

## Short Research Article

### Pharmacy student's perceptions and evaluation of a formative OSCE added into their curriculum in Northern Cyprus.

#### **Abstract:**

**Objectives:** To assess pharmacy students' overall perception of objective structured clinical examinations (OSCE).

**Methods:** for a blueprint guided 13 stations OSCE exam based on an experiential course objectives conducted, a semi structured interview followed by a cross-sectional survey was conducted using a validated 24-item questionnaire tool which was administered on the 13th station immediately after all students completed the examination.

The questionnaire comprised of questions to evaluate the content and structure of the examination, student's perceptions of OSCE reliability, and rating of individual OSCE stations and also rating OSCEs compared to other assessment methods used during the experiential course.

**Results:** 90% of the surveyed students agreed that wide knowledge area and clinical skills were covered in the exam. Over 80% of the students saw that OSCE beside that it provided them with an opportunity to learn real life scenario it was well administered and run in the faculty and better organized compared to a previous pilot OSCE (68%). 75 % of the students saw that the 7 minutes time allocated per station was adequate, while a close percentage also agreed that the standardized patients were competent in their role playing. Majority of students though they identify that OSCEs highlighted areas of weakness in their skills and knowledge but still disagree with incorporating OSCEs marks into final marks and thus prefer it as an formative assessment. Overall 80% of students rated the OSCE exam settings as good or excellent.

**Conclusions:** Students highly perceived the exam feeling that it more resembles actual practice providing them with self-confidence and more clearly their defects and what they need to improve regarding both skills and knowledge. They saw OSCEs as being a beneficial formative assessment that should not be included as marks into finals.

**Keywords:** objective standardized clinical examination (OSCE), pharmaceutical care, clinical competence, pharmacy students, assessment, North Cyprus.

37 **INTRODUCTION:**

38 Training and education of pharmacy students in Turkey and North Cyprus in preparation for  
39 their careers as pharmacists is undergoing change [1, 2, 3]. Pharmacy undergraduate programs  
40 should prepare graduate pharmacist with the adequate knowledge, skills and attitudes to  
41 obtain their role in rational medication use and pharmaceutical care in a variety of settings,  
42 including community and hospital pharmacy environment. Core competences to achieve that  
43 goal should be well assessed and evaluated within curricula to provide accountability for the  
44 goals of pharmacy education [4].

45 Objective Structured Clinical Examination (OSCE) is a well-designed assessment modality in  
46 which clinical competence of students or candidate practitioners is evaluated. It is a  
47 performance-based assessment that evaluates clinical knowledge, professional judgment,  
48 communication, interpersonal skills, problem-solving skills, and resolution development [5,  
49 6].

50 It was first developed by Ronald M. Harden, and since the first publication of his work in the  
51 British Medical Journal in 1975 OSCEs became universally adopted for many medical  
52 schools and professional bodies as a standard approach to assessment of clinical competence  
53 in a planned, objective and structured way [7]. It is an approach to the assessment of clinical  
54 competence in which the components of competence are assessed in a planned or structured  
55 way with attention being paid to the objectivity of the examination [7].

56 It was proven as an effective tool for students and practitioner assessment, therefore it has  
57 been adopted in disciplines other than medicine, like dentistry, nursing, midwifery, pharmacy  
58 and even engineering and law. Although OSCEs are performed in many settings in regard to  
59 the exam purposes, the organizing institution, and available facilities, they all share similar  
60 procedures [8].

61 Inside exam candidates pass through the following steps respectively

- 62 1. Registration
- 63 2. Orientation
- 64 3. Escorting to exam position
- 65 4. Station Instruction Time
- 66 5. The Encounter
- 67 6. Post Encounter Question Period
- 68 7. Repeat Steps 4 to 6 to complete all stations
- 69 8. Exam ended / Escorting to dismissal area

70

71 Yet carrying OSCEs has many barriers including cost and increase of workload on faculty  
72 members, as also many OSCEs loose reliability and validity due to critiques of measures  
73 taken before and during exam setting [9]. students perceptions and evaluation of learning  
74 activities guide in assessing achievement of learning goals and outcomes, and forms a form of  
75 feedback that contribute in enhancement of future OSCEs as in our case, leading to  
76 development of a more robust, feasible, reliable, and valid examination [10].

