



Online ISSN (2789-3219)

Research Article

Evaluation of Consultation in Community Pharmacies using Pseudo Customer Method in Sulaimani, Kurdistan Region of Iraq

Khanda Taifwr Hamasalih* 

Department of Clinical Pharmacy, College of Pharmacy, University of Sulaimani, Sulaimani, Kurdistan Region, Iraq

Received: 18 January 2025; Revised: 28 February 2025; Accepted: 3 March 2025

Abstract

Background: The role of today's pharmacists needs to be expanded to include pharmaceutical care concepts, making them healthcare professionals rather than drug sellers. **Objective:** The main objective of this research was to evaluate the counseling performance of staff in community pharmacies. **Methods:** This cross-sectional study was designed to evaluate real counseling practices of community pharmacies in Sulaimani city through pseudo-customer visits; 100 pharmacies were visited. Two scenarios were used. The first one was a symptom-based request, and the second one was a direct product request. **Results:** A total of 100 visits to pharmacies were conducted under the following scenarios: scenario 1= 50 visits and scenario 2= 50 visits. Data analysis revealed that 45% of the pharmacy staff did not counsel the pseudo-patients at all. The overall level of counseling (measured by criteria) has not exceeded 34%, but significant differences ($p < 0.05$) were determined among the counseling criteria. The most counseled information by the pharmacy staff was the drug use (41%); many fewer asked other important questions, like "The medication is for whom?" or "Presence of any other symptoms?" (66%). In 93% of pharmacies, the staff did not ask the patients since when the symptoms started. **Conclusions:** This study demonstrated inadequate counseling and dispensing practice by community pharmacy staff. The finding highlighted the need for continuous professional training programs to improve the counseling and dispensing practices in community pharmacies.

Keywords: Community pharmacist, Community pharmacy, Counselling, Over the counter drug, Pseudo-customer.

تقييم الاستشارات في صيدليات المجتمع باستخدام منهجية العملاء الزائفة في منطقة السليمانية-كردستان العراق

الخلاصة

الخلفية: يحتاج دور الصيدلة اليوم إلى التوسع ليشمل مفاهيم الرعاية الصيدلانية، مما يجعلهم متخصصين في الرعاية الصحية بدلاً من بائعي الأدوية. **الهدف:** كان الهدف الرئيسي من هذا البحث هو تقييم الأداء الاستشاري للموظفين في صيدليات المجتمع. **الطرائق:** تم تصميم هذه الدراسة المقطعية لتقييم زيارات المرضى المحاكاة لمراقبة ممارسات الاستشارة الحقيقية لصيدليات المجتمع في مدينة السليمانية. تمت زيارة 100 صيدلية. تم استخدام سيناريوهين. كان الأول عبارة عن طلب قائم على الأعراض والثاني كان طلباً مباشراً للمنتج. **النتائج:** تم إجراء ما مجموعه 100 زيارة للصيدليات في ظل السيناريوهات التالية: السيناريو 1 = 50 زيارة والسيناريو 2 = 50 زيارة. كشف تحليل البيانات أن 45% من العاملين في الصيدلية لم يقدموا المشورة للمرضى الزائفين على الإطلاق. ولم يتجاوز المستوى العام للإرشاد (مقاساً بالمعايير) 34%، ولكن تم تحديد فروق ذات دلالة إحصائية ($p < 0.05$) بين معايير الاستشارة. على الرغم من أن 41% من موظفي الصيدلة قدموا المشورة للمرضى حول كيفية استخدام الدواء، إلا أن عدداً أقل بكثير طرح أسئلة مهمة أخرى، مثل "الدواء لمن؟" (66%) أو "وجود أي أعراض أخرى؟" (66%). في 93% من الصيدليات، لم يخبر المرضى وقت الظهور الأعراض. **الاستنتاجات:** أظهرت هذه الدراسة عدم كفاية الاستشارة وممارسة التوزيع من قبل موظفي صيدلية المجتمع. سلطت النتائج الضوء على الحاجة إلى برامج التدريب المهني المستمر لتحسين ممارسات الاستشارة وصرف الأدوية في صيدليات المجتمع.

