

# An Innovative Teaching Strategy for the Outpatient Clerkship Program at Jordan University Hospital A Comprehensive Approach to Faculty Development Program

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## ABSTRACT

**Introduction and purpose:** As regular and well-structured clerkship program is needed to graduate qualified pharmacists in regard to drug knowledge and clinical skills our study was conducted in order to describe an innovative educational strategy for the outpatient clerkship and to improve the quality of clinical education in undergraduate doctor of pharmacy program. **Method:** Twenty one pharm D students were asked to fill an 18-questions questionnaire which designed to evaluate the course. The questionnaire used a 5-level Likert item to meet students' response to each question ranging from 1- "strongly agree" to 5- "strongly disagree". The pharmacy training was also evaluated through pharmacist evaluation (in each of the training pharmacies) for the course. **Results:** All students responded to the questionnaire (response rate 100%). Students were highly satisfied about the helpfulness of the course and the positive impact of the course on their clinical skills. Students were also highly satisfied about the clarity of the clerkship, clinic training and the type of homework, but they were less satisfied regarding the course material. Students showed a good satisfaction regarding the hands-on activities during the clerkship Finally, students were satisfied regarding the method of teaching and student's performance assessment method, whereas they show a poor satisfaction regarding the time distribution during the clerkship and most of them stated that the clerkship need more than 3 weeks. **Discussion:** Our program approach produced a positive outcome and satisfaction from the students regarding the most issues related clerkship evaluation. Therefore, this new teaching program could be continued and implemented in the future clerkship as a method for outpatient clerkship teaching.

**Key words:** Pharmacy education, Faculty development, Curriculum development, Outpatient clerkship, Pharm D.

## INTRODUCTION

Outpatient Pharmacy Department (OPD) provides ambulatory pharmaceutical care to patients. Pharmacist role in OPD focuses mainly on prescriptions preparation, dispensing and patients counseling.<sup>1</sup> Through strategic planning, pharmacy faculties anticipated the transition of pharmacy towards providing pharmaceutical care and have begun preparing students for evolving professional roles with more patient-centered care and counseling.<sup>2</sup> This Practice training is an important part in health care students

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teaching. Regular and well-structured clerkship program is needed to achieve the aims of clerkships education.<sup>3</sup> Increasing demands to graduate a competitive pharm D in market place in regard to drug knowledge and clinical skills requires a well-structured teaching clerkship program that aims at practicing these points.<sup>1</sup>

Many reports on prescription errors are present in the literature.<sup>4-6</sup> Of them, many revealed that the most common cause of these errors was due to the lack of proper patient counseling regarding the proper usage of medications.<sup>7</sup> This emphasizes the need for pharmaceutical care departments with qualified pharmacists to focus on patients counseling, as patient counseling was proven to have a positive impact on patients.<sup>8-10</sup>

Until recently, there were very limited published studies on the improvement of specific clerkship programs in the undergraduate pharmacy students, including outpatient clerkship. Our study introduced the first sophisticated teaching program for outpatient clerkship in Jordan, which can be used as a model for other national curricula. Also our study introduced the first sophisticated OSCE in pharmacy faculties in Jordan that open the door for the practical implementation of this exam in Jordan pharmacy faculties in future.

In this qualitative research, a new teaching program for outpatient clerkship was designed to provide pharm D students with skills and knowledge needed to increase their competency in different health care institutions.

## **Development process**

### **Course Program Description**

Outpatient Clerkship is a part of clinical program designed for the sixth year pharm D students. 8-22 students attended any group of the outpatient clerkship which lasted for 3 weeks. Four groups of students (58 students) were included in this course and participated in this study (response rate 100%). The clerkship was conducted according to the specific format designed by course coordinators and was designed in standardized, well-organized, systematic methods by the use of a pre-determined list of required clinical encounters in order to minimize inconsistent content exposure. Structured course outlines (supplementary material 1) and well-designed time management scale (supplementary material 2) were the main tools used to standardize the clerkship course. Presentation schedule form (Supplementary material 3) and Pharmacies distribution form (Supplementary material 4) were also used to systematically structure the clerkship course.

