodies to the public awareness programs.

Copyright © 2020, Wafa Alsaeedi et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Wafa Alsaeedi, Hanan Alshaikh, Amina Almesaifer and Omar Alsamani. 2020. "To analyze the tourism industry of india with special reference to leh district of ladakh union territory", *International Journal of Development Research*, 10, (03), 34329-34334.

INTRODUCTION

Health care services are in continuous rapid evolution with the advent of new and developed therapies. Particularly, the pharmacy profession has been known since the dawn of history in different forms, as it instinct in human to survive through finding or creating substances that promote healing and improving health outcomes (Bender, 1952). With the onset of drug industries and medical guidelines, the pharmacists' rules become unsteady and ambiguous (Pearson, 2007). Defining the roles of the pharmacists was a big conflict, as in some regions the pharmacists are seen as drug experts practicing the pharmaceutical care principles, as declared by the American Pharmacist Association (APhA) (American

Pharmacists Association, 1995). Where as, in some countries, pharmacists are still seen as a 'Dispenser'. Ambiguities in defining the pharmacist's role lead to inadequate utilization of their professional services and limit their contribution to the community health improvement. Recently, pharmacist's roles have been shifted from manufacturing and supplying medicines to a more dignified person-centered undertaking, who assure effectiveness, safety and high-quality use of the medicines for patients and other healthcare professionals as well (John, 2018; American Society of Health-System Pharmacists, 2008). The relationship between the pharmacists and the community should build-up of trust and respect. Therefore, if this relationship affected it will lead to a negative consequence in delivering health services as it is proven that proper pharmacist counseling leads to improve

clinical/economic outcomes, quality of life, compliance and patients' satisfaction toward their medication regimen (Okumura *et al.*, 2014). Certainly, pharmacist's relationship with other health care providers is vital. A result of a published study points out the impact of pharmacist's collaboration with other health care providers as a primary team in managing patient's condition or addictions, hospital stay and organization economic or load costs (Canadian Pharmacists Association, 2016). Affecting or destroying this relationship and therefore the perspective of the pharmacists might be due to two main reasons. Firstly, pharmacist's practice; it has been noticed worldwide, that the quality of counseling was very low as it found that only 42.6% of the pharmacists provide proper counseling to their patients and a limited number (8.3%) asked about patient medical history while none discussed vital information such as; allergic history and adverse drug reaction (Netere *et al.*, 2018). Moreover, several studies have been reported malpractices among the pharmacists ranging from minor 'limited counseling' to more serious practices 'dispensing prescription-only drugs and/or contraindicated drugs' which were justified to increase their economic outcomes or other justifications (Erku and Aberra, 2018; Al-Arifi, 2014; Alaqeel and Abanmy, 2015). Secondly, community provision and trust; as seen in several studies the conflict between the pharmacist and the general practitioner (GP), where more patients preferred the GP in drug-related issues (Gidman *et al.*, 2012). Several roles were not expected to be performed by pharmacists such as public awareness or eligibility to prescribing over the counter (OTC) medications without physician interaction (Eades *et al.*, 2011; Wilbur *et al.*, 2010). Hence limited researches are evaluating the community perceptive in the Arabian Gulf as found after thorough searching of the database, this study aimed to evaluate the Arabian Gulf community perspective about the pharmacists' practice and their felid.

METHODS

A cross-sectional study conducted among Gulf Cooperation Council (GCC) citizens and residents through the survey consists of 18 close-ended questions. The survey was developed in simple Arabic language to assure that responses reflect the GCC community perspective, it was distributed randomly in the period between the 7th of October 2018 and 23rd of November 2018. 839 completed surveys obtained, data was built, collected and analyzed using Google forms and Microsoft Office Excel software. A P-value of less than 0.05 is considered significant.