* **Corresponding author:** Khanda T. Hamasalih, Department of Clinical Pharmacy, College of Pharmacy, University of Sulaimani, Sulaimani, Kurdistan Region, Iraq; Email: khanda.hamasalih@univsul.edu.iq

Article citation: Hamasalih KT. Evaluation of Consultation in Community Pharmacies using Pseudo Customer Method in Sulaimani, Kurdistan Region of Iraq. *Al-Rafidain J Med Sci.* 2025;8(1):154-160. doi: <https://doi.org/10.54133/ajms.v8i1.1726>
© 2025 The Author(s). Published by Al-Rafidain University College. This is an open access journal issued under the CC BY-NC-SA 4.0 license (<https://creativecommons.org/licenses/by-nc-sa/4.0/>).



INTRODUCTION

The introduction of the pharmaceutical care philosophy by Hepler and Strand in 1990 has moved the role of the community pharmacists into direct patient care, meaning pharmacists should take responsibility for assessing the status of patients, developing a therapeutic plan, documenting and following up on outcomes, and assuming responsibility for the outcomes [1]. Community pharmacists, as healthcare professionals, can serve as the first point of contact for patients seeking health advice due to the accessibility of free consultations

[2–5]. Although they face challenges because of high workloads, numerous prescriptions, and a high number of customers needing their attention [3]. However, pharmacists are ideally showing to have a significant role in assisting self-medication, managing minor health problems [6], promoting the safe and effective use of over the counter (OTC) medication [7,8], promoting health education [9], and being involved in the monitoring and promotion of medication adherence [9,10]. They use their knowledge of communication skills, questioning skills, recognizing signs and symptoms, pharmacotherapy, and treatment guidelines of the

minor disease to make a definitive diagnosis for the patient [11,12]. As a result, they decrease doctor visits and lower overall health system and treatment costs [13]. Regardless of its many benefits, self-medication has many concerns, like medication misuse, which can increase the risk of morbidity and mortality and even healthcare costs [7]. Medication misuse comprises a range of situations; the most common include taking drug products over the recommended doses and using OTC drugs beyond the recommended period [7]. In addition, inappropriate medication use can be linked to the season of the year. For instance, in winter, because of the high prevalence of cold and flu, paracetamol, as an ingredient in many OTC cold preparations, is frequently misused [14]. Another example of the misuse of OTC medicines has been shown in an American study: nearly 11% of study participants have used ibuprofen over the maximum daily recommended dose [15]. Non-steroidal anti-inflammatory drugs are the most common drugs that are linked with inappropriate use and hospitalizations for self-medication [15]. While in Iraq, the most reported OTC drugs for misusing are cough and cold remedies (26.6%), topical corticosteroids (17.9%), and products for allergy (11%) [16]. Therefore, community pharmacists should act as proactive leaders for managing this problem; they could be a source of information even if there is not any national monitoring mechanism [16]. Studies have shown that the Iraqi population mostly visits community pharmacies for seeking healthcare services [17–19]. Ibrahim *et al.* found that 70% of the study participants have visited community pharmacies more than once per month, and more than 50% of the study participants will seek advice from community pharmacies while having any drug-related problems [19]. Community pharmacies can be the potential location for preventing the risks associated with self-medication. They have an overview of the OTC and prescription medications that are taken by the patients. Exchanging drug-related information between the patient and the pharmacist in community pharmacy is crucial to ensure positive patient outcomes [20]. Patient counseling is one of the essential services of a community pharmacy, for both OTC and prescription medicines [21]. Counseling includes a one-to-one interaction between the pharmacy staff and the patient or caregiver [22]. Counseling compromises the information to be given and received in the right way so that the patient uses such information to maximize therapeutic outcomes [23]. Medication counseling provides the following information orally or in written form to the patients or their caregivers. Those pieces of information include name, indications, route of administration, dose, duration of therapy, directions for use, side effects, precautions, and contraindications [24]. During patient consultation, pharmacists may detect and address drug-related problems, enhance the patient's understanding about the proper medication use, increase patient satisfaction with the pharmacy service, and finally improve the patient's quality of life [22]. At the end of the counseling process, it is critical to get feedback from the customers or to ask if they understood the

