

Original Research

Pharmacy practice simulations: performance of senior pharmacy students at a University in southern Brazil

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ABSTRACT*

Objective: A simulation process known as objective structured clinical examination (OSCE) was applied to assess pharmacy practice performed by senior pharmacy students.

Methods: A cross-sectional study was conducted based on documentary analysis of performance evaluation records of pharmacy practice simulations that occurred between 2005 and 2009. These simulations were related to the process of self-medication and dispensing, and were performed with the use of patients simulated. The simulations were filmed to facilitate the evaluation process. It presents the OSCE educational experience performed by pharmacy trainees of the University of Southern Santa Catarina and experienced by two evaluators. The student general performance was analyzed, and the criteria for pharmacy practice assessment often identified trainees in difficulty.

Results: The results of 291 simulations showed that students have an average yield performance of 70.0%. Several difficulties were encountered, such as the lack of information about the selected/prescribed treatment regimen (65.1%); inadequate communication style (21.9%); lack of identification of patients' needs (7.7%) and inappropriate drug selection for self-medication (5.3%).

Conclusions: These data show that there is a need for reorientation of clinical pharmacy students because they need to improve their communication skills, and have a deeper knowledge of medicines and health problems in order to properly orient their patients.

Keywords: Education, Pharmacy, Graduate. Clinical Competence. Brazil.

SIMULACIONES DE FARMACIA

PRÁCTICA: ACTUACIÓN DE ESTUDIANTES SÉNIOR DE FARMACIA EN UNA UNIVERSIDAD DEL SUR DE BRASIL

RESUMEN

Objetivo: Se aplicó un proceso conocido como examen clínico estructurado objetivo (OSCE) para evaluar la actuación en práctica farmacéutica de estudiantes sénior de farmacia.

Métodos: Se realizó un estudio transversal basado en un análisis documental de los registros de simulaciones de farmacia práctica que ocurrieron entre 2005 y 2009. Estas simulaciones estaban relacionadas con el proceso de auto-medicación y dispensación con el uso de pacientes simulados. Las simulaciones fueron filmadas para facilitar el proceso de evaluación. Se presentan la experiencia educativa OSCE realizada por alumnos de la Universidad del Sur de Santa Catarina y gestionada por dos evaluadores. Se analizó la evaluación global de los estudiantes y los criterios de la evaluación en práctica farmacéutica identificados por los alumnos por su dificultad.

Resultados: Los resultados de las 291 evaluaciones mostraron que los estudiantes tienen una actuación promedio del 70%. Se encontraron varias dificultades, tales como la falta de información sobre el tratamiento seleccionado/prescrito (65,1%); estilo de comunicación inadecuado (21,9%); falta de identificación de las necesidades del paciente (7,7%) y selección inadecuada de medicamento para auto-medicación (5,3%).

Conclusiones: Estos datos demuestran que hay una necesidad de re-orientación de los estudiantes de farmacia clínica porque necesitan mejorar sus habilidades de comunicación y tengan un conocimiento más profundo de medicamentos y problemas de salud para orientar adecuadamente a sus pacientes.

Palabras clave: Educación, Farmacia, Pre-grado. Competencia clínica. Brasil.

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INTRODUCTION

In the process of clinical education several teaching tools are being implemented to assist instructors with this task completion, among which we mention the objective structured clinical examination (OSCE). The OSCE uses standard visit simulations to assess clinical competence of students¹⁻⁵, which

has been utilized for more than 20 years, mainly in medical schools.⁶ In the pharmacy undergraduate program of the University of Southern Santa Catarina this practice is being followed since 2003.¹

This technique permits identification of knowledge gaps and stimulates students to analyze their own learning needs.⁷ It also enables the identification of the lack of knowledge about a specific topic, in addition to the difficulties related to students' attitudes and skills even before the trainee period. Thus, it helps prevent potential problems, since it allows the opportunity to improve skills and attitudes in providing pharmaceutical care, as well as deepen their knowledge of the situations simulated.¹

Clinical pharmacy practice requires expertise regarding communication, clinical reasoning and knowledge about medicines and health problems⁸⁻¹¹, which is essential for quality pharmacy practice. The aim of this paper is to analyze assessment results of pharmacy practice simulations conducted with pharmacy undergraduate students from a Brazilian university, in order to reflect the practice of clinical pharmacy teaching and learning.

