

Original Research

An investigative assessment on the quality of community pharmacy practice in the United Arab Emirates using common cold scenario

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Abstract

Background: Before dispensing medications to a patient, the pharmacist must obtain appropriate medical and medication history, label medications, and counsel. Due to its investigative and undercover nature, the simulated patient (SP) methodology is often used to assess dispensing practices. **Objective:** This study aimed at assessing the history-taking, dispensing, and counseling practices of CPs. **Methods:** This study was conducted among 34 community pharmacists (CPs) from Ajman, United Arab Emirates. Three final undergraduate pharmacy students role-played as simulated patients (SPs) with common cold (ICD-10 code J00) seeking advice from the CPs. The relevant details were documented in a checklist and assessed as per the study objectives. The counseling standards and CP demography were correlated (Pearson correlation coefficient at $\alpha = 0.05$). **Results:** A total of 34 (male 25; female 9, Arab 5 and non-Arabs 29) CPs were visited by the SPs. The SPs received a total of 105 medications: antihistaminic 23 (21.9%), expectorants 17 (16.19%), antibiotics 14 (13.33), and NSAIDs 13 (12.38%). Of the antibiotics, nine were beta-lactam and five were macrolides. Pseudoephedrine/loratadine (n=8) was the common medication followed by guaifenesin, pseudoephedrine hydrochloride, dextromethorphan hydrobromide, and acetaminophen (n=6), ibuprofen (n=4), amoxicillin/clavulanate potassium (n=4). The information on the duration of medication was provided by only 12 (35.29%) of them and none of them took medication history. The labeling standard was 'good' in 20 (58.28%) and 'poor' in 4 (11.76%). The average dispensing time was 37.20 ± 25.97 seconds (Median, IQR; 25.97, 15-52.50). The counseling on allergy was provided by only one pharmacist, side effects by 4 (11.76%), contraindications by 2 (5.88%), and instructions on taking the medication by 31 (91.17%), with an average counseling time of 75.29 ± 74.62 seconds (Median, IQR; 60, 26.25-120). Counseling duration had a positive correlation with cost ($p=0.015$), and dispensing duration ($p=0.000$) and was associated with race (Arab versus non-Arab, $p=0.003$) but not with gender ($p=0.800$). **Conclusions:** Poor dispensing practices and improper history-taking existed among CPs resulting in patients receiving medicines that were not needed. Improvements in pharmacy education, consumer education, and inter-professional collaboration may be possible solutions to bridge the practice gaps.

Keywords: assessment, common cold, community pharmacists, counselling services, dispensing, simulated patient, United Arab Emirates

INTRODUCTION

Community pharmacies are among the highly accessible places for seeking healthcare for minor health issues¹. Easy accessibility and free consultation appointments and consultation fee makes community pharmacists (CPs) an important healthcare member for minor illnesses². Thus, CPs are expected to play an important role in promoting the safe and effective use of medications in the community through dispensing and counseling services. To achieve this goal, CPs must be more vigilant in terms of getting

the required preliminary information from the patients who require skills and experiences. While doing so, they should be more specific and individualized to get the required data on patient demography, medical history, and present complaints³. However, previous studies from various parts the world^{4,5,6,7}, Gulf Cooperation Council (GCC) countries^{8,9,10} and United Arab Emirates (UAE)^{11,12,13} have demonstrated poor community pharmacy practices which can affect the healthcare of the community.

One of the methods employed to assess community pharmacy practices is a simulated patient method wherein an undercover investigative approach is employed. A trained simulated patient (SP) visits the CPs seek healthcare service and the manner in which the SP was treated can be extrapolated as actual practice. Few major advantages of SP research in community pharmacy practice are to improve the efficacy and relevance, fostering the growth of highly qualified pharmacists, and ultimately lead to better patient outcomes¹⁴. The utilization of the SP technique is gaining traction in the pharmacy field as it is being applied more and more to evaluate the effectiveness of interventions and gauge the caliber of pharmacy services¹⁵. In addition, the SP modality is also attracted to experiential education in pharmacy, as well as teaching and learning in pharmacy^{16, 17}. A common approach of SP patient studies is to train SPs for

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a common health condition (common cold, diarrhea, allergy, headache, etc.) and observe the way the CP treated the SP.

Periodic assessment of healthcare services is needed to improve any healthcare practices. A proper understanding of the current practice can help in future interventions at multiple stages such as education for future graduates, continuing professional development (CPD) programs for community pharmacy practitioners, and regulatory interventions, etc. Hence, the present study was conducted to assess the history-taking, dispensing, and counseling practices of CPs in Ajman, UAE.