given information to reassure the clients' understanding about the given information [23,25]. One of the factors that leads to a lack of counseling in community pharmacies is poor knowledge of medical products and updated information, because most of the pharmacy staff do not have access to updated drug information, as a multicenter cross-sectional study stated the common barriers to effective counseling, including limited knowledge (67%), lack of updated drug information (67%), and heavy patient loads (82%) [26]. While a recent study that has been done in the Sulaimani-Kurdistan region of Iraq showed that the main factor for ineffective counseling is patients lack of time, although 78.8% of the dispensers counsel individuals while dispensing drug products, there are some patients that do not want to be counseled because of lack of time [25]. Most of the patients that take a medical product have a little or no information about the product, so pharmacy staff should give understandable and appropriate information to patients while dispensing prescribed and non-prescribed drugs [23]. Several methods have been conducted to augment questioning and communication skills or attempt to evaluate patient counseling inside community pharmacies. One of these methods is using pseudo-patients, pseudo-customers, or stimulated patients for improving healthcare practices [12,27]. A pseudo-customer is a trained person who makes a covert visit to a community pharmacy so as to enact a scenario that will test a specific reaction of a pharmacy staff member, without knowing that they are being observed [28,29]. The main aim of this research was to evaluate the counseling performance of staff in community pharmacies.

METHODS

Study design and setting

A cross-sectional survey using the pseudo-customer method was conducted to assess the quality of advice provided by the participating pharmacy staff. It is the method in which the buyer acts as a real patient to assess the quality of services provided in the community pharmacies. Internationally, the method has been accepted for evaluating the performance of community pharmacy staff [30]. To have more reliable results, the study was conducted covertly. This study was registered and approved by the Ethics and Research Registration Committee of the College of Pharmacy-University of Sulaimani with the registration number PH132-24 on 09.09.2024.

Scenarios and pseudo patient visits

Two different scenarios were done: the first one was a symptom-based request (the patient asking for a painkiller), and the second one was a direct product request (the patient asking for a specific brand of antacid). The pseudo patients learned how to present their symptoms during the short training period. Table 1 presents the scenario for treatment of pain during the menstrual cycle, and Table 2 for the purchase of a big

pack (96 tablets) of an antacid, Rennie (calcium carbonate 680 mg plus magnesium carbonate 80 mg). The details of the scenario were only given on demand to the counselor. The request for treatment for pain

was designed as a case for self-medication, while the request of Rennie was a case for recommendation to see a doctor.

Table 1: Scenario for treatment of pain (period pain)

Pseudo patient enters the pharmacy and asks for tablets against pain: "I would like to have a drug for pain."
The pharmacy staff are given the following information, if asked:
The drug is for the patient herself (25 years old).
The patient has not yet taken any drugs against her pain.
She has been suffering from pain since yesterday.
She describes the pain as cramping.
She does not take any other drug

Table 2: Scenario for purchasing a big pack of an antacid, Rennie (96 tablets)

Pseudo patient enters the pharmacy and asks for a big pack of Rennie: "I would like to buy a large pack of Rennie."
The pharmacy staff are given the following information when asked:
The product is for the patient himself (40 years old).
He feels a burning ache above the stomach.
During the night and after having meals the pain becomes sever.
He has this pain daily for one week. But he has been suffering from this pain for three years and has recently become worse.
The patient normally takes 2–3 tablets per a day. But now, he takes more than (8–10 per a day).
He has already tried Gaviscon (Na-alginate 500 mg plus NaHCO_3 100 mg) but he does not want to take it since it tastes awful
He does not take any other medicine, not drink alcohol or smoke
He wants to know if the symptoms can be treated with OTC drugs?

People who acted as pseudo-customers were one female and one male, and they were unknown to the pharmacies' staff. They were trained to get familiar with the study requirement. They took a one-day training course to help them play their roles accurately. They were informed about the scenarios as well as the method of the study. During the training, they played both scenarios, which were audio recorded. According to their performance, further instructions and advice were given to them. They were instructed to say their request at the beginning and not to give further information unless asked. If an open-ended question was asked by the counselor, pseudo customers were to provide all information, but in the case of close-ended questions, they were to provide only information related to the question ('yes' or 'no') and they had paid cash.

Data collection

By using a simple random sampling, 100 community pharmacies were chosen to participate in the study; fifty pharmacies were chosen for each of the scenarios. In addition, fifty pharmacies were chosen in crowded areas (in Ebrahim Pasha and Goran streets), and another fifty pharmacies were chosen in non-crowded areas (including all those pharmacies outside the mentioned two streets). The test purchases were performed between October 1st, 2024, and November 1st, 2024. All the visits were randomly assigned by the research team. During the study, each of the pharmacies was visited once, giving a total of 100 test purchases. No pharmacy was scheduled to receive the same scenario more than once. The information collected from the pharmacies was not disclosed to any person outside the research team. An assessment form was developed by the author, which is composed of 12 criteria that include all pharmacological advisory that should be followed by pharmacists during OTC medication counselling [7,11,19].

