

PERCEPTION OF OBJECTIVE STRUCTURED CLINICAL EXAMINATION AMONG UNDERGRADUATES MEDICAL STUDENTS

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ABSTRACT

Objective structured clinical examination (OSCE) is a valuable assessment tool that enhances in-depth learning and preparation of students for clinical practice. The tasks to be assessed should be of different types and of varying difficulties. The tasks in OSCE depend on the level of students training. The aim of the study was to assess the perception of OSCE among under-graduates' medical students. A mixed methods study (cross sectional exploratory and content analysis) was conducted with the simple random sampling, purposive sampling and content analysis technique among 86 undergraduates' medical students at tertiary hospital. SPSS 16 was used for data entry. Frequency, percentage, Mean, Standard deviation, Mann-Whitney U-test and One Way Anova was used for data analysis. Most of the participants perceived that OSCE identified knowledge gaps (84.8%) and was educative (79.0%). There was no significant difference of perception of OSCE related to gender. There was no significant variation in participant's perceptions of OSCE in relation to academic year regarding OSCE domain characteristics ($P = 0.333$). However, regarding perception of OSCE domain structure in relation to their academic year, there was a significant difference as $P = 0.013$. The overall perception of OSCE among medical students was positive. This study has identified a need for training, practice prior to an OSCE exam and allocation of adequate time for each spot during the exam.

KEYWORDS

Perception, OSCE, undergraduate's medical students, experiences, assessment tool

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INTRODUCTION

The objective structured clinical examination (OSCE) is an approach for student assessment in which aspects of clinical competence are evaluated in a comprehensive, consistent, and structured manner with close attention to the objectivity of the process.^{1,3} Reforms such as redesigning of curriculum and learning objectives, training the faculty in conduct of OSCE, involving more external examiners and establishment of a skill's lab would help improve this assessment tool.^{2,4} Student feedback confirmed their acceptance of OSCE. This was encouraging to the internal medicine department to consider implementing OSCE for graduating students.³ Nursing educators must consider further evaluation and improvement of the OSCE in order to improve students' acceptance and appreciation of OSCE as an important form of clinical learning and assessment.^{1,4}

OSCE is a well-known, widespread method of assessment of clinical skills.⁵ OSCE supported by its reliability and validity became the gold standard for the evaluation of clinical skills of undergraduate students of medicine and pharmacy worldwide.⁶ The study done on Peshawar showed that the group comprised 160 (64.0%) males and 90 (36.0%) females. 220 (88.0%) stated that exam was fair and comprehensive; 94.0% believed OSCE was more stressful and mentally tougher.⁷

OSCE is a clinical examination tool that assesses the students' capability to utilize their knowledge and skills for diagnosis, management and proper communication as well as counseling of patients.⁸ The study conducted on United Arab Emirates at 2006 interpreted the OSCE as a valuable assessment tool that enhances in-depth learning and preparation of students for clinical practice. Participants also perceived the exam to be a stressful experience, citing the need for more time on examination stations.⁹ Around 80.1% of students recommended mock sessions and 23.1% of examiners did not have any prior training on OSCE. Comprehensive assessment of perception regarding OSCE can help identify areas that need improvement.¹⁰ The study at Saudi-Arabia at 2014 finding showed that OSCE was positively perceived by 5th year medical students and faculty members as a tool that can fairly assess students' clinical skills.¹¹ The study at Taiwan showed that the tasks to be assessed should be of different types and of varying difficulties to provide a mixed assessment circuit. The tasks in OSCE depend on the level of students training.¹² The findings of study done at west indies cave hill on 2017 and

Taiwan on 2022 serve as a reference for health care providers in the process of designing cultural competence-related education programs to improve clinical nursing care quality.^{13,21} Students' preparing to the exams, their knowledge and skills, influences on the students' perception of OSCE.¹⁴ The objective of this study is to assess the perception of OSCE among undergraduates medical student.

MATERIALS AND METHODS

Study design: Descriptive cross sectional study and qualitative (content analysis) was applied.

Sampling technique: Simple random sampling and purposive sampling

Sample size: The sample size was calculated assuming prevalence as 50% (as no any exact prevalence is found) at 1.96 confidence level and a sample error of 7%.

$$n = \frac{z^2 pq}{d^2}$$

$$= \frac{(1.96)^2 \times 50 \times (1-50)}{(7)^2} = \frac{192 \times (-49)}{49} = 192$$

Two semester was chosen that was 4th semester and 7th semester. The total sample size (192) was divided by two strata chosen as 4th and 7th semester (192/2=96). The sample size for study was 86 due to stress of exam, 10 students refused. Pretesting was done among 10% of population. For content analysis 10 individuals were selected.

Study settings: Nepal Medical College Teaching Hospital.

Target population: Undergraduates Medical Students.

