Review Article

The Role and Suitability of the Objective Structured Practical Examination in Pharmacy Education in Poland

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ABSTRACT

Background: Objective structured practical examination (OSPE) is a new concept that allows students to assess their practical skills. These are multifunctional assessment tools that can be used to test a wide range of students' competencies. OSPE can be assessed objectively by direct observation supported by a formalized assessment method. Testing of candidates in a wide range of practical and clinical skills is possible thanks to the precision, objectivity and repeatability of examinations. Traditional examinations have numerous limitations as to repeatability or standardization, but also in relation to the assessed scope of competence. **Purposes:** The aim of the work is to review the literature on objective structured practical examinations (OSPE) at Universities in Poland and around the world and to analyze the legitimacy of implementing a new method of assessing the effectiveness of education of pharmacy students. **Methodology:** Literature review in the context of practical examinations was conducted through an initial search of the databases of Pub Med, Medline, Science Direct, Google Scholar with full text. The search criteria included published scientist's findings in English language articles written between 1975 and 2017. **Findings:** The key findings suggest that OSPE is an effective assessment tool from the perspective of educators and students. Students preferred this form of examination, because OSPE is used to assess the practical aspects of competences and is considered as an important and reliable method of examination. **Conclusion:** OSPE is dedicated to assessing practical skills. Thanks to its unique features: objectivity, reliability and validity, it indicates its superiority compared to other traditional methods of assessment. It allows checking a very wide range of student's skills at different levels of teaching in a relatively short time.

Key words: OSPE, Objective structured practical examination, Competencies, Skills, Objectivity, Assessment tool, Pharmacy education.

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INTRODUCTION

One of the most important elements of the pharmacy curriculum is to teach and improve student's practical and interpersonal skills. The practical skills of pharmacy students are shaped by laboratory work, where students acquire the knowledge and skills necessary to prepare, in a manner consistent with pharmaceutical guidelines, various types of medications.[1]

Pharmacy students should be able to learn and practice interpersonal communication skills during advanced experiments in the field of pharmacy practice.[2] Recently, pharmacy education has undergone a radical change, as it involves improving the skills necessary to provide pharmaceutical services according to the highest standards. In addition, more attention is paid to develop problem-solving skills and other practical competencies.[3-5]

Apart from gaining knowledge in the areas of pharmaceutical, medical, biological, chemical and social sciences the future pharmacist should develop the ability of

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social interaction in the contact with the patient and healthcare team. One of the main challenges of modern pharmaceutical education is to develop the method of assessing the students' mastery of the above skills. The examination should reliably evaluate students' skills. Traditional forms of the examinations, which operate at many medical universities, do not check students on all major areas such as the application of knowledge in practice, understanding of problems, motivation or good feedback (feedback). The structure of questions and assessment through objectivity are very important in the practical assessment. According to scientific research, the examination, which is the best tool for assessing practical skills and fulfilling the above criteria, is called the Objective Structured Practical Examination (OSPE). OSPE was first introduced in 1986 by Nayar and his colleagues to assess the students' practical skills in the course of physiology.[6] It is worth noting that OSPE is one of a wide family of structured and objectified examinations covering practical, clinical, communication examinations and many others. All of them are multidimensional, universal assessment tools which are used to test practical and clinical skills of pharmacy and medicine students. The OSPE due to its objectivity and credibility may be a kind of examination that will be used to check the practical skills of future pharmacists. It consists of a few or a dozen "stations" on which various practical skills are assessed in a specific time interval.[7] Organization of this type of examinations requires time, effort and teamwork on the part of examiners and all those who co-create the exam.[8-10]

The OSCE was developed in 1975 by prof. Ronald Harden and his colleagues at the University of Dundee, Scotland. In 1979, after some modifications, this method was described in more detail.[11] OSCE is defined as, an approach to the assessment of clinical competence in which the components of competence are assessed in a planned or structured way with the attention being paid to the objectivity of the examination". It is used for a standardized assessment of skills in simulated conditions.[12] The USA, Canada and West European countries: Great Britain, Switzerland introduced OSCE which have been functioning for several decades and are used to assess practical and clinical skills.[13,14] The OSCE was defined as the "golden standard" and serves as a model for assessing clinical skills in clinical sciences.[15] In the pharmacy, in 2006-2009 a 7-fold increase in the number of OSCE papers was observed (American conferences on pharmacy and pharmacy teaching).[16-19] In the medical sciences, on the basis of more detailed research, the presence of positive correlations between the results of such examinations and the subsequent resourcefulness of young doctors in hospital practice was found.[20,21] In Poland, few theoretical considerations are devoted to the examination using the OSCE[22-24] method. This method is still functioning today at the Medical Department of the Jagiellonian University Medical College: medical and dentistry faculty.[25] In 1990 Miller presents the acquisition of clinical competence in four stages in the form of a pyramid. The basis is knowledge/knowledge, which consists of levels "knows" and "knows how" and the top is behavior/skills/attitudes covering the stages "show how" and "perform". The "performs - does" rating at the top of the Miller pyramid is the highest of all evaluated clinical competencies (global rating scale). Both the OSPE and OSCE examinations are in the middle of this pyramid at the "show how" level. Most assessment procedures in medical and pharmaceutical education check the first two levels of competence. Miller's Pyramid is a well-known pyramid that shows how the novice becomes experts in a given field. From the novice - the first stage of teaching, in which there are confusion and imitation of the instructor in the simulation laboratory or clinical diagnosis, the expert - the student can understand the basics of their decisions and has the appropriate skills to meet the therapeutic needs of the majority of patients.[26]