However, the assessment forms were completed by pseudo customers immediately after visiting the pharmacies so that recall bias could be minimized. The non-counseled criterion was marked with 0 points (as "No"), while the counseled criterion was marked with 1 point (as "Yes"). The total scores for each pharmacy varied from 0 to 12.

Statistical analysis

The data was analyzed by using the Statistical Package for Social Sciences program version 27 to describe the results via tables and graphs, and then different variables were compared by using chi-square with a p -value of <0.05 as a cutoff point for deciding whether the test is significant or not.

RESULTS

During the study period, 100 complete assessment forms were collected regarding 100 community pharmacy visits. Table 3 shows that among 100 pharmacy staff evaluated in this study, 50% of the counselors were male (G2) and 50% of them were female (G1).

Table 3: Pharmacy staff of different gender group [male and female] (n=100)

Gender	Frequency (%)	Mean $\pm$ SD	p -value
Female (G1)	50(50)	1.42 $\pm$ 1.739	0.577
Male (G2)	50(50)	1.48 $\pm$ 1.93	

There was no significant difference between G1 and G2 in counseling the patient when dispensing OTC medication products ($p > 0.05$). There was a lack of patient counseling in 45% of the participating pharmacies during dispensing OTC products. The average score was 1.45 ± 1.83 . None of the pharmacies obtained 12, 11, or even 10 points. Only 1% of the pharmacies obtained 9 points. The frequency

distribution of pharmacy scores obtained from patient counseling on OTC drugs has been shown in Table 4.

Table 4: Frequency distribution of pharmacy score obtained from patient counselling on OTC drug (n=100).

Score	Number (%)
0	45(45)
1	18(18)
2	11(11)
3	12(12)
4	9(9)
5	1(1)
6	2(2)
7	1(1)
8	0(0.0)
9	1(1)
10	0(0.0)
11	0(0.0)
12	0(0.0)
Total No. of Pharmacies	100

Values expressed as number and percentage. Number of pharmacies that got this score.

Table 5 describes the pharmacies' scores detailed on evaluation criteria. When comparing all criteria, irrespective of the scenarios, the most counseled criterion was C9 (How does the drug have to be used by the patient?), which was 41%. In 82% of the visits, the staff did not ask to whom the medicine (C2) was.

Table 5: Frequency calculation of evaluation criteria for pharmacy staff providing over the counter product counselling (n=100)

Evaluation criteria	Score 0 (%)	Score 1 (%)
C1	79	21
C2	82	18
C3	93	7
C4	66	34
C5	95	5
C6	96	4
C7	97	3
C8	93	7
C9	59	41
C10	99	1
C11	97	3
C12	100	0

Values expressed as percentage. n is total number of participated pharmacies.

In 93% of pharmacies, the staff did not ask the patients since when the symptoms started (C3). About 66% of the pharmacy staff did not ask if the patient had any other symptoms (C4). Only 5% of the counselors asked the patient if they were taking any other medication (C5). A few pharmacy staff (4 out of 100 pharmacies) considered it important to ask the patient if he or she has other medical conditions (C6). In 97% of the pharmacies, a drug product was recommended by the counselor (C8). Only 1% of the staff informed the patients about drug interactions, contraindications, and side effects of the dispensed drug product (C10). None of the counselors recommend a non-pharmacological alternative for the patient (C12). Table 6 shows that, including 100 community pharmacies, 18% of them were in a crowded area, while 82% of them were in the non-crowded area. There was a significant difference between counseling the pseudo patient in crowded and non-crowded community pharmacies, $p < 0.05$.

Table 6: Location of the community pharmacies according to crowdedness (n=100)

Location of Pharmacies	n(%)	Mean±SD	p-value
Non-crowded (G1)	82(82)	1.45±1.893	0.01
Crowded (G2)	18(18)	1.44±1.542	

Table 7 shows the frequency analysis of counseling per scenario and counseling criteria. It can be noticed that the patient with symptoms was counseled the most on all 12 criteria, whereas the one that requested antacid was counseled the least. Irrespective of the scenario, the most counseled criterion is (C9), when comparing the frequencies of "Yes" scores. Thus, it was shown that giving advice on how the drug must be used was the highest counseled criterion. There was a highly significant difference in counseling for C1, C2, C3, C4, C5, C6, C7, C8, and C9 between the two scenarios.