RESULTS

Participants characteristics: Total of 839 participants completed the survey; the majorities (64.96%) of the participants were from Kingdom of Bahrain followed by Kingdom of Saudi Arabia (KSA) (23.12%), Kuwait (4.29%), United Arab Emirates (UAE) (3.34%), Oman (2.38%) and Qatar (1.91%). They were from different age groups, educational levels, and career backgrounds. Mainly they were young adults between 18-25 years (41.95%), where the lowest response reported among those below the age of 18. Moreover, females showed a high response in comparison to males with 685:154 (Female; Male). The predominant percentages of the participants were highly educated (70.32%). Out of the total sample, most of the participants 631 (75.21%) were with no medical background versus 208 (24.79%) from different medical specialties (2.15% Physicians, 3.58% Nurses, 8.58% Pharmacists and 10.49% other specialties) (Table 1).

Pharmacy professional's prevalence: 59.36% were in direct contact with pharmacists, either as a family member (28.01%),

Table 1. Details of the collected sample (n = 839)

Country of residency							
Number of participants	KSA	Bahrain	Kuwait	Qatar	UAE	Oman	Total
194 (23.12%)	545 (64.96%)	36 (4.29%)	16 (1.91%)	28 (3.34%)	20 (2.38%)	839	
Age groups (years)							
<18	10 (5.15%)	18 (3.30%)	6 (16.67%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	34 (4.05%)
18 – 25	80 (41.24%)	233 (42.75%)	2 (5.56%)	11 (68.75%)	23 (82.14%)	3 (15.00%)	352 (41.95%)
26 – 35	28 (14.43%)	91 (16.70%)	4 (11.11%)	5 (31.25%)	1 (3.57%)	8 (40.00%)	137 (16.33%)
36 – 45	36 (18.56%)	83 (15.23%)	10 (27.78%)	0 (0.00%)	3 (10.71%)	5 (25.00%)	137 (16.33%)
>45	40 (20.20%)	120 (22.02%)	14 (38.89%)	0 (0.00%)	1 (3.57%)	4 (20.00%)	179 (21.33%)
Gender							
Female: Male	154:40	452:93	32:4	16:0	21:7	10:10	685:154
Educational level							
Elementary/ Middle School	Secondary School		University and above				
25 (2.98%)	224 (26.70%)		590 (70.32%)				
Medical background							
No medical background	Physician	Nurse	Pharmacists	Other specialty			
631 (75.21%)	18 (2.15%)	30 (3.58%)	72 (8.58%)	88 (10.49%)			

Table 2. Drug related consultations preference (%)

Drug related consultation preference				
Medical background	Pharmacist	Physician	Nurse	Other
No	26.31	70.05	0.63	3.01
Pharmacist	56.94	38.89	0.00	4.17
Physician	27.78	66.67	0.00	5.56
Nurse	20.00	66.67	10.00	3.33
Other	34.09	62.50	0.00	3.41
Total	29.56	66.39	0.83	3.22

a friend (22.41%) or with no relationship (8.94%), while 40.64% were not in contact with a pharmacy practitioner.

Participants perspectives: GCC communities showed multiple perspectives toward the pharmacy profession, ranging from a reliable profession to a burden, worthless profession among the medical team. Generally, most of the GCC communities (67.22%) had a positive viewpoint toward the pharmacy profession as a reliable health profession. Whereas others feel it is less valuable, or have other believes as the results stated; 0.48% found it worthless to the medical team, 23.48% believed that it characterized by filling medical prescriptions only and almost similar percentages described it as profitable (3.58%) or comfortable office carrier (5.24%). Looking closer into the healthcare practitioners' perspective, it was found that 5.56% of the physicians believed that the pharmacy profession adds no value to the medical team, which contributes to 25% of the total sample and 100% of the medical participants sharing this opinion. On the other hand, 12.50% of pharmacy professionals defined it as a prescription-dependent career, 1.39% as a profitable career, while none of them found it as a comfortable office career (Figure 1). 92.97% believed that practicing pharmacy requires scientific qualifications in compare to 2.15% believed that it can be performed without any qualifications and 4.89% were not familiar with its requirements.