77 In this report, the authors describe student experience and perception of OSCEs as an  
78 assessment tool for an experiential clinical pharmacy practice course adopted by a pharmacy  
79 school in Northern Cyprus(Turkish inhabited) after acquiring of an international certification  
80 provided by Accreditation Council for Pharmacy Education (ACPE).

## 81 **METHODS AND SETTINGS:**

82 A blueprint guided 13 stations OSCE exam based on experiential course objectives was  
83 developed, validated, and conducted for fifth year students of a pharmacy school in Northern  
84 Cyprus.

85 Competences assessed involved drug information retrieval & interpretation, systems based  
86 client assessment of anticoagulant toxicity and DM complications, management of DTPs in  
87 respiratory and cardiovascular diseases patients' prescriptions, pharmacotherapy knowledge  
88 of DM, asthma, COPD, hypothyroidism, anticoagulants use & toxicity management. Also  
89 response to symptoms & history taking was assessed with patient education skills on DM,  
90 insulin use and inhalers use. General health advice providing skills for respiratory and  
91 cardiovascular diseases patients, and finally communication skills with patients with different  
92 attitudes was also tested.

93 A cross-sectional survey was conducted using a face validated 24-item questionnaire tool  
94 validated by experienced faculty members and educators and administered on the 13th station  
95 immediately after all students completed the examination .Students were asked to complete  
96 the questionnaire on a voluntary basis.

97 The questionnaire was modified according to a questionnaire which was developed based on a  
98 comprehensive literature review and modified from previously validated instrument used to  
99 evaluate a group of students [11].

100 The questionnaire comprised of questions to evaluate the content and structure of the  
101 examination, student's perceptions of OSCE reliability, and rating of individual OSCE  
102 stations and also rating OSCEs compared to other assessment methods used during the  
103 experiential course. A 4-point Likert-type scale that indicated degrees of agreement consisting  
104 of disagree, normal, agrees and no comment was used for 14 items. Rating and compares of  
105 specific stations was carried with 7 items with a "none of the stations" option. In addition, an  
106 item evaluated the general rating of students of the conducted OSCE followed by an open-  
107 ended follow- up request for comments to generate qualitative data.

108 Statistical package for social sciences (SPSS) version 16.0 for windows was used for analysis  
109 of Data.

110 **RESULTS:**

111 The results obtained from the 74 fifth year clinical pharmacy students representing at two  
112 different shifts, shift -A consist of 36(48.6%) students and shift-B were 38(51.4%) students.

113 90% of the surveyed students agreed that wide knowledge area and clinical skills were  
114 covered in the exam.

115 Over 80% of the students saw that OSCE beside that it provided them with an opportunity to  
116 learn real life scenario it was well administered and run in the faculty and better organized  
117 compared to a previous pilot OSCE (68%). The majority of students saw the OSCE as an  
118 unprecedented opportunity to encounter real-life scenarios.

119 Two third of the students (75 %) saw that the 7 minutes time allocated per station was  
120 adequate, while a close percentage also agreed that the standardized patients were competent  
121 in their role playing. Majority of students though they identify that OSCEs highlighted areas  
122 of weakness in their skills and knowledge but still disagree with incorporating OSCEs marks  
123 into final marks and thus prefer it as an formative assessment (Table.1).

124 The evaluation of the OSCE stations was different related to shifts. The most difficult stations  
125 in shift-A was station 4 (33.3%) whereas in shift-B station 6 was the most difficult (30.3%).  
126 While the station they thought it have moderate educational value were the same station-2,  
127 (23.5% , 38.7%) (Table.2,3). Overall 80% of students rated the OSCE exam settings as good  
128 or excellent.