Table 7: Frequency analysis of counselling, per scenario and counselling criteria. (n=100)

Criterion	Result	Scenario 1 (n=50)	Scenario 2 (n=50)	p-value
C1	yes	20	1	0.001
	No	30	49	
C2	yes	18	0	0.006
	No	32	50	
C3	yes	7	0	0.001
	No	43	50	
C4	Yes	32	2	0.001
	No	18	48	
C5	Yes	5	0	0.022
	No	45	50	
C6	Yes	4	0	0.041
	No	46	50	
C7	Yes	3	0	0.079
	No	47	50	
C8	Yes	7	0	0.006
	No	43	50	
C9	Yes	39	2	0.001
	No	11	48	
C10	Yes	1	0	0.315
	No	49	50	
C11	Yes	3	0	0.079
	No	47	50	
C12	Yes	0	0	1.0
	No	50	50	

Data presented as frequency. p -value < 0.05 indicates a significant difference between scenario 1 and scenario 2.

DISCUSSION

Patients prefer free medical consultation fees from community pharmacies in developing countries because of the limitation of resources [31]. And they can obtain medical advice and medicines from these pharmacies without visiting a doctor [32]. The present study revealed some important findings on the quality of counseling provided to the patient in the participating community pharmacies. Based on the pseudo patients' findings, the overall counseling approach was found to be 45% in our study, which is better than the result of the studies that have been done in different countries; the counseling level in an Ethiopian study was about 42.6% [33]. While a study in Riyadh, the capital of Saudi Arabia, showed that the rate of counseling was only 3% and improved to 43% when the pseudo patient requested more information [34]. The reasons for such poor counseling practices

may include poor experience, lack of knowledge, communication skills, and standard counseling guidelines in the community pharmacies. The performance of the pharmacy staff was different according to the two different types of scenarios. The pseudo patients with a symptom of pain were counseled the most, but when a specific product was requested, the pseudo patients were counseled the least, and the OTC drugs were given to the patient directly. This is very alarming because self-treatment was not appropriate in the second scenario. Instead, the recommendation should have been to see a doctor for more investigation. A request for a big pack of an antacid (96 tablets!) may indicate that the patient might have been in a serious underlying condition. The result of the current study showed that, during the dispensing process, most counselors did not ask to whom the medication is, the duration of the symptom, other medical products being taken by the patient, or even if the patient has any drug allergy. In a study that has been done in Riyadh, antibiotics were dispensed by the community pharmacy staff without asking the pseudo patient about their history of drug allergy or who will use the drug [35]. In other studies, the assessment of symptoms by community pharmacy staff and questioning concerning medication history were inadequate too [21,33,34,36,37]. But it is crucial for pharmacy staff to ask for information about the patient's history and the main signs and symptoms so as to decide on the suitable course of action. They should carefully screen patients and refer them to the physicians if necessary. In the present study, the most counseled information was about drug administration and dosage, but 59% of them did not tell the patients even how to use the drug. Also, in other similar studies, the most common information provided was about the drug dosage [37,38]. But to prevent overdose of the drug or even to avoid drug toxicity, pharmacy staff should tell the customer the number of daily doses and daily maximum limit of the dispensed drug. Also, for the drug to have a maximum effect, the staff should tell the patient how to take the drug regarding the meal. Only 1% of the pseudo patients were counseled on precautions, possible drug interactions, contraindications, and side effects of drugs. Which is consistent with the results of the previous research studies [34]. The explanation for this may include that pharmacy staff may think giving too much information may make patients not take their medications. Although a lack of information about adverse drug reactions, contraindications, and drug interactions will decrease patient compliance with drug therapy or even lead to a loss of confidence in the efficacy of treatment and may increase hospital admissions and mortality rates [39]. In Sulaimani city, a city in northern Iraq, there is no pharmacy without the presence of a pharmacist. In the pharmacy, a pharmacist with a master's or bachelor's degree should always be present to answer the questions of the customers. When a patient comes to the pharmacy, he should first be allowed to explain the problem in his own words as a response to a general question such as 'What is the problem?'. This allows the patient to relax and provide more information. Even very good