### **Course Aims and Objectives**

The course was designed to achieve specific aims in order to graduate qualified pharmacists in knowledge and skills (Table 1). For each aim, a tool(s) was/were developed to implement and another tool was utilized to assess the degree of implementation. After each group had completed the clerkship, the achievement of each aim was calculated by analyzing the percent of achievement by each measurement tool using a designed "Main aims and objective analysis form" (Table 1) and a correction plan was suggested for the achievement of each aim below the expected percent of achievement.

### **Course Materials**

Course material covered the following subjects:

- Most common drugs dispensed in Jordan University Hospital (JUH)
- Over-The-Counter (OTC) products and Vitamins
- Patient counseling lecture
- Psychiatry lecture and practice (including patient or family counseling about psychotropic drugs)
- Disease patient counseling
- Learning videos (such as the proper use of insulin pens and inhalers)

### **Course Activities**

#### **Daily patients counseling**

Students were asked to perform at least 5 patients counseling during each hospital training day (either about medications, diseases or both). Students also were asked to give the patients, who had been counseled, a patient education material in a simplified language. This patient oriented education materials were ready-made material about the most common drugs dispensed in JUH and were distributed to students in the first day of the clerkship.

#### **Medication form**

Students needed to expand their medication knowledge by reviewing most commonly dispensed medications in JUH and complete a medication form sheet (Supplementary material 5). Each student was asked to fill only one medication form (only for the first pharmacy training site) with a summarized patient counseling information for the 10 most common dispensed drugs in that pharmacy (determined by previous preceptor experience and by asking the pharmacist working in the pharmacy). The medication form was then reviewed by the preceptor to be a reference for students for rapid revise of the most important notes need to be told for the patient about drugs before counseling.

**Role Plays**

Apart from counseling in the hospital, students were asked to perform a 'mock counseling' in the virtual pharmacy in the faculty. Each student was asked to perform two role plays, the first one during the first training week with one of schoolmate as the simulated patient; the second one will be during the second week of training with the preceptor who acts as a patient with a predetermined scenarios. This was done to prepare students for Objective Subjective Clinical Examination (OSCE) (see below) and how to deal with the patient in special situations such as having a limited time for counseling, an anxious or an emotional patient. After completing the role play, the preceptor discussed with the students the information that should be provided to the patients and special counseling techniques needed for such cases. The students were evaluated according to patient counseling evaluation form (Table 2) that will be discussed later on.

**Weekly clinic day**

One day a-week was selected to distribute students among different outpatient clinics (GI, psychiatry, pediatric nephrology and endocrinology, rheumatology, respiratory, cardiology and ENT clinics).

**Daily student online resource search**

Pharmacist must have skills of finding the proper information using an online reference. A method was created to enhance this skill for the outpatient clerkship students. During the discussion in the virtual pharmacy room, 2-3 students are distributed to computers in the lecture room and were asked to be responsible for finding any controversial subjects arising during the discussion, in addition to find any illustrative photos or demonstrational videos needed during the discussion. This skill is very important to any pharmacist who is frequently present in situations that needed to find specific drug information for a specific patient or even to answer some question introduced by other health care professionals.

**Presentations**

Every student was required to present patient-oriented information regarding 2 medications and one disease over the 3-weeks clerkship.

**Daily discussion**

Discussion of the daily patient counseling cases performed by students was regularly done and included all medications presented in a prescription in addition to other counseling points.

**Daily pharmacy discussion**

Discussion with students distributed in different pharmacies through daily rounds was done.

**Live patient counseling**

Patient counseling by the student was evaluated in the presence of one preceptor and according to patient counseling evaluation form (Table 2).

**Homework**

Some assignments were requested from students to find evidence-based information for a specific drug or case.

**Discussion with Ph.D. holder**

Role playing in front of Ph.D. holder who provides the students with feedback about most important information needed during patient counseling, and other needed counseling skills.

**Evaluation and Grades**

Different tools have been used to evaluate students:

**Weekly Quiz**

Evaluation of knowledge gained by students for the most commonly drugs dispensed in JUH was done using short quiz. The grades distribution to the quiz is 10% of the total grades.

**Pharmacist evaluation**

Pharmacist evaluation form (Supplementary material 6) was designed to evaluate students' activity and their impact on pharmacy and patients. The chief pharmacist in each pharmacy was asked to fill this form for each group of the students who were trained under his/her supervision every week. The grades distribution to pharmacist evaluation is 5% of the total grades.