METHODS

Study design

This research involves a simulated patient study design wherein the CPs were assessed for their dispensing and counseling practices using common cold scenario. This approach was chosen for the study primarily because it reduces the Hawthorne effect and allows for an assessment of the true caliber of counseling and dispensing services provided by CPs. The term 'Hawthorne effect' which Henry A. Landsberger first used in 1958, describes how people tend to act differently when they are aware that they are being watched.¹⁸

Ethical approval

The research was approved by the Research and Ethics committee of Ajman University with approval number PHA-UH-25-1-20.

Study setting and duration

The study was conducted in community pharmacies of Ajman, one of the Northern Emirates in the United Arab Emirates. The study was carried out for a duration of one month during January-February 2020.

Respondent selection

A total of 34 CPs from different pharmacies in Ajman, United Arab Emirates were selected using a convenient sampling method. Researchers preferred convenience-sampling approach to collect data as it allows researchers to gather data that would not have been possible otherwise. Moreover, responders are easily reachable, and this approach is usually straightforward and affordable.

Pilot testing

The scenario was pilot tested with three pharmacies to familiarize the students on the data collection process and assess the study feasibility.

Data collection method and training

Three final undergraduate pharmacy students were selected and trained to execute this task. The research team instructed the students who worked as the simulated patients to pose as actual patients with the common cold (ICD-10 code J00), and visit community pharmacies to get prescription drugs and counseling. Additionally, they were instructed to pay close attention to what the pharmacists were saying, memorize what

they said, and take notes when they got back to their car- not in front of the pharmacists. They role-played common cold patients seeking advice from the CPs using standard interview guide (Appendix 1). After completion of the interview process, the SPs visited their car and wrote down the details of the information obtained in the data collection form (Appendix 2). The study process is mention in Figure 1.

Data analysis

The data collected as per data collection form (Appendix 2) was entered in the excel sheet. The entered data was checked for the accuracy and then analyzed for demographics and other parameters. The correlation between the counseling standards with the CPs demography was performed using Pearson correlation coefficient at $\alpha=0.05$

RESULTS

Majority (n=28, 82%) of the pharmacies were run by individuals, and about three-fourth of the pharmacists working in the community pharmacies were males. Furthermore, majority (n=29, 85.29%) of the CPs were non-Arab. Age wise, about 62% of the CPs belonged to the age group of 30 to 49 years (Table 1).

Therapeutic categories of drugs dispensed

Altogether, a total of 105 medicines were dispensed. The most commonly dispensed medications were antihistamines (n=23, 21.9%), followed by expectorants (n=17, 16.19%), and NSAIDs (n=13, 12.38%). More details on the medications dispensed by the CPs to the SPs are listed in Table 2.

Individual drugs dispensed by the CPs

Among the individual drugs prescribed, pseudoephedrine/loratadine was predominant (n=8), followed by guaifenesin, pseudoephedrine hydrochloride, dextromethorphan hydrobromide, and acetaminophen (n=6) Table 3.

Dispensing standards

Nearly two out of every three patients did not get any information about the duration of medication they should continue. Whereas, taking medication history was completely lacking in practice. Labeling the dispensed medications was either poor or fair but not good in more than 32% of the cases. In majority of the cases (64.7%), dispensing time was between 30 to 60 seconds. Dispensing branded medication was pervasive (96%) in practice. In more than 35% of cases, the appropriateness of dosage regimen was either poor or fair (Table 4). The average dispensing time was 37.20 ± 25.97 seconds with median (IQR) of 25.97 (15.00-52.50).

Counseling standards

The study findings highlighted the need of proper counseling to be made by CPs particularly in terms of allergic reactions, side effects, contraindications and drug-drug interactions as it was not made in 97%, 88%, 94% and 91% respectively. In contrast, providing instructions on taking medications was common in practice (91%) while average consultation time of



