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Evaluation of Community Pharmacists' Awareness towards Middle East Respiratory Syndrome: A Simulated Client Method

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ABSTRACT

Introduction: Middle East Respiratory Syndrome (MERS) is a viral respiratory disease caused by a coronavirus variant in the Arabian Peninsula. There is a lack of information regarding awareness and practices of community pharmacists in Qatar for this contagious disease.

Aim: To determine the quality of the MERS-related information, recommendations, and counselling practices provided by Qatar's community pharmacists by using Simulated Client Method (SCM).

Materials and Methods: An observational cross-sectional study using a non traditional SCM was conducted in community pharmacies of Qatar from February 2017 to April 2017. A total of 30 community pharmacies were visited twice by two independent simulated clients and data regarding, provision of evidence-based information, recommendations and counselling practices were collected to assess the competency of pharmacists in managing MERS as a primary care problem. Both descriptive and inferential statistical methods were used for data analysis.

Results: In present study, majority of pharmacists encountered were male and younger than 45-year-old with 44 (73.3%) each. The average number of pharmacists who did not ask about the patient's current medical conditions 56 (93.3), medications 58 (97.5%), allergies, and smoking status in both scenarios were not asked by any of the pharmacist. Most of the pharmacists gave an incorrect explanation of MERS 43 (71.7%). The overall quality counselling score for the pharmacists (mean±SD; median (IQR)) was {27.5±4.5; 28.5 (25.3-30.0)}. Quality counselling was significantly related to the type of pharmacy (p=0.0478).

Conclusion: Qatar community pharmacist's MERS related information, recommendations, and counselling practices were below expectations and inconsistent, thus urging the need for continuous professional development.

Keywords: Competency, Patient simulation, Pharmacies, Professional practice, Respiratory disease

INTRODUCTION

The vision statement by the Qatari government aims to provide a complete, top-tier healthcare system where services are available to the entire population, in accordance with Qatar's National Health Strategy (2011-2016) [1]. Since community pharmacists are frequently the initial point of contact for the patient, they must be a part of the growing healthcare system. They are publicly accessible healthcare providers in the community, according to the WHO [2]. The American Public Health Association also advocated expanding the pharmacist's position in the community beyond traditional product-oriented roles to include more patient-oriented roles in public health, education, disease prevention, health promotion, and advocacy [3]. Community pharmacists should have the essential knowledge, abilities, and skills to deliver the best patient-centered care to accomplish this. Researchers have frequently questioned the effectiveness of the services offered by community pharmacists and their "expanded" duties because they are still not completely understood [4].

In a recent systematic review, Eades CE et al., reported that the majority of pharmacists believed that providing public health services was important and it was part of their job [5]. However, Yang S et al., stated that the existing health services provided by community pharmacists are not well-received by both patients and pharmacists [6]. A simulated client approach was applied in two studies on community pharmacists in Qatar utilising data from various ailments and both concluded that customers needed to receive higher-quality, evidence-based information, and practices [7,8].

The MERS-Coronavirus (MERS-CoV) is a human viral respiratory disease brought on by a coronavirus [9]. The World Health Organisation (WHO) has recorded a 34% mortality rate from 26 nations globally since September 2012 [10]. It does not seem to be contagious unless there is close contact between people. It is thought that camels are a possible animal source of human MERS-CoV infection [10].

Clinically, MERS begins as a sickness that resembles the flu and progresses to include atypical pneumonia, fever, dry cough, and severe shortness of breath and gastrointestinal tract symptoms [10,11]. Moreover, respiratory failure may occur in people who suffer from severe MERS-CoV infection. There is currently no vaccination, prevention or treatment for MERS-CoV infection. Supportive care is believed to be the cornerstone of MERS management [12].

While there have been a number of reports and studies on MERS among healthcare providers all over the world [13,14], no studies have been done in Qatar. As a result, the mystery shopper method was used in this study to determine the level of practice of community pharmacists in this area.