Operational definition:

Perception: Perception regarding OSCE was categorized as characteristics and Structure of OSCE.

OSCE: A multidimensional practical examination of clinical skills, as a tool for assessing clinical competence.¹⁵

Undergraduates medical students: studying MBBS course at the college.

Data collection procedure: Demographic information and structured questionnaire for OSCE was prepared to determine perception of OSCE among undergraduate's medical students. Data collection was self-administered. Pretest was done, its validity and reliability was done.

Cronbach alpha was 0.67. Confidentiality was maintained. Around 30 minutes was taken to collect data from each of the respondents. The data was collected in the month of November 2023. A written consent was obtained from the participants regarding their willingness to participate in the study. A formal administrative permission was obtained from the authorities of the proposed settings.

Inclusion criteria: Undergraduates medical students only.

Exclusion criteria: Dental and Nursing students.

Limitations and delimitations: The study is based on specific organization and cannot generalize the result.

Ethical consideration: Ethical permission was taken from NMC-IRC (Ref: 30-080/081). The participants were explained about the purpose of the study and informed written consent was obtained. None of the participants was forced for participation. They had right to quit the interview if they wanted to do so. Confidentiality and anonymity was maintained.

RESULTS

Only 86 participants were enrolled in this study. The mean age of respondents were 22.16 ± 1.32 . Table 1 shows majority of respondents were male (58.1%) and female participants were (41.9%). The respondents were from 7th semester (54.7%) and 4th semester (45.3%).

Table 2 showed that, most of the participants perceived that OSCE identified the knowledge gaps (84.8%) and was educative (79.0%). More than half of the participants perceived that OSCE covered major areas and compensated for poor performance in other stations and /

or other exams (59.3%). More than half of the participants perceived as it provides feedback for medical students for self improvement (77.9%) and reflects requirement of medical profession (66.2%). Furthermore, more than half of the participants perceived that OSCE minimized chances of failing (59.3%). Notably, more than half of the participants perceived it as stressful (52.3%). However, less than half (41.8%) of the respondents perceived OSCE as intimidating and felt that it identifies weakness in clinical practice such as patient care and communication skills were equal (41.8%). Furthermore, most of the participants perceived positive for learning experience of valuable practice and learning opportunities 73.2% and 82.5%, respectively. Less than half of the participants perceived that the examiners were helpful (43.0%). More than half of the participants perceived positive that the OSCE is well designed and structured logically (54.6%). Less than half participants perceived that the Question is too lengthy or too short and is clear 41.8% as well as time was adequate (37.2%). Brief instruction was given prior to the exam and was easy to follow and unambiguous, here the perception was positive (70.4% and 74.4%), respectively. Sixty percent perceived that sufficient information about OSCE as well as setting and contexts of stations were appropriate. Most of the participants agreed that the stations were clearly written and conducted in adequate space and noise free 80.2% and 72.0%, respectively. About 56.0% agreed that it identified strength and weaknesses of examinees.

Table 3 shows an Mann Whitney U-test conducted to compare the domains of OSCE perception for male and female respondents. There was insignificant difference of perception of OSCE regarding gender ($p=0.069, 0.456$, respectively). The variation in participant's perceptions of OSCE with academic year was examined using ANOVA (Table 4). This shows no significant difference in the participants perceptions on the OSCE domains on characteristics ($p= 0.333$). And for the perception of OSCE domains on structure to their academic year, there is a significant difference ($p=0.013$).

Qualitative study: The qualitative study was done among 10 students of 4th and 7th semester.

OSCE strength: Most of the participants interpreted OSCE is valid, reliable, fair and effective. Some participants interpreted OSCE as response for reliable, fairness and effective for implementation in clinical practice as doubtful implications, nervousness can impact the performance. With regard to the areas of OSCE

Table 1: Socio-demographic variables of undergraduates medical students (n=86)

Socio- demographic variables		n	%
Gender	Male	50	58.1
	Female	36	41.9
Age in years (Mean age: 22.16 ± 1.32)			
	20-21yrs	26	30.2
	22-23yrs	48	55.8
	24-26yrs	12	13.9
Year	4 th Semester	39	45.3
	7 th Semester	47	54.7