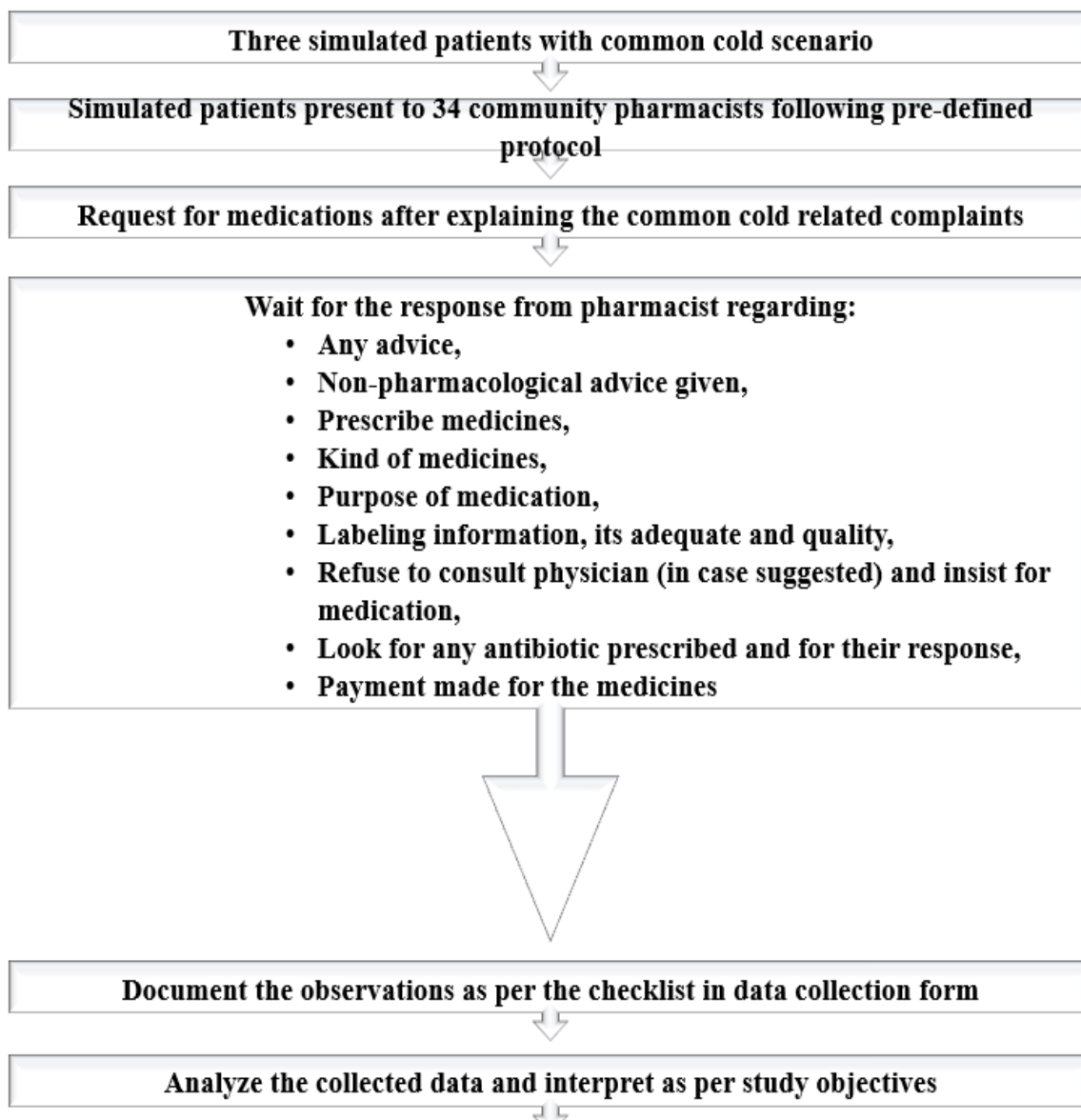


Figure 1. Flow diagram of study design

Table 1. Community pharmacies and Pharmacists' profile (n=34)

Features		Number (n)	Percentage (%)
Nature of Pharmacy	Chain	6	17.64
	Individual	28	82
Gender of Pharmacist	Male	25	73.52
	Female	9	26.47
Nationality	Arab	5	14.7
	Non-Arab	29	85.29
Age	Less than 30 years	10	21.41
	30-49 years	21	61.76
	50 years and above	3	8.82

Table 2. Therapeutic categories of drugs dispensed (n=105)

Therapeutic category	Number (n)	Percentage (%)
Antihistamines	23	21.9
Expectorant	17	16.19
Antibiotics *	14	13.33
NSAIDs	13	12.38
Expectorant, nasal decongestant , antitussive, pain reliever	6	5.71
Decongestant	6	5.71
Analgesic	5	4.76
Vitamin C	5	4.76
Food Supplement	3	2.86
Anti-microbial	2	1.9
Bronchodilator	2	1.9
Anti-Allergic	2	1.9
Anti-inflammatory/ Analgesic	2	1.9
Mucolytic Agent	2	1.9
Analgesic/ Anti-pyretic	1	0.95
Antitussive	1	0.95
Anti-septic	1	0.95

*Macrolide 4 and beta lactam 9.