Preferable healthcare professional: Out of the general population with no medical background, 70.05% prefer physicians as a source of drug-related information versus 26.31% relay on the pharmacists. However, among the pharmacists' respondents, 56.94% prefer to consult their colleagues compared to 38.89% depending on physicians. Looking at the only 18 physicians from the total sample; 12 (66.67%) of them preferred a physician as a drug-information source. For other specialties, 66.67% of the nurses and 62.50% of other healthcare providers preferred the physicians. As a result, 66.39% of the total sample preferred the physicians for drug consultation and 29.56% preferred the pharmacists (Table 2).

Pharmacists Consultations: Participants conducted in this study were preferred to consult the pharmacists on single or multiple occasions, facing 8.28% who were not likely to consult pharmacy professionals. Particularly, 38.29% were consulting the pharmacists regarding an acute illness, 16.49% about food supplements and vitamins, 12.52% were interested to ask about cosmetics products and the remaining were more likely to consult regarding chronic disease, drugs preparation, stability, and storage, in addition to safety/efficacy of drugs during pregnancy and breastfeeding (7.60%, 7.87%, and 8.95% respectively). None of them reported consulting the pharmacists in all these aspects (Figure 3).

Table 3. Preferred pharmacy sector, its conditions and medication accessibility

Pharmacy type or sector	Participants preference	Condition		
		Neat and clean always	Neat and clean occasionally	Random and unorganized
Community pharmacies.	62.10%	64.68%	33.01%	2.30%
Hospital/health centers pharmacies.	35.64%	64.21%	34.78%	1.10%
Not prefer to visit pharmacies.	2.26%			
Access to medications in community pharmacies.				
Based on medical conditions and through valid prescriptions.			Unlimited access regardless the case.	
73.90%			26.10%	

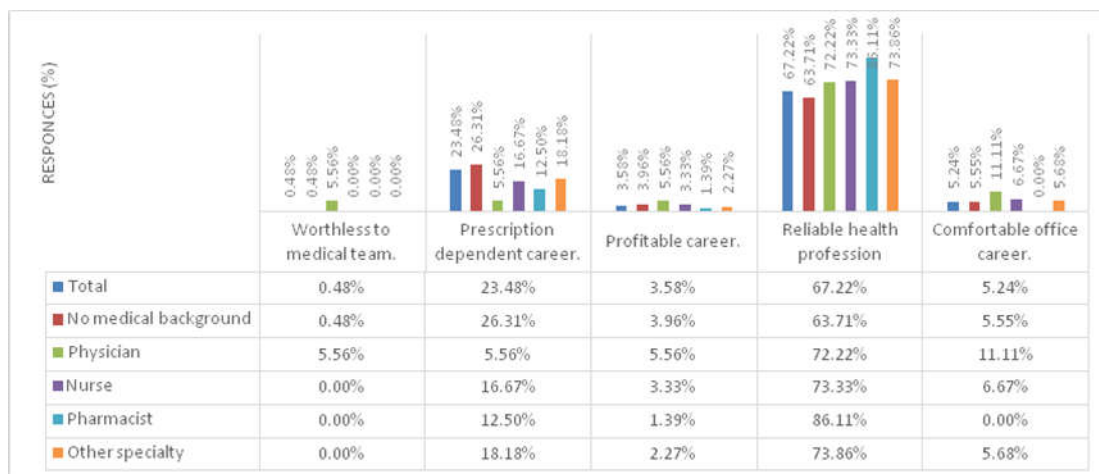


Figure 1. The perspective of the pharmacy profession based on the participants medical background

Participants perspectives: One of the critical points that were investigated in this study was the trust level of pharmacist's consultations. Trusting levels were scored from 1 (Not trusted) to 5 (Strongly trusted), 38.50% rated pharmacist's consultation by 3 out of 5 followed by 4,5,2 and 1 (30.75%, 18.36%, 8.82%, and 3.58% respectively) (Figure 2). Additionally, no significant difference noticed based on the medical background as healthcare providers reported trusting pharmacist's consultation with the same sequence as the general population (P=0.05874).