METHODS

This cross sectional study is a documentary analysis¹² of performance evaluation records of pharmacy practice simulations that occurred between 2005 and 2009. It presents the OSCE educational experience performed by pharmacy trainees of the University of Southern Santa Catarina and experienced by two evaluators. The purpose of this step was to quantify and analyze the main difficulties of student-trainees in dealing with pharmacy practice simulations.

The simulations were conducted with patients simulated and simulation of cases involving self-medication and drug dispensing. The simulated cases were divided into two steps; the first was initiated with a dialog containing minimum information about the patient's search for the pharmacy service. In the second step, if the pharmacist conducted the questioning of the patient, additional information about the simulated situation was provided. The whole care process was filmed and subsequently evaluated with the trainee.¹

The assessment tool¹ developed by the authors allows evaluation of the aspects related to problem identification, responsible self-medication, information and guidance to patients, communication style and problem solving. All these different aspects are taken into account by the evaluator who assigns a score to the simulation conducted by each student-trainee, which ranges from zero to ten, which can be transformed into percentage ranging from 0 to 100%.

Every aspect of appraisal can be subdivided into items, and each is first evaluated using the following codes: NA (not applicable), 0 (not performed), 1 (improperly done), 2 (incompletely performed); 3 (well done) and 4 (very well done). When the student-trainee receives a NA code, the item is not computed in their evaluation; when he receives code 4, the highest score is given. Intermediate codes are scored accordingly.¹ On the evaluation form there is a space for the evaluator's notes, which describe the difficulties presented by the student-trainees in the OSCE.¹

The results were presented using mean score and standard deviation and median for numerical variables regarding the simulations performed. Ratios were used for the nominal variables (problems presented during the simulations).

RESULTS

Table 1 presents a summary of the results obtained on items from 291 performance evaluation records (291 students). It should be highlighted that the measurement of performance on each item of the evaluation form used a scale which ranged from zero (minimum) to four (maximum), as described in the Methods section. In the end, these performance scores were turned into grades, which ranged between 0.4 and 10.0 with a median of 7.3 and an average of 7.0 (SD=2.02), which represented 70.0% performance efficiency. However, many student-trainees had a poor performance in this evaluation (lower limit of 0.4 or 4%).

When the performance records were analyzed, there were 470 comments regarding the difficulties identified by the evaluators in the simulation process (Table 2). It is noteworthy to mention that

Table 1. Performance profile of students in the assessment of simulations of pharmacy practice.		
Criterion	Description of items to support the assessment	Mean (SD)
Problem Identification (n=291)		3.4 (0.75)
Responsible self-medication	Drug selection (n = 107)	3.1 (1.16)
	Dose selection and presentation (n = 107)	3.1 (1.09)
	Duration of treatment (n = 90)	1.9 (1.63)
	Indication of non-pharmacological treatment (n = 68)	1.4 (1.72)
Information and instructions provided to patients	Positive effects (n = 269)	2.6 (1.38)
	Instructions for the use of medication (n = 259)	2.7 (1.24)
	Warnings on medication use (n = 190)	1.7 (1.52)
	Follow-up of results (n = 285)	2.2 (1.56)
	Non-pharmacological guidelines (n = 255)	2.1 (1.74)
Communication style	Clarity (n = 291)	3.4 (0.72)
	Consistency (n = 291)	3.3 (0.78)
	Openness to questions and expressions of patients (n = 290)	3.3 (0.97)
	Makes sure the patient understands the instructions (n = 288)	2.4 (1.33)
	Nonverbal communication (n = 159)	3.4 (0.77)
Problem solving (n=158)		3.2 (0.70)
SD=Standard deviation.		

the most difficult item regarding to the identification of problems was to be able to identify them completely (n=27), often for lack of knowledge about the disease (n=8).

Table 2. Summary of difficulties identified in the pharmacy practice simulations.		
Observed difficulty	n	%
Identification of the problem (patient's need)	36	7.7
Responsible self-medication	25	5.3
Information and instructions provided to patients	306	65.1
Communication style	103	21.9
Total observations	470	100

As for the self-medication criterion, the major difficulty of respondents was to identify the irrational selection of pharmacological therapy (n=19). With regard to patient information, the greatest difficulties lied on non-pharmacological guidelines (n=79), follow-up guidelines (n=64), dosage information (n=36) and knowledge relating to medicines, particularly pharmacological indications (n=22). Regarding the communication item, the major difficulties included: make sure that the guidance provided to patient was understood (n=24), emotional control (n=14), safety (n=10), lack of important questions asked to patients for clarification of the simulated case and pharmacy referrals (n=13).