Table 3. Top 10 individual drugs dispensed by the CPs (n=42)

Individual drugs	n
Pseudoephedrine/Loratadine	8
Guaifenesin, pseudoephedrine hydrochloride, dextromethorphan hydrobromide, and acetaminophen	6
Ibuprofen	4
Amoxicillin/clavulanate potassium	4
Chlorpheniramine Maleate, Paracetamol and Pseudoephedrine HC	4
Guaifenesin, terbutaline, bromhexine	4
Ibuprofen, pseudoephedrine HCl	3
Paracetamol/pseudoephedrine	3
Butamirate citrate	3
Xylometazoline	3

Table 4. Dispensing standards (n=34)

Assessment parameters	Intervals	Number (n)	Percentage (%)
Information on duration of medication	Yes	12	35.3
	No	22	64.7
Medical history	Yes	0	0
	No	34	100
Labeling of dispensed medicines	Poor	4	11.76
	Fair	7	20.58
	Good	20	58.82
	Very Good	3	8.82
Average dispensing time	Less than 30 sec	9	26.47
	30 – 60 sec	22	64.7
	More than 60 sec	3	8.82
Branded drugs (n=105)	Yes	101	96.19
	No	4	3.8
Appropriateness of dosage regimen	Poor	3	8.82
	Fair	9	26.47
	Good	22	64.7
	Very Good	0	0

zero to one minute was in 67.64% cases (Table 5). The average counseling time was 75.29 ± 74.62 seconds with a median (IQR) of 60 (26.25-120.0). Counseling duration had a positive correlation with cost ($p=0.015$), dispensing duration ($p<0.001$) and associated with race (Arab versus non-Arab, $p=0.003$) but not with gender ($p= 0.800$).

Cost of dispensed medications

About 80% of the patients' paid between 21 to 80 dirhams for the medications they were dispensed (Table 6). The average cost of medicines dispensed per patient was AED 55.32 ± 36.93 (1 USD= 3.67 AED).



Table 5. Counseling standards (n=34)

Assessment parameters	Intervals	Number (n)	Percentage (%)
Allergy reactions	Yes	1	2.94
	No	33	97.05
Side effects	Yes	4	11.76
	No	30	88.23
Contraindications	Yes	2	5.88
	No	32	94.11
Drug-drug interactions	Yes	3	8.82
	No	31	91.17
Instructions on taking the medication	Yes	31	91.17
	No	3	8.82
Average consultation time	0-1 minute	23	67.64
	2-3 minutes	9	26.47
	4-5 minutes	1	2.94
	6-7 minutes	1	2.94

Table 6. Cost of dispensed medications (n=34)

Range (in DHS)	Number (n)	Percentage (%)
0-20	3	8.82
21-40	8	23.52
41-60	13	38.23
61-80	6	17.64
81-100	2	5.88
More than 100	2	5.88

DISCUSSION

Rational medicine use is governed by appropriate selection, dispensing, counseling, and use by the patients. The present research is one such wherein rational medicine use in the community pharmacy has been studied using simulated patients. Analysis of the study findings showed poor practice and a closer look of the findings in light of available published research and current practices are compared.

In this research, the CPs dispensed antihistamines, expectorants, antibiotics, and NSAIDs class of medications. The American Family Physician guidelines for common cold treatment recommend treatment focusing on symptoms. In line with the guidelines, the CPs dispensed medications except for the use of antibiotics which is strictly not recommended for common cold in children or adults¹⁹. A survey of CPs in Nepal also revealed a concerning issue with inappropriate dispensing practices, particularly about incomplete antibiotic courses and inadequate counseling services provided by the CPs²⁰.

In this research, NSAIDs were also commonly dispensed by the CPs. The use of NSAIDs can be harmful if there is no specific information provided. As NSAIDs are commonly used by consumers worldwide, the risk of kidney-related disorders is higher²¹. NSAIDs are also associated with gastrointestinal

ulcers by damaging GI mucosa²². Hence, proper medication counseling is warranted in mitigating such risks.

The individual drugs dispensed by the CPs were assessed in this research. The commonly dispensed medicines were Pseudoephedrine/Loratadine, Flutab (Guaifenesin, pseudoephedrine hydrochloride, dextromethorphan hydrobromide, and acetaminophen), and Ibuprofen. Many adverse effects have been associated with ibuprofen, especially when used in excess, which can result in severe toxicities, including renal damage, convulsions, and cardiac related issues²³⁻²⁵. Additionally, over-the-counter use of cough remedies is linked to several side effects (sleepiness, vomiting, headache), especially in children²⁶.