The SCM, also known as a mystery shopper or standardised patient, is a non traditional approach to efficiently examine professional behaviours and practice perspectives [15]. Community pharmacists could be observed in their natural setting without being aware that their actions were being examined. A simulated client is a person who has been taught to act out preplanned situations while appearing to be a patient in a pharmacy to evaluate the collection of data, the provision of information, and the counselling offered by community pharmacists [16].

With this method, present study was conducted to determine the quality of the MERS-related information, recommendations, and counselling practices provided by Qatar's community pharmacists.

MATERIALS AND METHODS

An observational cross-sectional study was conducted from February 2017 to April 2017 in community pharmacy settings in Doha, Qatar, using a SCM. Ethical approval was obtained from Qatar University's Institutional Review Board {QU-IRB (No: QU-IRB 599-E/16)}.

Responses to the questions posed and the data gathered were kept confidential during the study and afterward at the College of Pharmacy, Qatar University.

Inclusion criteria: The community pharmacists in Doha municipalities, Qatar who could be contacted at the time of the visit were included in the study.

Exclusion criteria: Pharmacies were excluded from the sampling if they were associated with the experiential training sites for the simulated clients' rotation. Pharmacists were also excluded from the cities outside of Doha because of logistical issues.

Sample size calculation: The Supreme Council of Health's Department of Pharmacy and Drug Control, Ministry of Public Health (MOPH), provided the list of registered pharmacies. The 50 pharmacies were chosen randomly by convenient sampling. The first 30 pharmacies (i.e., the most that could be visited in the allotted time, with the allotted resources, and with just two simulated clients) out of 50 were chosen. Sixty community pharmacists were approached in this study.

Study Procedure

In order to obtain a validated tool for data collection, extensive research was carried out. Based on a comprehensive literature review, the research team created a study-specific data collection sheet with open-ended and closed-ended questions for each scenario [17-19]. The scenarios and data collection sheets, among other study tools, were pretested and validated with input from Qatar University College of Pharmacy professors [20]. To test the scenarios and data collection sheets, as well as to improve and finalise the entire study tools, pilot testing was carried out in four community pharmacies. The analysis of the study did not include these four pharmacies.

The data collection form included a total of 41 questions divided into six sections comprising demographics, data gathering, information about the disease, drug selection, counselling and overall impression of the counselling service. The data collection sheet included 35 closed and six open-ended questions. Data collection items related to demographics included six open-ended questions related to pharmacy type, pharmacy location, pharmacist details (gender, ethnicity), pharmacist medium of communication, and date. Pharmacists can answer questions pertaining to data gathering, information about the disease, drug selection by choosing "Yes" or " No" option.

The minimum overall quality counselling scores a pharmacist can receive is zero and the maximum over quality counselling score is 39. The interquartile ranges (Q1=25.25, Q2=28.5, Q3=30.0) were used to describe the following terms that were used to describe the overall quality of the pharmacists' counselling: poor, fair, good, and excellent. If the pharmacist score was less than 25.3, this means that the overall quality of counselling was poor while if the score was between the ranges of (25.3-28.4), this means that the overall quality counselling was fair. If the score was between the ranges of (28.5-29.9), this means that the overall quality counselling was good while if the overall quality score was between the ranges of (30-39), this means that the overall quality counselling was excellent.

In this study, two scenarios were used:

i. In scenario 1: The simulated client's father has recently returned from Saudi Arabia and has shown signs and symptoms similar to MERS.

ii. In scenario 2: The simulated client's mother plans to perform her pilgrimage i.e., Umrah, within the next month. She has been informed of this serious issue (MERS) by friends and the media.

The two situations were developed and written in English/Arabic by the research group. Based on reliable published sources [10,11,17,21-24], the content of the two scenarios was gathered and developed. Two simulated clients, i.e., two pharmacy students in their final year and of the same age and gender, were trained for MERS scenarios through role-playing and practice demonstrations. Both of the simulated clients spoke Arabic and English well. Only two trained simulated clients SM conducted all visits in Arabic or English, depending on the pharmacists' backgrounds or ethnicities, to standardise responses and reduce inter-rater variability. Within a minimum of five days, each of the two simulated clients independently went to each of the 30 community pharmacies. The quality of MERS-related information and counselling were measured based on previous studies' findings [25,26]. Measures of outcomes i.e., the quality of disease-related information and the quality of advice and counselling were based on the findings of Berger K et al., and Tiechert M et al., [25,26]. The independent variables were the pharmacist's demographic profile and pharmacy information.