**Patient counseling evaluation form**

Was created to evaluate the role plays and the live patients counseling. The grades distribution to each one is 10% of the total grades (Table 2).

**Daily evaluation form**

This form was divided into five categories:

- Professionalism.
- Pharmacy discussion evaluation.
- Communication skills with other health care professionals and preceptors.
- Presentation evaluation.

The grades distribution to daily evaluation is 5% of the total grades (Table 3).

**Test exam**

A test exam was designed to measure the baseline knowledge of the students about different important drugs. This was done always at the first day of the clerkship.

**Final exam**

Theoretical exam: was given to each group at the end of the clerkship. After each theoretical exam, a final exam evaluation form (Supplementary material 7) was distributed to the students. These evaluation forms were analyzed to determine strong and weak points in the exam, with a correction plan was suggested to avoid these weak points in the next final exam.

Achievements of the final exam's aims were also measured. "Performance measure" was set for each of exam's aim. We compared the actual percent of aims achievement with the expected percent and a correction plan was suggested if actual achievement is below the expected percent of achievement (Supplementary material 8). The final exam was also analyzed by each question (Supplementary material 9) to determine if there is problem in specific question/s. The analysis was done using an excel sheet document.

*Objective Structured Clinical Examination (OSCE)*: OSCE is a clinical exam used to evaluate skills in addition to knowledge of the students.<sup>11</sup> OSCE often used in health sciences.<sup>12,13</sup> Our OSCE comprised of a series of four different stations (interactive and non-interactive), with 10-15 min for each station. Stations included patient counseling, communication with health care professionals, prescription analysis and the use of online resource.

The main aim of OSCE was to evaluate Students' clinical skills. As with the theoretical exam, we asked the students to evaluate OSCE by a questionnaire that was designed by the preceptors (Supplementary material 10). The questionnaire was analyzed to check for the weak and strong points in the OSCE and to avoid these weak points in the next exam.

**METHOD****Study subjects**

Thirty eight sixth year pharm D students, who were trained at JUH and underwent three weeks in the outpatient clerkship. The subjects also divided into 4 groups, consisting from 7 to 12 students per group. Study duration was from 8/2/2015 till 14/5/2015.

**Informed consent:** Informed consent was obtained from all individual participants included in the study.

**Bioethical commission**

According to the university of Jordan regulations, for this type of study a Bioethical commission approval is not necessary. The work was carried out in accordance with the Declaration of Helsinki and other relevant regulations. There were no risks to human subjects.

**Students' feedback**

This was a cross sectional survey. The third and fourth group of students (21 students) were asked to fill an 18-questions questionnaire built up of 4 parts (course helpfulness, course material, hands-on activities and Course management) which designed to evaluate the course. The questionnaire used a 5-level Likert item to meet students' response to each question ranging from "strongly agree" to "strongly disagree". Face validation of the questionnaire was done by experienced faculty members and educators and a consensus was established.

**Pharmacist's feedback**

The chief pharmacist in each of the training pharmacies were asked to fill an 3-questions which designed to measure the pharmacists evaluation for the course. The questionnaire used a 5-level Likert item ranging from "strongly agree" to "strongly disagree". Face validation of the questionnaire was done by one experienced faculty members and five educators and a consensus was established. The data were entered into SPSS 16.0 that was used to analyze the descriptive statistics.

**RESULTS**

All students responded to the questionnaire (response rate 100%). Table 4 show the students' satisfaction regarding the clerkship. Students were highly satisfied about the helpfulness of the course and the positive impact of the course on their clinical skills. Regarding the course material, students were highly satisfied about the clarity of the clerkship, clinic training and the type of homework, but they were less satisfied regarding the course material. Students showed a good satisfaction regarding the hands-on activities during the clerkship. Finally, students were satisfied regarding the method of teaching and assessment, whereas they show a poor satisfaction regarding the time distribution during the clerkship and most of them stated that the clerkship need more than 3 weeks.

The pharmacists were highly agree about the helpfulness of the students for the pharmacists and for patients, Table 5 shows pharmacist evaluation for the course.