	Questions	level satisfaction			
		Disagree	Neutral	Agree	No comment
Q3	Wide knowledge area and clinical skills were covered in OSCE	4(5.3%)	3(4.0%)	68(90.7)	0(0.0%)
Q4	Exams was well structured & sequenced	4(5.3%)	24(32.0%)	44(58.7%)	3(4.0%)
Q5	Exam was well administered and run	3(4.0%)	12(16.0%)	59(78.7%)	1(1.3%)
Q6	Time at each station was adequate	10(13.3%)	6(8.0%)	58(77.3%)	1(1.3%)
Q7	Enough information was provided before the exam	9(12.0%)	18(24.0%)	42(56.0%)	6(8.0%)
Q8	All assessed skills were covered in the practice course	25(20.0%)	17(22.7%)	42(56.0%)	1(1.3%)
Q9	OSCE provided opportunity to learn real life scenarios	1(1.3%)	11(14.7%)	62(82.7%)	1(1.3%)
Q10	OSCE was less stressful than other exams	20(26.7%)	22(29.3%)	26(34.7%)	7(9.3%)
Q11	Good direction and feedback were provided.	3(4.0%)	22(29.3%)	44(58.7%)	6(8.0%)
Q12	OSCE highlighted areas of weaknesses in skills and knowledge	4(5.3%)	23(30.7%)	45(60.0%)	3(4.0%)
Q13	This year OSCE was better organized than last year pilot OSCE	7(9.3%)	13(17.3%)	51(68.0%)	4(5.3%)
Q14	The OSCE cases were clear challenging but not too much difficult	19(25.3%)	25(33.3%)	28(37.3%)	3(4.0%)
Q15	Standardized patients seemed competent in their role playing	8(10.7%)	8(10.7%)	53(70.7%)	6(8.0%)
Q16	OSCE would been more beneficial if it was part of final	41(54.7%)	15(20.0%)	14(18.7%)	5(6.7%)

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131 **Table 2:** Students in group A evaluation of OSCE Stations

	Questions	OSCE Stations Shift A					
		Station 1	Station 2	Station 3	Station 4	Station 5	Station 6
Q17	Most difficult station	6(16.7%)	-	10(27.8%)	12(33.3%)	4(11.1%)	4(11.1%)
Q18	Most easiest station	2(5.6%)	20(55.6%)	2(5.6%)	-	7(19.4%)	5(13.9%)
Q19	Station which you liked most	3(8.3%)	10(27.8%)	1(2.8%)	3(8.3%)	14(38.9%)	5(13.9%)
Q20	Best standardized patient: .....	4(12.5%)	11(34.4%)	7(21.9%)	3(9.4%)	5(15.6%)	2(6.3%)
Q21	Which station would you think to have <b>high</b> educational value	2(5.7%)	5(14.3%)	4(11.4%)	7(20.0%)	13(37.1%)	4(11.4%)
Q22	Which station would you think to have <b>moderate</b> educational value	8(23.5%)	8(23.5%)	6(17.6%)	4(11.8%)	3(8.8%)	5(14.7%)
Q23	Which station would you think to have <b>low</b> educational value	9(28.1%)	7(21.9%)	8(25.0%)	2(6.3%)	2(6.3%)	4(12.5%)

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133

134 **Table 3:** Students in group B evaluation of OSCE Stations

	Questions	OSCE Stations Shift B					
		Station 1	Station 2	Station 3	Station 4	Station 5	Station 6
Q17	Most difficult station	10(30.3%)	3(9.1%)	7(21.2%)	2(6.1%)	4(21.1%)	7(21.2%)
Q18	Most easiest station	1(3.1%)	3(9.4%)	2(6.3%)	15(46.9%)	6(18.8%)	5(15.6%)
Q19	Station which you liked most	4(11.8%)	7(20.6%)	4(11.8%)	13(38.2%)	4(11.8%)	2(5.9%)
Q20	Best standardized patient: .....	3(9.1%)	10(30.3%)	5(15.2%)	9(27.3%)	5(15.2%)	1(3.0%)
Q21	Which station would you think to have <b>high</b> educational value	4(12.5%)	8(25.0%)	2(6.3%)	9(28.1%)	8(25.0%)	1(3.1%)
Q22	Which station would you think to have <b>moderate</b> educational value	2(6.5%)	1(3.2%)	4(12.9%)	8(25.8%)	12(38.7%)	4(12.9%)
Q23	Which station would you think to have <b>low</b> educational value	6(20.0%)	5(16.7%)	8(26.7%)	4(13.3%)	3(10.0%)	4(13.3%)

135

136 **DISCUSSION**

137 The OSCE was one of the useful assessment methods recently added into the students'  
138 curriculum as a formative assessment of experiential practices and an objective tool for  
139 evaluating clinical skills in pharmacy education []. Hence, this survey is important so to  
140 assess how the students perceived this evaluation and if the setting and the stations were  
141 carried properly and fairly [10].