DISCUSSION

Healthcare simulation is a teaching and learning technique used in several health undergraduate programs.^{1,13} The analysis of this activity can identify problems in the clinical training process.

Thus, it was identified that even though there is an average yield acceptable (70.0%), many student-trainees had a poor performance in this evaluation. Such a low performance is due to the limitations, mainly in communication skills, lack of information about the medicine itself and information provided to patients.

Pharmacy education in Brazil follows a positivist model, which is a disease-centered model rather than patient-centered approach. This aspect became evident throughout this study and the curriculum in effect during the period in which data were collected. One way to verify this assertion is the fact that even though there is lack of knowledge regarding the medicines used (e.g., dosing guidelines), the greatest difficulties are related to non-pharmacological guidelines and the need for monitoring of treatment outcomes.

These two main difficulties raise the question of access to drugs alone may not, in most cases, be sufficient to achieve optimal therapeutic results.¹² Patients' awareness of their disease, information on preventive measures and non-pharmacological treatment are important factors for therapeutic success.

Moreover, the student-trainees' difficulty in identifying the need for follow-up treatment results is because clinical care (monitoring of patients) is

something recent for the pharmacist to do¹⁴ in Brazil. Galato *et al.*⁸ state that monitoring a pharmacy intervention should be encouraged in all situations, requiring the patient to return to the pharmacy to make sure that the treatment is appropriate. It is vital for patients to understand the evolution of their health problem, and be aware of the signs and warning symptoms, for evaluated the adherence.¹⁵

In Brazil, the Ministry of Education defined the Curriculum Guidelines for the pharmacy courses¹⁴ In the document, undergraduate courses are oriented to build new curricula to meet the minimum number of training hours and required competencies. A new educational project was built at UNISUL that, in addition to follow the government guidelines, also took into account the limitations described in the previous curriculum, some of them identified by the OSCE.

We emphasize that the expression "monitoring of patients" referred to in the simulated pharmacy practices (self-medication and dispensing) has a different context than that of the pharmacotherapeutic monitoring described in the pharmaceutical care process, where the record of interventions and outcomes is needed.^{10,16-18} In the simulated practices, patients or caregivers are more frequently notified verbally at the time services are rendered as Puspitasari *et al.*¹⁹ presented.

It is observed that the deficiency in communication skills markedly compromises patient care, especially when it comes to ensure the understanding of information received. This is an important finding that deserves reflection. The student-trainee does not necessarily need to ask the patients if they have "understood the instructions", but in the care context he should make sure that this understanding occurred, for example, by asking about the schedules of drug administration or even by providing written information.^{9,10}

Other communication deficiencies observed included doubtfulness and lack of emotional control, both related to nonverbal language.²⁰ One way of addressing these needs is by conducting effective training and care simulations. It is important for the health professionals to control their feelings and emotions, but without dehumanizing healthcare, to ensure the development of a therapeutic relationship based on empathy and trust.^{8,9}

The lack of questioning by the student-trainees should be investigated to identify if this is due to lack of knowledge about the case simulation (health issue and therapeutic class involved) or communication difficulty itself. Intervention should be made on this limitation, depending on the main reason indicated.

One of the limitations of this study may have been the difference between evaluators; however, this was diminished because the assessment was always performed simultaneously by two assessors.

However, this tool proves to be very effective in identifying problems related to knowledge, whether

related to health problems or treatment, as well as communication skills with patients, whether verbal or nonverbal. Therefore, it can be used for the evaluation of competencies related to pharmacy practice.

CONCLUSIONS

These data show that there is a need for reorientation of clinical pharmacy students because they need to improve their communication skills, and have a deeper knowledge of medicines and health problems in order to properly orient their patients.

The present results show that the tool used, in addition to student-trainee assessment, reveals several shortcomings related to education background, especially those related to information provided to patients and communication skills.

These observations helped to build a new educational project, which has advantages over previous approaches because it focuses on the clinical issues (health problems of the respiratory, digestive, and cardiovascular systems), as well as

disease treatments and development of communication skills during the training period.

These results, therefore, were instrumental in building the educational project and help to define how and when clinical-related content should be addressed. Therefore, pharmacy practice simulation is a very important technique in the teaching and learning process of clinical practice and can be used in the curriculum of various courses in the health area.

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CONFLICT OF INTEREST

None declared.

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