Pharmacies access and condition: As presented in table 3, community pharmacies were preferred to be visited by 62.10% followed by Hospital/health centers pharmacies (35.64%) and 2.26% were less likely to visit any pharmacies regularly. During their visits, 64.00% reported that the pharmacies they used to visit were neat and clean all the time, 34.21% found it occasionally and a limited number (1.79%) found it random and unorganized. No difference was reported based on the sectors, the approximately same percentage found hospital/health center pharmacies and community pharmacies

clean and well-organized (64.21% and 64.68% respectively). Access to the medications in community pharmacies was well-controlled and restricted, as 73.90% reported that they received the medications based on their medical conditions and through valid prescriptions for those medications classified as a prescription-only medication. On the opposite side, a limited number (26.10%) was getting the medications easily regardless of their conditions including prescription-only medicines as justified that most of the pharmacies consider the economic income necessity. Besides, 81.29% received full attention and respect during their consultations with the pharmacists in both sectors, while a limited percentage felt pharmacists dealing with them in an unprofessional way either all the time (1.79%) or occasionally (16.92%).

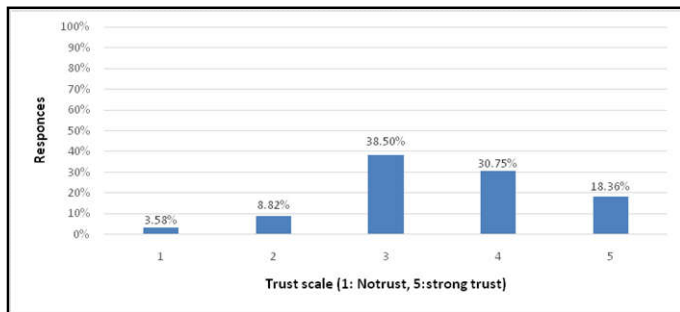


Figure 2. Trust scale of the participants toward pharmacist's consultation

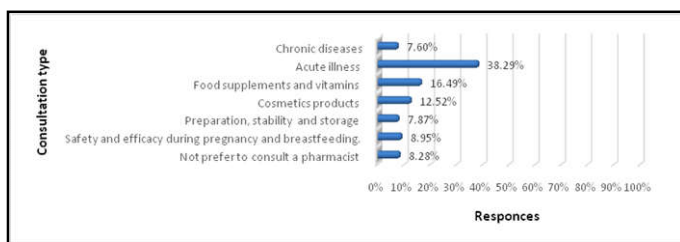


Figure 3. Most common questions types asked to the pharmacists

Pharmacists practices: Limitations in pharmacist's practice have been reported as the majority either not (35.52%) or occasionally (36.83%) discussed patient's medical history compare to 27.65% were considered these points in their counseling. No significant difference between hospital pharmacists and community pharmacists noticed as the finding showed that 30.10% were discussing patient's medical history, 32.78% were not and 37.12% did it occasionally in hospital pharmacies compared to 26.68% in community pharmacies were discussing this point followed by 35.89% were discussing it occasionally and 37.43% were not ($P=0.3795$). Among healthcare practitioners and non-healthcare practitioners (72.12% and 72.58% respectively), the majority believed that the pharmacists have adequate experience and knowledge required to meet patient's interests and needs compared to 27.88% and 27.42% who believed that they need more training and education. Moreover, around half of the pharmacists in this study (44.44%) believed that their colleagues need more training and experience to fulfill the patient's interests and needs. Close outcome reported when participants asked if this defect in knowledge and experience was locally or internationally (51.10% and 48.90% respectively).