counseling took below 5 minutes [40]. It is important to remember that, despite all changes in the traditional role of the community pharmacist, effective communication with patients remains a fundamental and highly important means of promoting the health and medical safety of the patients. The communication skills of the patient and pharmacist, the time interval, and the physical environment are important factors while counseling the patient. If all the latter are adequate, and if the pharmacy staff can ask the right questions and relate the answer to a sound working knowledge of the diagnostic process and current therapeutics, then the engagement will reach a satisfying conclusion. It is such good news that today, in the College of Pharmacy at the University of Sulaimani, a course on communication skills and pharmacy practice experience is included in the curriculum that involves teaching practical applications, legal and ethical aspects, marketing, and business skills. Everyone working in a pharmacy, not only pharmacists, should get simple basic skills on how to approach and talk to patients. And because of the missing of a standardized protocol, pharmacists must show more responsibility when they met patients having symptoms and asking for medication so that the first-line recommended OTC drugs can help the patients with a minimized risk. It is also advisable that community pharmacists additionally train their clinical and medical abilities to evaluate patients' symptoms correctly.

Study limitations

This study has some limitations. One of them is a cross-sectional study done only in 100 community pharmacies, due to the limited time and resources; thus, the results cannot be generalized to all community pharmacies. Absence of pharmacy staff's demographic data was another shortcoming, which was difficult to collect during pharmacy visits, not to jeopardize the covert of the pseudo-customer methodology.

Conclusion

There was insufficient counseling during the dispensing of OTC medicines by community pharmacy staff. As pharmaceutical care-related activities are not widely implemented yet in our community pharmacies, studies like this one may inspire pharmacy staff. In addition, a large multi-centered study with different pseudo-patient scenarios is required to further evaluate these findings.

Conflict of interests

No conflict of interest was declared by the author.

Funding source

The author did not receive any source of funds.

Data sharing statement

Supplementary data can be shared with the corresponding author upon reasonable request.