**Table 1: Main aims and objective analysis form**

Aims	Tools to achieve aim	Tools to measure aims	Expected percent of aim achievement	Actual percent of aim achievement	Corrected plan
Improve Student knowledge about basic information that should be provided to patients during patient counseling	<ul style="list-style-type: none"> <li>• Patient counseling lecture</li> <li>• Role play</li> <li>• Daily presentation and lectures</li> <li>• Medication form</li> <li>• Daily discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Final exam</li> <li>• Quizzes</li> <li>• OSCE</li> <li>• Patient counseling evaluation form</li> <li>• Verbally patient satisfaction form</li> </ul>			
Assess and Improve student's skills about patient counseling of medication and diseases	<ul style="list-style-type: none"> <li>• OSCE</li> <li>• Daily patient counseling</li> <li>• Role play</li> <li>• Patient counseling lecture</li> <li>• Weekly counseling in clinic day</li> <li>• Live patient counseling</li> </ul>	<ul style="list-style-type: none"> <li>• OSCE</li> <li>• Verbally patient satisfaction form</li> <li>• Patient counseling evaluation form</li> <li>• Quizzes</li> <li>• Final exam</li> </ul>			
Student knowledge about the brands of most commonly available drugs	Help in preparing and dispensing of prescriptions in outpatient pharmacies	<ul style="list-style-type: none"> <li>• Final exam</li> <li>• OSCE</li> </ul>			
Improve student knowledge about some vitamins and supplements	<ul style="list-style-type: none"> <li>• Supplements and vitamins lecture</li> <li>• homework</li> </ul>	<ul style="list-style-type: none"> <li>• Final exam</li> <li>• OSCE</li> </ul>			
Student knowledge about the proper administration technique of insulin, inhalers, nasal sprays, eye drops and ear drops	<ul style="list-style-type: none"> <li>• videos, demos, pictures</li> </ul>	<ul style="list-style-type: none"> <li>• Patient counseling evaluation form</li> <li>• Final exam</li> <li>• OSCE</li> </ul>			

**Table 2: Patient counseling evaluation form**

Criteria	Score	Comment
Professional appearance		
Greet the patient and identify yourself		
Take permission for counseling		
Show empathy and body language		
Information gathering <ul style="list-style-type: none"> <li>• Medical condition</li> <li>• Medications (Rx- OTC, herbals)</li> <li>• Allergy (drugs, Food, environment)</li> <li>• Life style (smoking, diet, exercise, pregnancy)</li> </ul>		
What did your doctor tell you this medication was for? (new) What are you using this medication to treat (refill)		
How did your doctor tell you to take this medicine? (new) How do you take this medication (refill)		
What did your doctor tell you to expect (new) What problems are you experiencing with this medication? And How the drug does for you? (refill)		
Monitoring parameters (if exists)		
Problem solving knowledge and skills (if available)		
Disease education if important (such as asthma, acne, HF)		
Use a mix of open and close ended question		
Use simplified language		
Mention special information for the drug (administration, warning, drug or food interaction)		
Summarizing and verifying information		
Time (10-15 min.)		

**Table 3: Daily evaluation form**

Main Criteria	Sub-main Criteria	D2 *	D3 *	D4 *	D5 *	D6 *	D7 *	D8 *	D9 *	D10 *	D11 *	D12 *	D13 *	D14 *
Professionalism	Professional appearance													
	Attendance on time													
	Exhibits respectfulness													
Pharmacy discussion evaluation form	Ability to accept constructive criticism (admit, apologize and promise to avoid mistake in future)													
	No. of daily patient counseling													
	Pharmacy drug knowledge													
	Pharmacy activity													
Communication skills with other health care professional and preceptor	Required duties and homework													
	Sound problem solving skills													
	Active communication													
	Be friendly													
Presentation evaluation form	Body language													
	Be respectful													
	Cover most important drug information													
Presentation evaluation form	Simplifying drug information to be directed to patient													
	Answer questions appropriately													
	Time 10-15 min.													