Table 2: Perception of OSCE among undergraduates medical students

Q	Statements	Agree	Strongly agree	Neutral	disagree	Strongly disagree	n	%
Q.1	Identifies gaps in knowledge	65	8	9	1	1	84	97.8
Q.2	Educative	54	14	15	3	-	86	100
Q.3	Covers major areas of course	42	9	20	11	4	86	100
Q.4	Compensates for poor performance in other stations and /or other exams.	39	12	22	11	2	86	100
Q.5	Provides feedback for self-improvement	46	21	9	9	1	86	100
Q.6	Requirements of medical profession	43	14	22	6	1	86	100
Q.7	Minimizes chances of failing	42	9	19	14	2	86	100
Q.8	Is stressful	28	17	24	13	4	86	100
Q.9	Intimidating	20	16	34	14	4	86	100
Q.10	Identifies weakness in clinical practice such as patient care and communication skills	42	14	14	13	3	86	100
Q.11	It is a learning experience of valuable practice	53	10	18	4	1	86	100
Q.12	Provides a learning opportunity	57	14	11	3	1	86	100
Q.13	Examiners were helpful	33	4	31	13	5	86	100
Q.14	OSCE is well designed and structured logically	42	5	28	8	3	86	100
Q.15	Question is neither lengthy nor short and is clear	28	8	32	16	2	86	100
Q.16	Time allocation for each station is adequate	26	6	22	26	6	86	100
Q.17	Brief instruction is given in advance prior exam	54	7	15	7	3	86	100
Q.18	Instruction was easy to follow and unambiguous	56	8	9	9	4	86	100
Q.19	Sufficient information was given which made me aware about OSCE	44	8	19	11	4	86	100
Q.20	Setting and contexts of stations were appropriate	48	4	26	5	3	86	100
Q.21	Stations were clearly written	58	11	12	2	3	86	100
Q.22	Conducted in adequate space and noise free	54	8	8	11	5	86	100
Q.23	Identifies strength and weaknesses of examinees.	41	7	26	8	4	86	100

improvement, some participants mentioned there was no issues with regard to the OSCE, some of the participants suggested practical of OSCE beforehand can help to gain marks while some mentioned that the examiners should be more friendly, preplanning and training is necessary.

Cause of stress and dissatisfaction: With regards to the OSCE, some mentioned that the time allocation was inadequate, some expressed dissatisfaction with regard to the stations and setting while some mentioned that objective answers should be prioritized.

Table 3: Perception of OSCE among undergraduates medical students according to their gender

OSCE domains	Male	Female	P-value
	Mean rank		
Characteristics	39.35	49.26	.069
Structured	41.80	49.86	.456

Result of Mann Whitney U test

highlighting the necessity for more time on OSCE stations is similar to the study done by Mirna F, Alsaalaamah Y.² There was no significant difference of perception of OSCE regarding gender is in contrast to the study done by Alaskar A¹⁹. This shows no significant difference in the participant's perceptions on the OSCE domains on characteristics. And for the perception of OSCE domains on structure to their academic year, there is a significant difference as p (<0.05) is in contrast to the study

Table 4: ANOVA showing the difference among health science student's perceptions about OSCE according to their academic year.

OSCE Domains	Year of study	Score mean \pm SD	F-value	P-value
Characteristics	4 th semester	34.41 \pm 23.89	0.950	0.333
	7 th semester	30.87 \pm 6.40		
Structured	4 th semester	19.87 \pm 7.55	6.380	0.013
	7 th semester	23.59 \pm 6.11		

Experience of OSCE: Effective modality to test the knowledge of students and helps in improving the outcome in exam. Some mentioned that it was good, some remained neutral while some expressed it was bad. Some experienced pressure and wanted explanation and instruction before examination, not in the exam day. Some mentioned that the examiners were good while some tried to intimidate. Some experienced intimidation but helpful in gaining marks but doubtful implications in practical areas. Some experienced test was only limited amount of knowledge. Some experienced it was helpful in clinical examination.

DISCUSSION

OSCE is a well-known evaluation tool in medical education. It assess the knowledge and practical skills in the clinical practice. The study group comprised (58.1%) males and (49.9%) females is similar to the study done by Khan *et al*¹⁶ at Peshawar. More than half of the students rated this examination as covering wide range of knowledge (58.6%) is similar to the study done by Idris *et al*¹⁷ and Fisseha and Desalegn.¹⁰ Most of the students perceived OSCE identified the knowledge gaps (84.8%) and OSCE was educative (79%) is similar to the study done by Skrzypek *et al*¹⁴ Fisseha and Desalegn.¹⁰ More than half of the students perceived OSCE is stressful (52.3%) is in contrast to the study done by Fiesha and Desalegn,¹⁰ Bani *et al*.¹⁸ Similarly this study is almost similar to the study done by Nasir *et al*.²⁰ Students instead considered the test to be a stressful encounter

done by Alaskar *et al*.¹⁹

This study concludes that student's perception and experiences should be given a priority for academic upliftment and student's emotional support. The regular research is needed for the assessment of the condition of academic efficiency. However, this study was done in only one setting, as small scale study and therefore cannot be generalized.

The study can be done in more than one setting to identify the efficiency and perception of student regarding OSCE as assessment tool. Education institute and committee should identify its implications for training and pre-planning before exam. Training in OSCE may help to minimize the intimidating experience of participants. It can also be included in nursing science for evaluation of practical skills.

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