Advantages

OSPE have a lot of advantages. The serve a standardized assessment of skills in simulated conditions. Each "station" evaluates a different skill. The check not only acquired skills and knowledge but also the attitude to the patient. The examination tests the ability of students to integrate knowledge, clinical skills and communication. OSPE allows examiners to determine the student's competence, which allows later to design appropriate examinations and test these competencies at several "stations". Comparing OSPE with other traditional methods, skills and behaviors can be assessed at different levels of complexity.[27,28] All previous scientific research regarding OSPE indicated their high credibility, validity and objectivity. In addition, OSPEs are reproducible, flexible, cover a wide range of problem- solving, check communication and interpersonal skills, decision-making capacity and patient management. OSPE were considered as valid evidence of the competence of all students before graduation.[27]

Disadvantages

OSPE in comparison to examinations that check competences less well, e.g. with an oral exam, are more difficult to organize, require a lot of time and more materials and are expensive.[29] Carrying out this form of the assessment

is a great effort for the assessor, which may affect the final result. Each examiner must undergo special training in order to increase the level of compatibility between various examiners (inter-rater reliability).[20,30] During the examinations, much more student stress and examiner's fatigue were also observed.[27] There is also a risk that the level of examiners' involvement will influence the final grade of the examination. For this reason, the result of the same candidate may vary, depending on the examiner's subjective judgment.[8]

OSCE in pharmacy education

The methods of examining pharmacy students completing pharmaceutical studies in order to obtain the right to practice are constantly changing.[31] Many medical universities use traditional methods for assessing students, using multiple-choice tests or writing essays. Unfortunately, these methods are not effective enough to assess the degree of mastery of all skills.[32,33] Universities - Universiti Sains Malaysia and International Islamic University Malaysia carry out OSCE examinations for bachelor studies in pharmacy education, which are used to assess clinical competences in vocational education in the field of health.[33-37] In 2006, this form of the examination was part of the clinical evaluation at the Faculty of Pharmacy at International Islamic University Malaysia (IIUM). It consisted of 13 stations and was designed for the 3rd Clinical Pharmacy course at the undergraduate Pharmaceutical Academy (BPharm) in the academic year 2007/2008. OSCE was the "golden standard" used to assess the clinical competence of undergraduate students at IIUM. The purpose of the OSCE implementation was to assess students' competencies in various therapeutic aspects, clinical pharmacokinetics, information on medicines and general pharmaceutical care. In addition, this method aimed to effectively assess communication skills and other skills to identify and solve clinical problems.[38] In 2013, the College of Pharmacy at Quatar University in collaboration with the Supreme Council of Health in Quatar developed and implemented the first cycle of OSCE examinations. It consisted of 100 open tasks in the field of pharmacy concerning the patient care plan. The objective structured clinical examination consisted of 8 stations on which students' practical skills were tested. In 2015 and 2016, OSCE was repeated with 10 stages and OSCE is now a regular element of the undergraduate program.[39] The Canadian Qualifying Examination for pharmacists has incorporated the OSCE component in 2001.[40] OSCE covers stations related to patient care, professional cooperation and teamwork. Between September 2008 and May 2010, Sturpe interviewed the authorities of the pharmaceutical departments and found that 32 universities use OSCE in their curricula.[41] In 1996, The Ontario College of Pharmacists obtained permission to conduct OSCE as an assessment tool to check pharmacists' competences.[42,43] Since 2000, the Pharmacy Examining Board of Canada has been conducting national OSCE multicenter examinations for all candidates after graduation in order to obtain the right to practice.[44] Scientific research has reported that pharmacy students who are good at theoretical aspects of pharmacy are not working well in their clinical aspect. This conclusion lends credence to the argument that the OSCE examinations are not only an important tool for assessing clinical competencies but also an important methodology to prepare the student for clinical practice. Taking into account the costs and other disadvantages associated with the preparation of OSCE, the elimination of this method from the study program as an assessment tool would mean that the results of future pharmacists would be based on traditional examinations. However, research shows that the correlation between the results in traditional examinations and OSCE results is poor, which suggests that it is worth implementing as a tool for evaluation this method of examination, which will check the various skills and competencies of the candidates.[45]