DISCUSSION

Pharmacy conditions and services : Community pharmacies being preferred by the GCC community (Table 3), which is

more accessible and easier without the need for appointments and thought to deliver special care and attention for economic benefits. Furthermore, pharmacy area either within hospital/health center or outside showed a high level of hygiene and organization, and often performs their services to their clients as required, possibly due to the presence of protocols in addition to national and international authority bodies that control health services in GCC countries such as The Saudi Central Board for Accreditation of Healthcare Institutes (CBAHI), Health Authority Abu Dhabi (HAAD), Dubai Health Authority (DHA), National Health Regulatory Authority (NHRA), Accreditation Canada and Joint Commission International (JCI).

Respondent's perspective about the pharmacy and pharmacists: Numerous conflicts in responses have been noticed. There were a high prevalence and accessibility of the pharmacists, high satisfaction with pharmacy environment and pharmacist's behavior, knowledge and skills, well-respected perspective toward the pharmacy profession and generally well-trusted pharmacist's consultations by the majority 49.11% (Figure 3), if excluding the 38.50% with trust scale of 3 out of 5 and classifying the trust level into two groups: not trusting (1 and 2 out of 5) and trusting (4 and 5 out of 5). Nevertheless, with all these promising factors, only 29.56% rely on the pharmacists for the medication consultation (Table 2). This assures the gap between the pharmacists and the general population, as they were in contact with a pharmacist, respecting their profession and trusting their consultations while not utilizing pharmacy services properly. Classified pharmacy profession in a degree less than what it should be reported by 32.78% (Figure 1). In addition, poor perspectives to pharmacy profession was not limited to low-educated participants, as most of the sample were holding a university degree and it stated by a consultant physician and chief editor of a medical journal that pharmacist's roles are limited to dispensing right medication or expiry checking only, by following physician decision (Alsaedi W. 2019. Conversation with Albareeq J. 2 January 2019).

Pharmacy services utilization in GCC: As mentioned in figure 3, the majority (67.81%) were consulted with their pharmacists about acute or over the counter (OTC) medication-related cases. On the other hand, none of the participants reported consulting the pharmacists in all provided aspects, as all of them were part of the basic pharmacist's roles.

Drug consultation preference by GCC community: Physicians were the most preferred medication-information source (Table 2) in GCC and the Middle East; as the majority from Jordan and UAE consulted their specialist physician regarding their chronic medication followed by the pharmacist, whereas in Iraq around 37% used to ask the pharmacists for this manner followed by general practitioner (Basheti *et al.*, 2014), which match our findings as 66.39% preferred to ask the physicians about their medication use while 29.56% preferred the pharmacist (Table 2). Physicians due to their well-respected medication background can provide the patients with sufficient information related to drug's clinical use and applications, but medication consultation could extend the clinical aspects toward more detailed aspects of pharmacodynamics, pharmacokinetics, pharmacogenomics, drug stability and drug interactions which can be classified as purely pharmaceuticals specialties.

Pharmacist integration with the medical team: Excluding or limiting pharmacists' participation in clinical intervention might lead to negative consequences; as it has been approved that pharmaceutical intervention can save \$ 207,126.6 and \$ 592,840 in community and hospital pharmacies respectively (Tasaka *et al.*, 2016). Moreover, pharmaceuticals interventions were not limited to economical arm only but it showed a significant advantage in clinical practices; as it found that pharmacist's interventions in selecting and monitoring anticoagulant therapy associated with better outcomes compared to physicians alone intervention ($P=0.0335$) (An *et al.*, 2017). All previous conflicts emphasize deeply the gap between the pharmacy services welfare and its beneficiaries. Lack of public awareness about the profession varied and developed the scope of services, might minimize its utilization and influence their rights to receive certain information from the pharmacists with each filled prescription and therefore might lead to consulting others whom not fully experts. In addition, pharmacists were not fully performing their services which might contribute to these conflicts; as 72.35% were not or rarely discussing medical history with their patients. Moreover, 38.89% of the pharmacists themselves preferred the physicians as a medication information source, which reflected a lack of confidence in their professional experiences or educational system among GCC pharmacist (Table 2). Among the selected countries, most of the responses were filled by young adults between the age of 18 to 25 years old, which it is the university age and high online plate-form activities; along with acceptable percentages from other age categories. Therefore, it indicates that accessibility to a wide range of community categories has become easier nowadays. GCC community showed a highly educated percentage represented by 70.32% of the sample size with post-diploma degrees, which is a promising environment toward future improvements and awareness expansion plans.