142  
143 OSCE was seen as a useful practical experience by most students; also most of them provided  
144 a positive feedback about the quality of OSCE performance in terms of the clarity of the  
145 provided information before the exam; the sequence of OSCE stations; the reflection of the  
146 tasks taught and the time at each station. These findings are consistent with studies elsewhere  
147 [10-13].

148  
149 The majority of students saw the OSCE as an unprecedented opportunity to encounter real-life  
150 scenarios. The finding that an overwhelming proportion of the students (82.7%) admitted that  
151 the OSCE provided a useful and practical learning experience was consistent with similar  
152 studies reported elsewhere [14].

153  
154 Austin et al, reported that students expressed in a survey considerable concern that there was  
155 so much variability between cases and patient-actors that it might adversely affect their  
156 academic standing and believed that it was problematic within an evaluation perspective [5].  
157 Conversely, in this study the standardized patients seemed competent in their role playing was  
158 evaluated as good (70.7%).

159 A comparison of traditional testing methods and simulated examination for therapeutics was  
160 carried by Gardener et al who reported a moderate positive correlation between performance  
161 on the simulated cases evaluation and the traditional examinations [14].

162  
163 Monaghan and his colleagues reported that all examinees believed that OSCE compared to  
164 other traditional methods of evaluation was a much better indicator of how they would  
165 perform in the real world, as well was reported from pharmacy students elsewhere [15-20]  
166 and also agreed by vast majority in our assessment (82%).

167 Further, many students felt that the OSCE was an extremely anxiety-producing examination.  
168 Only 34.7% saw that OSCE was less stressful than other exams. Similar results are reported

169 from studies mostly reporting student's first experience of OSCE, or a newly introduced  
170 OSCE [15-21]. Hence, it was a new experience for students which made them feel anxious  
171 about it. Similarly, students stress and anxiety was more tied to a new experience with OSCEs  
172 [22, 23], yet carrying OSCEs as only formative assessment not a final exam may relax  
173 students added to the entity of standardized patient which may also contribute to students  
174 anxiety [24].

175

176 The evaluation of OSCE by pharmacy students highlighted some areas that need to be  
177 enhanced in future, such as the inadequate information and guidance before OSCE as many  
178 students did not realize the formativeness of the exam.

179

180 Most of students indicated that suitable time was allocated to perform tasks in contrast to  
181 other observations elsewhere. This maybe contributed to the team setting and reviewing of  
182 cases and real pilots before exam which enhance the quality and reliability of the assessment  
183 setting. Yet a significant percent of surveyed students did not agree on the exam cases  
184 toughness, 35% vs 25% agreed that the cases were challenging but not difficult.

185

186 The evaluation of the OSCE stations differed between the morning and evening shift. The  
187 most difficult stations were different in term of their assessed skills between shift-A and shift-  
188 B. While the stations perceived to have moderate educational value were the same (station-2).

189

190 From this discussion we recommend students' orientation prior to OSCE should be well  
191 planned and assured. Written descriptions of expectations and objectives of formative  
192 assessments beside exam blueprint maybe more beneficial [10, 22].

193

## 194 **CONCLUSION**

195 Students highly perceived the exam feeling that it more resembles actual practice providing  
196 them with self-confidence and more clearly their defects and what they need to improve  
197 regarding both skills and knowledge. They saw OSCEs as being a beneficial formative  
198 assessment that should not be included as marks into finals. It is therefore extremely  
199 important to invest in the Turkish students' positive perception toward advancing pharmacy  
200 education in Turkey and Northern Cyprus, in order keep up to date with global practice  
201 demands and to shift to a more patient-centred profession and patient-centered educational

202 system. Such educational interventions could be further implemented in other faculties of  
203 pharmacy within the Turkish Higher Ministry of Education.

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