\*D: day number

**Table 4: Student's course evaluation**

Points of evaluation	Strongly agree No (Valid %)	Agree No (Valid %)	Uncertain No (Valid %)	Disagree No (Valid %)	Strongly disagree No (Valid %)
Part. A: Course helpfulness					
Was outpatient clerkship course helpful for you?	15 (71)	6 (29)	0 (0)	0 (0)	0 (0)
Do you think that this clerkship Improved your communication skills with other health care professional?	14 (67)	6 (29)	1 (4)	0 (0)	0 (0)
Do you think that your counseling skills have been improvement?	15 (71)	6 (29)	0 (0)	0 (0)	0 (0)
Do you think you had a good experience with the deal of outpatient pharmacies prescriptions?	12 (57)	9 (43)	0 (0)	0 (0)	0 (0)
Did you think that you had a good impact and helped the patients in this clerkship?	14 (67)	7 (33)	0 (0)	0 (0)	0 (0)
Part. B: Course material					
Are you satisfied with clarity of clerkship course outline?	6 (29)	11 (52)	4 (19)	0 (0)	0 (0)
Was the content of the material appropriate?	5 (24)	10 (48)	6 (28)	0 (0)	0 (0)
Was the quantity of material course appropriate?	3 (14)	12 (57)	4 (19)	2 (10)	0 (0)
Was the quality of material course appropriate?	3 (14)	9 (43)	6 (29)	3 (14)	0 (0)
Was the quantity of homework appropriate?	6 (29)	11 (52)	4 (19)	0 (0)	0 (0)
Were the types of homework appropriate?	5 (24)	14 (66)	1 (5)	1 (5)	0 (0)
Are you satisfied with clinic training experience?	4 (19)	14 (67)	3 (14)	0 (0)	0 (0)
Part. C: Hands-on activities					
Are you satisfied with patient counseling activity during this clerkship?	7 (33)	12 (57)	1 (5)	1 (5)	0 (0)
Are you satisfied with prescriptions preparation and dispensing activity during this clerkship?	7 (33)	10 (48)	4 (19)	0 (0)	0 (0)
Part. D: Course management					
Was the method of teaching appropriate and convenient?	6 (28)	10 (48)	4 (19)	1 (5)	0 (0)
Was the time distribution and management during each week appropriate?	3 (15)	7 (33)	7 (33)	4 (19)	0 (0)
Are you satisfied with clarity of information about your assessment	6 (28)	10 (48)	5 (24)	0 (0)	0 (0)
Do you think that this clerkship need more than 3 weeks?	11 (52)	6 (29)	0 (0)	4 (19)	0 (0)

**Table 5: Pharmacist evaluation for Outpatient course**

Questions	Strongly agree No (Valid %)	Agree No (Valid %)	Uncertain No (Valid %)	Disagree No (Valid %)	Strongly disagree No (Valid %)
Were the students helpful for you?	0 (0 %)	5 (100%)	0 (0 %)	0 (0 %)	0 (0 %)
Were the students helpful for patients?	4 (80 %)	1 (20%)	0 (0 %)	0 (0 %)	0 (0 %)
Were the communication skills of the students professional and respectful with you?	1 (20%)	4 (80 %)	0 (0 %)	0 (0 %)	0 (0 %)

## DISCUSSION

Using student's satisfaction in evaluating course program is needed to determine the successful of the learning process,<sup>1</sup> it has been shown that student course feedback can be used as a tool to monitor the didactic quality of clerkships and improve the quality of future editions of the course.<sup>14</sup>

The most satisfied part in student evaluation of the clerkship was the "course helpfulness" where all students stated that the course was helpful to them and they feel that they had a good impact during the clerkship, students also agree that they clerkship helped them to improve their clinical skills such as patient counseling and communication skills which is the main aim of the

clerkship, so the highly satisfaction rate in this part is good indicator for the achievement of the main aims of the course.

Although most of the students were satisfied regarding the “course material” part, there was somewhat low satisfaction regarding the content, quality and quantity of the material comparing to other part of evaluation, this result was expected as the clerkship designed to focus more on skills than knowledge, and this relatively low satisfaction regarding the material can be attributed to insufficient clerkship duration to accommodate the material where most of the student in this study believed that this clerkship need more than 3 weeks, also the cause may be due to the newness of the material that may still need some modifications which is what we will work on in our future development educational process development. Students possessed a high satisfaction value among students, assignments act as a teaching method that able the students to practice their knowledge regarding each task.<sup>1</sup> It has been shown that students believed that assignments can improve their academic development and prepare them for future job.<sup>15</sup>

Students were highly satisfied regarding clerkship hands-on activities, this high satisfaction is a good sign that indicate the usefulness of these activities which considered an integral tools to achieve the course main aims, improvement in clinical skills, Hands on learning activities were many times being reported to be able to trigger students creativity, perception, attitude and desire to learn, as compared to traditional teaching method.<sup>16</sup> These activities able the students to experience themselves, in the way of conducting patient counselling as well as the administration technique of medical devices,<sup>1</sup> this was consistent with the results in part A where the students indicate that the clerkship improved their clinical skills.