An important aspect of rational medicine use by CPs is the assessment of CPs' dispensing standards. Taking medication history is inevitable before dispensing medications to ensure the safe and effective use of medications. Unfortunately, taking medication history was completely missing in our study. This behavior will miss vital information about the disease etiology, and ultimately lead to irrational medication therapy²⁷. Prescribing antibiotics in the common cold was high and no counseling regarding the duration of antibiotics was provided in about two-thirds of the cases. Both of these behaviors might be risky in such patients as the common cold is mostly of viral



origin and there is no role of antibiotics²⁸. Our study's average dispensing time was 37.20 seconds, which is far less than the 233 seconds that is advised for a single medicine prescription. This highlights that CPs need to allocate more time on dispensing of medications to ascertain quality dispensing practices²⁹.

The usefulness and quality of community pharmacy services largely depend upon the counseling standards. In this research, authors found a quite low counseling standard in terms of allergic reactions (2.94%), side effects (11.76%), contraindications (5.88%), and drug-drug interactions (8.82%). These findings highlight the necessity of incorporating counseling standards while dispensing cough preparations to minimize the associated risk. The study findings align with the findings of a review study by Smith et al²⁶. Furthermore, our research showed that counseling time and dispensing time were positively correlated. Since dispensing includes counseling, more time spent on counseling translates into more encounters between CPs and SPs and higher-quality dispensing.

In this research, the cost of the medicines was assessed. Undoubtedly, it is known that poor dispensing practices increase the cost burden to the patients. There is a tendency that CPs to try to improve the sales volume, which could be a reason for irrational prescribing. In about 56% of the cases, consumers' expenses were from 41 to 80 dirhams. A review by Bali et al also stressed on high expenditure associated with cough remedies due to improper diagnosis and discrepancies in management³⁰⁻³¹.

Study limitations: This study was conducted only in one emirate and hence difficult to generalize the findings to the

entire country. In addition, only 34 CPs were studied which can be considered a limitation.

Recommendations: Since the study findings showed poor dispensing practices, interventions at the practitioner level and policy level are needed to ensure rational dispensing among CPs.

CONCLUSIONS

Antihistamines, expectorants, antibiotics, and NSAIDs were among the commonly dispensed medications in the common cold. There were also discrepancies in terms of history taking, dispensing, and counseling standards. Despite several initiatives to promote the rational use of medicines among the CPs, there are still significant lacunae in rational and ethical dispensing practices. Improvements in pharmacy education, consumer education, and inter-professional collaboration could play a crucial role in promoting the rational use of medicines at the community pharmacy level.

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CONFLICT OF INTEREST

I have no conflicts of interest to declare.

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Appendix 1 [Interview guide]

- Scenarios, questions and dialogue during the acting (face-to-face)
- Mystery patient goes into the target pharmacy and greeting the pharmacist (get the pharmacist not the staff)
- I am looking for medicines for common cold
- I have been having the flu for the last 2 days; at night I have a blocked nose and during the day my nose are runny, I have a sore throat as well as I have a cough
- I feel extreme fatigue and body aches. Yesterday I had a headache but it was mild
- Wait for the response from pharmacist
- Any advice? What kind of non-pharmacological advice given?
- Do they prescribe medicines? What kind of medicines? For what purpose? How was the label? Adequate? Quality?
- **If they ask to see physician, and refuse to treat – consider it is good. But insist to have medicines before seeing a physician.**
- If they prescribe medicines, look for any antibiotic. Look for their response.
- How much you have to pay for the medicines?
- Before leaving, wish thank you.
- After leaving, a distance from the pharmacy, maybe in the car, note down all the information

Appendix 2

Data Collection form for documenting all the information and data gathered

Common cold scenario)

Pharmacy - Name: Location: Date:	

Numbers and categories of medicines dispensed	
Cost of medications dispensed	
Brand or generic medicines	
Labeling standard	
Counseling standards	
Symptomatic diagnosis scenario	
Adherence to therapeutic guidelines	
Appropriateness of dosage regimen	
Average consultation time	
Average dispensing time	
Encounters with an Antibiotic prescribed	
Asking about Patient’s Allergy Reactions	
Contraindications	
Other Medications that might have Drug-Drug Interactions	
Encounters where pharmacist provided instruction on taking medication	
Encounters where pharmacist gave information on possible Side Effects	