REFERENCES

- Barker AK, Brown K, Ahsan M, Sengupta S, Safdar N. What drives inappropriate antibiotic dispensing? A mixed-methods study of pharmacy employee perspectives in Haryana, India. *BMJ Open*. 2017;7:e013190. doi: doi.org/10.1136/bmjopen-2016-013190.
- Showande SJ, Abdulhafiz TT. Impact of educational intervention on pharmacists' management of acute uncomplicated urinary tract infections in adults - A double-blind randomised controlled trial. *Res Square*. 2024. doi: 10.21203/rs.3.rs-5384529/v1.
- Simons G, Ismail N, Sandhu K, Mallen CD, Stack RJ, Pontefract S, et al. The potential role of community pharmacy staff in reducing patient delay in consulting with symptoms of rheumatoid arthritis: a qualitative study. *BMC Rheumatol*. 2022;6:50. doi: 10.1186/s41927-022-00280-0.
- Veiga P, Lapão LV, Cavaco AM, Guerreiro MP. Quality supply of nonprescription medicines in Portuguese community pharmacy: An exploratory case study. *Res Soc Admin Pharm*. 2015;11:880–890. doi: 10.1016/j.sapharm.2014.12.009.
- Beahm NP, Smyth DJ, Tsuyuki RT. Outcomes of urinary tract infection management by pharmacists (Rx OUTMAP): A study of pharmacist prescribing and care in patients with uncomplicated urinary tract infections in the community. *Can Pharm J*. 2018;151:305–314. doi: 10.1177/1715163518781175.
- Veiga P, Cavaco AM, Lapão LV, Guerreiro MP. Self-medication consultations in community pharmacy: an exploratory study on teams' performance, client-reported outcomes and satisfaction. *Pharm Pract (Granada)*. 2021;19:2138. doi: 10.18549/PharmPract.2021.1.2138.
- Zawahir S, Lekamwasam S, Aslani P. Community pharmacy staff's response to symptoms of common infections: a pseudo-patient study. *Antimicrob Resist Infect Control*. 2019;8:60. doi: 10.1186/s13756-019-0510-x.
- Paoletti G, Keber E, Heffler E, Malipiero G, Baiardini I, Canonica GW, et al. Effect of an educational intervention delivered by pharmacists on adherence to treatment, disease control and lung function in patients with asthma. *Respir Med*. 2020;174:106199. doi: 10.1016/j.rmed.2020.106199.
- Manfrin A, Tinelli M, Thomas T, Krska J. A cluster randomised control trial to evaluate the effectiveness and cost-effectiveness of the Italian medicines use review (I-MUR) for asthma patients. *BMC Health Serv Res*. 2017;17:300. doi: 10.1186/s12913-017-2245-9.
- Kerr A, Strawbridge J, Kelleher C, Mertens F, Pye P, Deveugele M, et al. How can pharmacists develop patient-pharmacist communication skills? A realist review protocol. *Syst Rev*. 2017;6:14. doi: 10.1186/s13643-016-0396-0.
- Showande SJ, Adalakun AR. Management of uncomplicated gastric ulcer in community pharmacy: a pseudo-patient study. *Int J Clin Pharm*. 2019;41:1462–1470. doi: 10.1007/s11096-019-00905-4.
- Hayhoe B, Cespedes JA, Foley K, Majeed A, Ruzangi J, Greenfield G. Impact of integrating pharmacists into primary care teams on health systems indicators: a systematic review. *Br J General Pract*. 2019;69:e665–674. doi: 10.3399/bjgp19X705461.
- Shiffman S, Battista DR, Kelly JP, Malone MK, Weinstein RB, Kaufman DW. Prevalence of exceeding maximum daily dose of paracetamol, and seasonal variations in cold-flu season. *Br J Clin Pharm*. 2018;84:1250–1257. doi: 10.1111/bcp.13551.
- Kaufman DW, Kelly JP, Battista DR, Malone MK, Weinstein RB, Shiffman S. Exceeding the daily dosing limit of nonsteroidal anti-inflammatory drugs among ibuprofen users. *Pharmacoepidemiol Drug*. 2018;27:322–331. doi: 10.1002/pds.4391.
- Shammah JB, Scott J, Wazaify M. Prescription and nonprescription drug misuse and abuse in community pharmacies in Iraq: a cross-sectional survey. *Int J Pharm Pract*. 2024;32:461–469. doi: 10.1093/ijpp/riae045.
- Basheti IA, Qunaibi EA, Hamadi SA, Abu-Gharbich E, Saleh S, AbuRuz S, et al. Patient perspectives of the role of the community pharmacist in the Middle East: Jordan, United Arab Emirates and Iraq. *Pharmacol Pharm*. 2014;5:588. doi: 10.4236/pp.2014.56069.
- Ibrahim IR, Palaian S, Ibrahim MI. Assessment of diarrhea treatment and counseling in community pharmacies in Baghdad, Iraq: A simulated patient study. *Pharm Pract (Granada)*. 2018;16:1313. doi: 10.18549/PharmPract.2018.04.1313.
- Ibrahim IR, Al Tukmagi HF, Wayyes A. Attitudes of Iraqi society towards the role of community pharmacists. *Innov Pharm*. 2013;4. doi: 10.24926/iip.v4i2.296.
- Horvat N, Koder M, Kos M. Using the simulated patient methodology to assess paracetamol-related counselling for headache. *PLoS One*. 2012;7:e52510. doi: 10.1371/journal.pone.0052510.
- Al Qarni H, Alrahbini T, AlQarni AM, Alqarni A. Community pharmacist counselling practices in the Bisha health directorate, Saudi Arabia –simulated patient visits. *BMC Health Serv Res*. 2020;20:745. doi: 10.1186/s12913-020-05554-2.
- Yang S, Kim D, Choi HJ, Chang MJ. A comparison of patients' and pharmacists' satisfaction with medication counseling provided by community pharmacies: a cross-sectional survey. *BMC Health Serv Res*. 2016;16:131. doi: 10.1186/s12913-016-1374-x.
- Belay YB, Kassa TT, Welie AG, Alemayehu MS, Dinkashe FT. Assessment of counseling practice in medicine retail outlets in Mekelle City, Northern Ethiopia. *RMHP*. 2017;10:137–146. doi: 10.2147/RMHP.S138300.
- Alaqeel S, Abanmy NO. Counselling practices in community pharmacies in Riyadh, Saudi Arabia: a cross-sectional study. *BMC Health Serv Res*. 2015;15:557. doi: 10.1186/s12913-015-1220-6.
- Hamasalih K, Nitham W. Nature and extent of counseling practice in community pharmacies in Sulaimani city, Iraq: A cross-sectional study. *Zanco J Med Sci*. 2021;25:686–691. doi: 10.15218/zjms.2021.035.
- Buddhika RBJ, Jayasekera RWMJP, Wickramasinghe NDD. State hospital pharmacists' knowledge, attitudes, and practices on medication counselling: A multicenter cross-sectional study in Sri Lanka. *Res Square*. 2024. doi: 10.21203/rs.3.rs-5415780/v1.
- Björnsdóttir I, Granas AG, Bradley A, Norris P. A systematic review of the use of simulated patient methodology in pharmacy practice research from 2006 to 2016. *Int J Pharm Pract*. 2020;28:13–25. doi: 10.1111/ijpp.12570.
- Collins JC, Schneider CR, Wilson F, De Almeida Neto AC, Moles RJ. Community pharmacy modifications to non-prescription medication requests: A simulated patient study. *Res Soc Admin Pharm*. 2018;14:427–433. doi: 10.1016/j.sapharm.2017.05.007.
- Soliman AB, Talkhan HA, Ibrahim MIM, Shalash AA. Evaluation of community pharmacists' awareness towards Middle East Respiratory Syndrome: A simulated client method. *JCDR*. 2023. doi: 10.7860/JCDR/2023/62030.18022.
- Kunow C, Langer B. Using the simulated patient methodology to assess the quality of counselling in German community pharmacies: A systematic review from 2005 to 2018. *Int J Pharm Pharm Sci*. 2021;10–19. doi: 10.22159/ijpps.2021v13i1.40034.
- Oyetunde O, Williams V. Community pharmacists' views of the use of oral rehydration salt in Nigeria. *Int J Clin Pharm*. 2018;40:659–667. doi: 10.1007/s11096-018-0616-x.
- Hamadouk RM, Arbab AH, Yousef BA. Assessment of community pharmacist's practice and patient counselling toward acute diarrhea treatment in Khartoum locality: A simulated patient study. *IPRP*. 2021;10:145–152. doi: 10.2147/IPRP.S340528.
- Netere AK, Erku DA, Sendekie AK, Gebreyohannes EA, Muluneh NY, Belachew SA. 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*. 2018;19:96. doi: 10.1186/s10194-018-0930-7.
- Alaqeel S, Abanmy NO. Counselling practices in community pharmacies in Riyadh, Saudi Arabia: a cross-sectional study. *BMC Health Serv Res*. 2015;15:557. doi: 10.1186/s12913-015-1220-6.
- Khojah HMJ. Over-the-counter sale of antibiotics during COVID-19 outbreak by community pharmacies in Saudi Arabia: a simulated client study. *BMC Health Serv Res*. 2022;22:123. doi: 10.1186/s12913-022-07553-x.