STATISTICAL ANALYSIS

Statistical Package for Social Sciences Version 23.0 (SPSS Inc., Chicago, IL, USA) was adopted for statistical data analyses. The mean (SD), median (IQR), and frequency (percent) of the data were used for descriptive analysis. In addition, appropriate inferential statistics, i.e., the Student's t-test, were utilised for continuous data with alpha level=0.05.

RESULTS

[Table/Fig-1] shows general characteristics of the participants. The majority of pharmacies included were chain pharmacies, and majority of pharmacists encountered were male and younger than 45-year-old. In addition, 40 (66.7%) of the pharmacists encountered spoke English and were not Arab.

Items		Frequency (%)
Type of pharmacy (n*=60)	Chain	42 (70)
	Independent†	18 (30)
Pharmacist gender (n=60)	Male	44 (73.3)
	Female	16 (26.7)
Pharmacist age (estimated) (n=60)	Above 45-year-old	16 (26.7)
	Less 45-year-old	44 (73.3)
Pharmacist ethnicity (n=60)	Arab	20 (33.3)
	Non Arab	40 (66.7)
Medium of communication (n=60)	Arabic	20 (33.3)
	English	40 (66.7)

[Table/Fig-1]: Profile of pharmacy and pharmacist.
*n=number of involved community pharmacies
†Independent pharmacies are those that are pharmacist owned or privately held businesses not directly affiliated with any pharmacy chain

In terms of information gathered by community pharmacists, the analysis for the two scenarios revealed that 50 (83.3%) of pharmacists inquired about the client's for visiting. Among the pharmacists, only 4 (6.7%), and 2 (3.3%), asked about medical conditions and current drugs, respectively. In both scenarios, neither allergies nor smoking status were checked by any of the community pharmacists. Only 9 (30%) of community pharmacists inquired about the frequency and duration of the client's signs and symptoms in scenerio 1. Additionally, none of them had completed the necessary tasks in relation to the accompanied person's symptoms. In addition, none of the pharmacists questioned whether the patient was experiencing these symptoms for the first time since returning from abroad [Table/Fig-2].

Out of 60 community pharmacists, only 17 (28.3%) were able to provide an accurate explanation regarding MERS, and only 10 (16.7%) were able to highlight the factors that increase the likelihood of contracting the infection. Approximately, 54 (90%) of pharmacists were unable to provide the correct information for prophylaxis (vaccination) and 56 (93.3%) even did not refer to an external resource like books [Table/Fig-3].

Items	Yes Frequency (%)	No Frequency (%)
The pharmacist asked the client preliminary information about the reason of visit (n*=60)	50 (83.3)	10 (16.7)
The pharmacist asked how old the patient is (n=60)	6 (10)	54 (90)
Pharmacist asked the caregiver (i.e. the stimulated client) if the patient has any of the following:		
a) Medical conditions (n=60)	4 (6.7)	56 (93.3)
b) Current medications (prescribed, non prescribed, supplements, herbs) (n=60)	2 (3.3)	58 (96.7)
c) Allergies (n=60)	0	60 (100)
d) Smoking (n=60)	0	60 (100)
The pharmacist asked the caregiver (SM) in scenario1 about the following:		
A. If the patient experiencing any symptoms (only in scenario 1 (S1)†(n=30)	1 (3.3)	29 (96.7)
B. For how long did the patient experience those symptoms? (Only in S1) (n=30)	9 (30)	21 (70)
C. If the patient tried anything to relieve his/her symptoms? (Only in S1) (n=30)	6 (20)	24 (80)
D. Is it the first time the patient experiences those symptoms when he comes back from the country? (Only in S1) (n=30)	0	30 (100)
E. If somebody accompanied the patient during the journey? (n=60)	14 (23.3)	44 (76.7)
F. Does the accompanied person to the patient experience any symptoms? (Only in S1) (n=30)	0	30 (100)