Focus on Poland

Pharmacy education in Poland has undergone changes because more and more emphasis in Pharmacy Curriculum was put on an acquisition of practical skills including interpersonal communication and clinical skills. The Pharmacy Curriculum is based on national standard which define the learning outcomes in knowledge and skills that students should have at critical points in their educational career. The standard is defined by the Ordinance of the Minister of Science and Higher Education of 12 May 2012.[46] Through specific standards, educators respond to the call for a clear definition of desired learning outcomes and a way to measure student success in terms of these outcomes.

Learning outcomes are a description of qualifications acquired through the completion of a specific field of study. They are defined in the area of knowledge and skills, where knowledge is understood as a resource of related facts, principles, theories and experiences assimilated by the learner and skills are the ability to use the acquired knowledge and trained skills to perform tasks and solve the problem.[47] An important element is the verification process, which should prove that the student achieves the assumed learning outcome. The acquired knowledge is most often verified using traditional

methods of assessment, while the acquired skills are rarely verified or checked in a superficial manner. In order to fully verify the effects of education in the field of clinical skills, can use the form of the OSPE exam, which is becoming more and more popular in the world. The OSPE is a tool for checking skills that cannot be verified using traditional examination methods. It is becoming a more and more valuable method that can be used to examine students of both medical and pharmaceutical majors, especially in Poland. Appropriate design of the examination and conduct examination allows on utility analysis to what extent this form of examination can be useful in pharmaceutical education.

In the process of education of pharmacy students, it is important to indicate how to use knowledge and skills acquired during the course of studies in practice and appropriate preparation for working with a patient in a community pharmacy. Conducting a pharmaceutical consultation during dispensing the medicine without a prescription (OTC) and conducting an interview with the patient in order to collect the necessary information to implement and conduct pharmaceutical care, are one of the most important specific learning outcomes in terms of skills for the Pharmacy Curriculum.[46] Such learning outcomes could be verified at the stage of the study using the OSPE method allowing the assessment of skills. The competencies tested in OSPE may include patient counseling and communication, identification and resolution of drug problems and assessed practical/communication needed for a professional pharmacist.[48] The use of OSPE in assessing practical skills has not been used in Poland so far. Most of these skills cannot be tested using traditional forms of assessment. Students preferred this form of examination, because OSPE is used to assess the practical aspects of competences and is considered as an important and reliable method of examination.[49,50]

We are going to introduce this form of exam at the Faculty of Pharmacy of Jagiellonian University this year. Work is in progress to develop stations and prepare checklists and we plan to start in the nearest academic year. On the basis of the results obtained from our student's exams, we will take appropriate steps that also contribute to improving the change in the teaching process.

CONCLUSION

The education of pharmacists shows significant differences between individual countries depending on the culture of work, the health care system or legal regulations. At the moment there are no reliable data assessing OSPE in pharmacy in the Polish legal, organizational and cultural context. Numerous publications and the advantages of this type of examinations allow assuming that on our ground will prove useful. For this, however, properly designed tests are necessary.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

ABBREVIATIONS

OSPE: Objective structured practical examination; **BPharm:** Pharmaceutical Academy.

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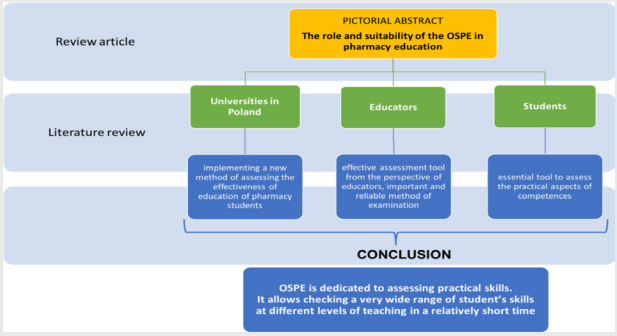
PICTORIAL ABSTRACT



SUMMARY

- OSPE is a necessary tool to evaluate practical skills for pharmacy students. Appropriate designed and the well-structured blueprint is the basis for implementation OSPE. Our literature review is to justify the usefulness of OSPE in assessing the practical skills of pharmacy students. Our work opens the door for the use of OSPE that contribute to improving the change in the teaching process in pharmacy faculty in Poland.

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