35. Boura F, Al-Tabakha MM, Hassan N, Darwich M. Community pharmacists' response to complaints of gastroesophageal reflux: A simulated patient study in the Northern United Arab Emirates. *PLoS One*. 2023;18:e0279922. doi: 10.1371/journal.pone.0279922.
36. Hammad EA, Al-Aqeel S, Elayah E, Jaber D. Assessing content and factors influencing responses to information requests in community pharmacies in Jordan: A simulated patients study. *PLoS One*. 2022;17:e0264224. doi: 10.1371/journal.pone.0264224.
37. Langer B, Bull E, Burgsthaler T, Glawe J, Schwobeda M, Simon K. Assessment of counselling for acute diarrhoea in German pharmacies: a simulated patient study†. *Int J Pharm Pract*. 2018;26:310–317. doi: 10.1111/ijpp.12405.
38. Alastalo N, Siitonen P, Jyrkkä J, Hämeen-Anttila K. The quality of non-prescription medicine counselling in Finnish pharmacies – a simulated patient study. *Explor Res Clin Soc Pharm*. 2023;11:100304. doi: 10.1016/j.rcsop.2023.100304.
39. Negru DS, Cristea AN, Petculescu AM. Patient counselling at dispensing OTC medicines in the community pharmacy. *Farmacia*. 2012;60:102–110.
40. da Rocha CE, Bispo ML, dos Santos ACO, Mesquita AR, Brito GC, de Lyra DP. Assessment of community pharmacists' counseling practices with simulated patients who have minor illness: a pilot study. *Simulation Healthcare*. 2015;10:227–238. doi: 10.1097/SIH.0000000000000100.