[Table/Fig-2]: Activities of data gathering by the pharmacist.
*n=number of involved community pharmacies
†S1=scenario 1

Items	Yes Frequency (%)	No Frequency (%)
The pharmacist gave the correct explanation of MERS (evidence based) (n*=60)	17 (28.3)	43 (71.7)
The pharmacist provided information about the mode of infection transmission (n=60)	33 (55)	27 (45)
The pharmacist provided information about clinical presentation (typical sign and symptoms) of patient infected with MERS (n=60)	27 (45)	33 (55)
The pharmacist highlighted people who are at higher risk of getting the infection (n=60)	10 (16.7)	50 (83.3)
The pharmacist mentioned that there is no specific treatment for this virus (n=60)	3 (5)	57 (95)
The pharmacist mentioned that there is no specific vaccine for the prevention of this virus (n=60)	6 (10)	54 (90)
The pharmacist mentioned that patients are managed only with supportive treatment (n=60)	3 (5)	57 (95)
The pharmacist referred to external resources (e.g., books, website, any media) for information (n=60)	4 (6.7)	56 (93.3)
The pharmacist performed clinical triage functions (only in S1) (N=60)	56 (93.3)	4 (6.7)
The pharmacist provided health promotion materials (n=60)	49 (81.7)	11 (18.3)

[Table/Fig-3]: Provision of information about the disease.
*n=number of involved community pharmacies

Recommendation/Counselling by the Community Pharmacist

A 26 (43.3%) of community pharmacists offered pharmacological products and 37 (61.7%) pharmacists advised non pharmacological recommendations in the two scenarios. The most common non pharmacological advice was to use face masks and consistently wash hands with soap and water. Only 6 (10%) of pharmacists used feedback to assess the comprehension of stimulated clients in all stimulations. A total of 47 (78.3%) pharmacists provided an opportunity for questions or concerns, and 56 (93.3%) of them helped the patient to plan the next steps and follow-up [Table/Fig-4].

Items	Yes Frequency (%)	No Frequency (%)
A choice was offered for a product (n*=60)	26 (43.3)	34 (56.7)
Non pharmacological interventions were mentioned (n=60)	37 (61.7)	23 (38.3)
The pharmacist assessed the caregiver's understanding through feedback (n=60)	6 (10)	54 (90)
The pharmacist provided an opportunity for questions or concerns (n=60)	47 (78.3)	13 (21.7)
The pharmacist helped the patient to plan the next steps and follow-up (n=60)	56 (93.3)	4 (6.7)

[Table/Fig-4]: Recommendation of medicines and counselling activities.
*n=number of involved community pharmacies

Recommendation of Medicines and Counselling Activities

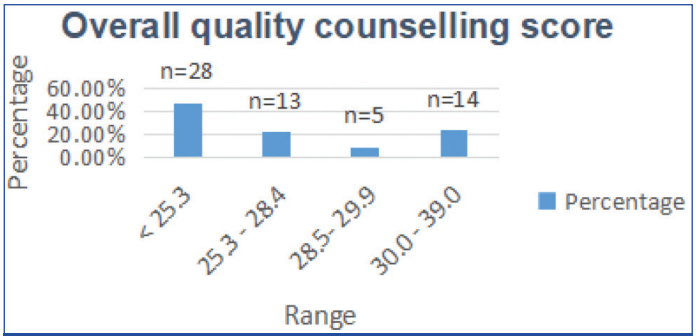
The items "greetings" "engagement" and "voice was audible; tone and pace are good" had an average of (2.0±1.1, 2.3±0.7, 2.3±0.8), respectively. Moreover, the items "eye contact", "attention", "body language", and "There are no distracting factors (e.g., ringing phones, vacuum- cleaning, flickering lights)" had the second highest average (2.4±0.9, 2.4±0.8, 2.5±0.7, 2.4±0.9), respectively. In all visits, the items "the pharmacist provided information without need for probing", "structure of explanations", and "emphasis on key points of information", had the lowest average (0.2±0.4, 0.3±0.5, 0.5±0.8), respectively [Table/Fig-5]. While, items "distance between the pharmacist and patient (SM) is appropriate", "confidentiality of the conversation" and "the pharmacist did not use scientific terminologies" had the first highest average (2.7±0.5, 2.7±0.5, 2.8±0.4), respectively compared to other items.