Limitations

Despite the lowest population of Bahrain compared to other GCC countries, most of the responses (64.96%) have been received from the Kingdom of Bahrain where the study is originally initiated. The unbalanced number of responses from the selected countries is one of the major concerns, probably due to inadequate distribution methods or popularity of the survey to attract people outside Bahrain.

Conclusion

Pharmacy is a very promising profession to integrate and complete the health delivering circle along with other specialties. Therefore, maximizing the utilization of its outcomes to the full potential could fill the gap found in this sample toward preventing errors regarding medication use. In the GCC region, the pharmacy profession is young and limited, although it well respected, so there is room for improvement. Moreover, preferring other healthcare providers in drug-related consultations might be due to lack of proper medication consultation definition, as it is not limited to the clinical aspects or active ingredients only, but it is related to other non-clinical knowledge such as physical and chemical stability, manufacturing, and drug-drug/food-drug interactions. Reasonably that these questions are better been asked to a pharmacist. Distributing awareness for optimum use of pharmacy services and fill the communication gap between the pharmacists and their costumers is the main goal of this paper.

Collaboration between health and educational bodies in each country to assess the needed services by their communities, educate and train the pharmacist accordingly. Maintain continuous education and testing that match the international evolution of the profession. Each health or pharmaceutical authority should define and systemize the meaning of proper pharmaceutical services, along with regular monitoring of its tangible implementations. Integrate the pharmacists more into the patient-centered care circle where they could prevent errors and save physician's time and effort. As seen previously, a wide range of community categories was accessible regardless of age and medical background as most of them have online access in GCC countries, high educational level, and in contact with a pharmacist. This makes these goals achievable and the outcomes of these improvements can be observed economically and efficiently.

Declarations of interest:

- Ethics approval and consent to participate: Not applicable.
- Consent for publication: Not applicable.
- Availability of data and materials: The data for the study can be released upon reasonable request to the corresponding author
- Competing interests: The authors declare that they have no competing interests.
- Funding: Not applicable. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.
- Authors' contributions: All authors contribute to all sections included in this research. All authors read and approved the final manuscript
- Acknowledgements: Not applicable.

Abbreviations:

APhA: American Pharmacist Association.
 GP: general practitioner.
 OTC: over the counter.
 GCC: Gulf Cooperation Council.
 KSA: Kingdom of Saudi Arabia.
 UAE: United Arab Emirates.
 CBAHI: Central Board for Accreditation of Healthcare Institutes.
 HAAD: Health Authority Abu Dhabi.
 DHA: Dubai Health Authority.
 NHRA: National Health Regulatory Authority.
 JCI: Accreditation Canada and Joint Commission International.

REFERENCES

- Alaqeel, S., Abanmy, N.O., 2015. Counselling practices in community pharmacies in Riyadh, Saudi Arabia: a cross-sectional study. *BMC health serv res.* 15, 557. <https://doi.org/10.1186/s12913-015-1220-6>.
- Al-Arifi, M.N., 2014. Community pharmacist perception and attitude toward ethical issues at community pharmacy setting in central Saudi Arabia. *SPJ.* 22, 315-325. <https://doi.org/10.1016/j.jsps.2013.08.003>.
- American Pharmacists Association, 1995. Principles of Practice for Pharmaceutical Care. <http://www.pharmacist>.