In course management part, students show low satisfaction about the time distribution and the duration of the course, this point will be considered in the future to either increase the duration of the course or to decrease the material content to be accommodated during 3 weeks clerkship. Students were satisfied about the method of teaching and the clarity of assessment method, understanding the way of teaching and assessment help the students to meet the requirements needed in the clerkship.<sup>1</sup>

The pharmacists were totally agree about the helpfulness of the students for them and for the patients, they were also agree about the professionalism of the students, these results indicate a high satisfaction of the

pharmacist about the training process of the course and a good impact of the students on the training sites.

## CONCLUSION

There is an urgent need to design a well-structured outpatient clerkship course to graduate qualified pharmacists students regarding drugs knowledge and clinical skills. Our course design effectively able the students to become involved in rendering pharmaceutical care and exposes students to future and practice environment. Our program approach produced a positive outcome and satisfaction from the students regarding the most on issues related clerkship evaluation. Therefore, this new teaching program could be continue and implemented in the future clerkship as a method for outpatient clerkship teaching.

## Future task

For generalization of study results, the application of this new teaching program for large number of students, in other universities and, if possible, in other clerkships is needed. Also for more accuracy of program validity, we suggest the use of a more comprehensive validation method, other than Students' or Pharmacist's feedback, for program assessment in future.

In the future we are thinking of expanding our training in the Outpatient clerkship to include community pharmacies in addition to hospital pharmacies, so that students are trained on other skills needed in dispensing over the counter medications. training the students on different computer systems that are used in community and hospital pharmacies is also of our interest in the future.

Finally, a measure of program long term impact should be considered in future to estimate the benefit of the program for students and employers in job market.

## Limitation of the study

Although Student's feedback is an important tool to evaluate course program in order to determine the successful of the learning process, other methods of course validation is needed to be implemented for more accurate course validation.

The study was conducted in only one university in Jordan where there may be some variable that could affect the results. In addition, a higher number of students could be needed for a more accurate estimation of the validity of the program. Also our study did not measure the effect of specific educator(s) on the results, so future implementation of the program on more number of



the students and in other pharmacy faculties in strongly encouraged in the future.

Finally, our study measure only short term impact of the program, whereas, a long term impact measure such as the feedback of the graduate students in job market in addition to employer feedback about the benefit of the program for them is important for the validation of the program for the future and this point should be considered in future work.

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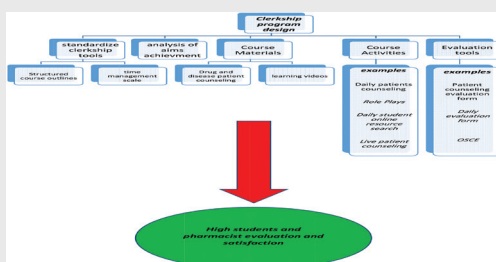
## CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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## PICTORIAL ABSTRACT



## SUMMARY

- A regular and well-structured outpatient clerkship program was designed in the Faculty of Pharmacy at the University of Jordan.
- The clerkship was evaluated by Pharm D students and pharmacists in training sites.
- Students were highly satisfied regarding most issues related clerkship evaluation.
- The pharmacists were highly agreeing about the helpfulness of the students for the pharmacists and for patients.
- This new teaching program could be implemented in other pharmacy faculties in the future.

## ABBREVIATIONS USED

**ENT:** Ear, nose, throat; **GI:** Gastro intestinal; **JUH:** Jordan University Hospital; **OPD:** Outpatient Pharmacy Department; **OSCE:** Objective structured clinical examination; **OTC:** Over-The-Counter; **Ph.D:** Doctor of Philosophy.

### About Authors



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