Grade	0	1	2	3	
Items	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	Mean±SD
Comprehensibility of the counselling					
The pharmacist provided information without need for probing (n=60)	51 (85)	9 (15)	0	0	0.2±0.4
Structure of explanations (n=60)	45 (75)	14 (23.3)	1 (1.7)	0	0.3±0.5
Emphasis on key points of information (n=60)	39 (65)	11 (18.3)	9 (15)	1 (1.7)	0.5±0.8
The pharmacist did not use scientific terminologies (n=60)	0	0	15 (25)	45 (75)	2.8±0.4

[Table/Fig-5]: Overall impression of the counselling service.
*n=number of involved community pharmacies
Grade-0 is not done; Grade-1 is poor; Grade-2 is good; Grade-3 is excellent

In this study, the minimum overall quality counselling score was 15 and the maximum overall quality counselling score was 35. A total of 28 (46.7%) had a score of less than 25.3; this indicates that the quality of their counselling is generally poor. In contrast, 14 (23.3%) of the pharmacists had scores between (30-39) which means that their overall quality counselling was excellent. Additionally, 5 (8.3%) of the pharmacists' overall quality counselling score ranged from (28.5-29.9), indicating that their overall quality counselling was good, while 13 (21.7%) of the pharmacists' overall quality counselling score ranged from (25.3-28.4), indicating that their overall quality counselling was fair. The (mean±SD) (median, IQR) for the overall quality counselling of 60 pharmacists was (27.5±4.4) (28.5, 25.3-30), respectively [Table/Fig-6].

In both scenarios pharmacists employed in chain pharmacies had a higher summative score for quality counselling than pharmacists



[Table/Fig-6]: Total quality counselling score.
Poor: <25.3, Fair: (25.3-28.4) ,Good: (28.5-29.9), Excellent: (30-39)

employed in independent pharmacies (p-value=0.048). However, the total quality scores did not differ significantly by pharmacists' gender, age, or ethnicity (p-value=0.326, 0.773, 0.262, respectively) [Table/Fig-7].

Item		Mean±SD	p-value†
Type of pharmacy	Chain (n*=42)	26.2±4.1	0.048
	Independent (n=18)	23.6±5.4	
Pharmacist gender	Male (n=44)	25.1±5.2	0.326
	Female (n=16)	26.2±2.9	
Pharmacist age	Above 45 (n=16)	25.1±4.5	0.773
	Less than 45 (n=44)	25.5±4.7	
Pharmacist ethnicity	Arab (n=20)	24.4±5.5	0.262
	Non Arab (n=40)	26.0±4.1	
Pharmacist medium of communication	Arabic (n=20)	24.4±5.5	0.262
	English (n=40)	26.0±4.1	

[Table/Fig-7]: Total quality score in relation to the profile of pharmacy and pharmacist.
*n=number of involved community pharmacies
†Student t test was used at alpha level 0.05

DISCUSSION

The practice of community pharmacy is evolving, and pharmacists are now expected to provide patient care and public health-related duties. It should be highlighted that the public relies on and trust community pharmacists [27]. However, the results of present study revealed that the overall process of case management of MERS at community pharmacies in Qatar was not satisfactory. The findings of present study showed a lack of community pharmacist clinical expertise, poor data gathering, and low-quality counselling services pertaining to MERS.

The MERS is a new infectious disease that has been reported to be confined primarily to the countries of the Arabian Peninsula [4]. Thus, the evaluation of community pharmacists to improve clinical practices in MERS infection management was crucial. In this study, the overall process of data gathering was poor and did not meet the minimum standard of history taking as only 6.7%, and 3.3% of the pharmacist obtained medical and medication history, respectively. Similar findings were obtained from a cross-sectional study conducting in Pakistan assessing the pharmacist competencies in case management [28].