- Com/principles-practice-pharmaceutical-care (accessed 10 November 2018).
- American Society of Health-System Pharmacists, 2008. ASHP statement on the role of health-system pharmacists in public health. *AJHP*. 65, 462-467. <https://doi.org/10.2146/ajhp070399>.
- An, T., Kose, E., Kikkawa, A., Hayashi, H., 2017. Hospital pharmacist intervention improves the quality indicator of warfarin control: A retrospective cohort study. *J Med Invest*. 64, 266-271. <https://doi.org/10.2152/jmi.64.266>.
- Basheti, I.A., Qunaibi, E.A., Hamadi, S.A., Abu-Gharbieh, E., Saleh, S., AbuRuz, S., Mohamoud, M., Bulatova, N.R., 2014. Patient perspectives of the role of the community pharmacist in the Middle East: Jordan, United Arab Emirates and Iraq. *Pharmacology & Pharmacy*. 5, 588-599. <http://dx.doi.org/10.4236/pp.2014.56069>.
- Bender, G.A., 1952. *A history of pharmacy in pictures*. Parke, Davis & Company, Michigan, US.
- Canadian Pharmacists Association, 2016. A review of pharmacy services in Canada and the health and economic evidence. <https://www.pharmacists.ca/cpha-ca/assets/File/cpha-on-the-issues/Pharmacy%20Services%20Report%201.pdf> (accessed 5 November 2018).
- Eades, C.E., Ferguson, J.S., O'Carroll, R.E., 2011. Public health in community pharmacy: a systematic review of pharmacist and consumer views. *BMC public health*. 11, 582. <https://doi.org/10.1186/1471-2458-11-582>.
- Erku, D.A., Aberra, S.Y., 2018. Non-prescribed sale of antibiotics for acute childhood diarrhea and upper respiratory tract infection in community pharmacies: a 2 phase mixed-methods study. *Antimicrob Resist Infect Control*. 7, 92. <https://doi.org/10.1186/s13756-018-0389-y>.
- Gidman, W., Ward, P., McGregor, L., 2012. Understanding public trust in services provided by community pharmacists relative to those provided by general practitioners: a qualitative study. *BMJ open*. 2, e000939. <http://dx.doi.org/10.1136/bmjopen-2012-000939>.
- John, C., 2018. The changing role of the pharmacist in the 21st century. <https://www.pharmaceutical-journal.com/your-rps/the-changing-role-of-the-pharmacist-in-the-21st-century/20204131.article?firstPass=false> (accessed 10 November 2018).
- Netere, A.K., Erku, D.A., Sendekie, A.K., Gebreyohannes, E.A., Muluneh, N.Y., Belachew, S.A., 2018. Assessment of community pharmacy professionals' knowledge and counseling skills achievement towards headache management: a cross-sectional and simulated-client based mixed study. *J Headache Pain*. 19, 96. <https://doi.org/10.1186/s10194-018-0930-7>.
- Okumura, L.M., Rotta, I., Correr, C.J., 2014. Assessment of pharmacist-led patient counseling in randomized controlled trials: a systematic review. *IJCP*. 36, 882-891. <https://dx.doi.org/10.1007/s11096-014-9982-1>.
- Pearson, G.J., 2007. Evolution in the practice of pharmacy—not a revolution!. *CMAJ*. 176, 1295-1296. <https://doi.org/10.1503/cmaj.070041>.
- Tasaka, Y., Yasunaga, D., Tanaka, M., Tanaka, A., Asakawa, T., Horio, I., Miyauchi, Y., Araki, H., 2016. Economic and safety benefits of pharmaceutical interventions by community and hospital pharmacists in Japan. *IJCP*. 38, 321-329. <https://doi.org/10.1007/s11096-015-0245-6>.
- Wilbur, K., El Salam, S., Mohammadi, E., 2010. Patient perceptions of pharmacist roles in guiding self-medication of over-the-counter therapy in Qatar. *Patient prefer adherence*. 4, 87-93. <https://doi.org/10.2147/PPA.S9530>.