Community pharmacists in this study did not determine any actual concerns or potential issues with patients. In general, patients visit a pharmacy, for example, to confirm a suspicion about a condition, to ensure that they are taking their medication correctly, or to confirm that they need to see a general practitioner [29]. As a result, it is essential for the community pharmacist to have expertise in determining clinical conditions or health risks that call for immediate medical attention, such as MERS-CoV. These findings differ from those of Chui W and Li S where patients' medical and medication histories were obtained by the pharmacists [30].

Moreover, most of the pharmacists failed to explain the nature of the disease 17 (28.3%), MERS risk factors 10 (16.7%), treatment and prophylaxis 57 (95%). This demonstrates the urgent need for educational initiatives to raise community pharmacists' awareness and knowledge of MERS infection in Qatar. In addition, a cross-sectional study in Kingdom of Saudi Arabia (KSA), found that the overall knowledge score was "Good" among different healthcare providers, including pharmacists (88.9%) and showed statistically significant results (p-value=0.039) [31]. Several pharmacists in this trial offered non pharmacological advice and preventative measures to the stimulated consumers, such as washing their hands with soap and water and wearing a face mask. This result was in accordance with another study, in which the majority of healthcare providers were also well aware of preventative measures (96%) and hygiene practice (94%) [13]. Other SCM-based studies have found that healthcare professionals have "low knowledge and unfavourable attitudes" regarding MERS infection [32,33]. In this study, 56 (93.3%) of the pharmacists did not refer to external resources (e.g., books, website, any media) for information. This differs from the findings of the previously published study, where 50% of the participants depended on the Ministry of Health website as a main source of information about MERS [14].

Patient counselling is one of the key responsibilities of community pharmacists that should be provided prior to medication dispensing. In accordance with the recommendations of the American Society of Health-System Pharmacists (ASHP), the pharmacist should give patients thorough information on both the medication and medical conditions [34]. In this study, the findings demonstrated that 28 pharmacists (46.7%) provided counselling with a quality score of <25.3. On the other hand, it was encouraging to see that the community pharmacists in the present study had effective communication skills. Interestingly, present study found that independent pharmacies performed worse than chain pharmacies (p-value=0.048, a mean score of 26.2 in chain pharmacies versus 23.6 in independent pharmacies. However, the total quality scores did not differ significantly by pharmacists' gender, age, or ethnicity (p-value=0.326, 0.773, 0.262, respectively). However, in KSA the male gender and experienced personnel had more knowledge and positive attitude as compared to those who are relatively new in the field toward MERS [13].

This study design (SMC) is among the first of its kind in Qatar and in the Middle East. It addresses a significant health issue that confronts community pharmacists in Qatar. It has drawn attention to the areas where little research has been conducted. The results of this research would be crucial for developing efficient MERS control methods in an outbreak scenario. Another advantage of this study was the implementation of a two-step validation process for the questionnaire instrument, which gives researchers more confidence in the results.

Limitation(s)

Due to logistical difficulties, community pharmacies outside of Doha municipalities were not studied, which may have limited the findings generalisability. However, authors do not anticipate variations in community pharmacist practices in the areas that were not evaluated. Due to the multiple shifts for pharmacists, it was not possible to engage with the same pharmacist. In addition, this study did not provide feedback on the performance of community pharmacists regarding the assessment due to limited time and resources. Finally, the small sample size may have prevented differences between the two scenarios from being detected.

CONCLUSION(S)

In the present study, 43 (71.7%) pharmacists gave an inaccurate explanation of MERS. The pharmacists' overall quality counselling score was poor. Quality of counselling was significantly related to the type of pharmacy. Thus, the overall community pharmacist in Qatar has inadequate knowledge, poor counselling skills and lack of proper practice pertaining to MERS infection. To overcome the knowledge gap between current and desired knowledge levels, community pharmacists should be provided with continuous

professional development programs. These programs should focus on less knowledgeable areas to improve pharmacists' understanding, which would consequently improve their attitudes and practice toward MERS management.

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