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ORIGINAL RESEARCH ARTICLE

MEDICAL STUDENTS' PERCEPTION REGARDING OBJECTIVE STRUCTURED CLINICAL EXAMINATION IN MEDICAL COLLEGE, CHITWAN

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ABSTRACT

Background: Objective Structured Clinical Examination (OSCE) has been globally recognized as gold standard of performance based assessment that aids in evaluating the clinical competency of medical undergraduate students. Hence, it increases the confidence of students in their learning ability by helping them to identify areas of weakness and gaps in their competencies. This study was conducted to identify perception towards OSCE among medical students.

Methods: A descriptive cross-sectional study design was adopted and a total 173 respondents were selected from MBBS 4th and 5th year of Chitwan Medical College by using probability stratified proportionate random sampling technique. Self-administered questionnaire with 5-point likert scale were used to collect the data. Descriptive and inferential statistics was used to analyze data.

Results: About half of the Bachelor of Medicine and Bachelor of Surgery (MBBS) students had positive perception toward OSCE. There is significant association between the level of perception towards OSCE and year of study (p=0.002), choice of study MBBS (p=0.045) and evidenced based learning (p=0.041).

Conclusions: Thus, optimum emphasis should be given on formulating OSCE guideline and orienting student about it and also organization should create environment to facilitate actual objective structured clinical examination in order to increase positive perception in our context.

INTRODUCTION

The Objective Structured Clinical Examination (OSCE) was developed in Scotland by Harden and colleagues (1975) to evaluate medical students' clinical competencies.[1] An OSCE is a timed, multi-station examination in which learners perform tasks such as interviews, physical exams, clinical/ resuscitative procedures and counseling in realistic settings. At each station learner performance is evaluated with specific checklists and global rating scales and standardized patients were used in OSCE in substitution for real patients.

The Objective Structured Clinical Examination (OSCE) approach has proved to be a useful method of assessing students' psychomotor performance, cognitive and affective skills globally. An OSCE requires each student to demonstrate specific skills and behaviors in a simulated work environment with

standardized patients. Research has shown that it is an effective evaluation tool to assess practical skills.[2]

A descriptive study on undergraduate medical student's perception regarding assessing the objective structured clinical examination (OSCE) showed that a number of positive aspects of the OSCE exam were identified by students such as 66% perceived as having a positive impact on student learning, 65% stated it is a standardized exam, 57% stated that it evaluated a wide variety of clinical skills, 53% stated that the format allowed students to compensate for deficiency in some areas, 52% were of the opinion that the exam was fair, 47% preferred it over other forms of assessment, 41% perceived exam scores to be truly reflective of competence in clinical skills and 35% felt that the format minimizes chances of failure. Also, 48% found it to be stressful, and 40% found it not easy.[3]

Despite the beneficial aspect of the OSCE, however, the literature suggests that OSCE is also associated with high levels of stress and anxiety. It reduces the academic performance of about 10% to 30% of students.[4] Twenty-two students felt that the five-minute time frame in which to perform the required task at each station was insufficient. Students indicated that they did not receive any practice or practical training prior to the OSCE (23 comments). Furthermore, students pointed out that the instructions provided were too general and unclear (4 comments), and only two students found the OSCE to be a confusing and stressful method of assessment. Students also claimed that there was inadequate exposure to medical devices prior to the OSCE (5 comments).[5]

In order to know how good or bad OSCE is or to improve the quality of OSCE further, it needs to be monitored continuously to identify and then correct any shortcomings therein. For this to happen, recording the reflective thinking and both positive criticism and negative criticism of the examinees taking OSCE is one of the different parameters to evaluate this examination format. The students perceptions regarding OSCE help to find out areas of strength and weakness and their feedback brings reforms such as redesigning of curriculum and learning objectives, training the faculty in the conduct of OSCE, involving more external examiners, and establishment of a skills' lab to help improve this assessment tool.

In Chitwan Medical College (CMC), objective structured clinical examination (OSCE) is started typically from 4th year among medical students (i.e. MBBS), which is structurally time bound with two minutes for every question, in OSCE, questions are given to students from slide view, which contains not only simple question, case scenario but also instruments, medicine, images, disease condition and diagnostic images as X-ray, CT scan interpretation for which students have to answer in 2 minute. In this OSCE, slide is considered as station and rotated after 2 minute instead of students.

In Nepal, many medical colleges existed, but the quality of teaching and performance of medical students decreases day by day. Hence, in order to increase the quality of teaching and performance of medical student, the medical institution should adopted effective teaching learning methods and evaluation methods. And best evaluation method in clinical area to check psychomotor skill is Objective Structured clinical Examination. It increases clinical competency of medical students. Though many researches are being conducted in developed countries, to best of researchers' knowledge in Nepal where only few studies regarding OSCE are available. Therefore researchers are interested in exploring the perception of medical students regarding OSCE in Nepalese context.

METHODS

A descriptive, cross sectional study was conducted to find out the perception of medical students towards OSCE of Chitwan Medical College. The data was collected from 29th July 2018 to 10th August 2018. Stratified proportionate random sampling technique was used to select 90 MBBS 4th year and 83 MBBS 5th year students. Self-administered structured questionnaire with 5-point likert scale were used to collect the data. 5- point likert scale (1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly agree) measured in five domain i.e.14 items for characteristics of OSCE, 7 item for advantages of OSCE, 4 items for disadvantages of OSCE, 12 items for quality of performance testing in OSCE and last 6 items for objectivity of the OSCE. Ethical approval was taken from Chitwan Medical College Institutional Review Committee (CMC-IRC) and administrative approval was taken from

Principal, CMC. Written consent was obtained from each respondent. Confidentiality was assured and maintained. The data was entered in statistical package for social science (SPSS) version 20 and analyzed and interpreted in terms of descriptive and inferential statistics.

RESULTS

One hundred seventy-three (67.1% male and 32.9% female) undergraduate medical students participated in this study. Average age of participants was 23 [median= 23, Interquartile range (24-22)] years. Regarding year of study, 52.0% of the students were from 4th year and majority of students choose to study MBBS by their own interest. Likewise, 54.3% of the students were often utilized evidenced based learning and 57.2% of the students preferred deep learning approach. Regarding self-awareness, 41.0% of the students liked to represent themselves as unknown by other and known by self and regarding performance level, 54.3% of the students were beginner.

Table 1: Medical Students' Perception regarding Objective Structured Clinical Examination: Characteristics of the OSCE (n=173)

Statements	Responses				
	SD	D	N	A	SA
	%	%	%	%	%
OSCE is fair compared with traditional clinical examination	10.4	14.5	38.2	26.6	10.4
OSCE covered a wide range of psychomotor knowledge compared with traditional clinical examination	5.2	15	29.5	45.1	5.2
OSCE should be used more often in the clinical years of undergraduate program	2.9	11	27.2	50.3	6.4
OSCE evaluates a wide variety of clinical skills	6.4	9.2	27.7	50.3	6.4
OSCE is an easy exam	10.4	41.6	23.7	19.7	4.6
OSCE exam are well administered	5.2	15	40.5	31.8	7.5
OSCE exam are well structured and sequenced	6.4	11.6	25.4	48.6	8.1
OSCE is a standardized exam for all medical students	5.2	12.1	22.5	47.4	12.7
Tasks asked to perform were consistent with teaching objectives	5.8	14.5	23.7	43.4	12.7
OSCE is less stressful than other type of tests	12.1	14.5	24.3	41	8.1
Attitude of examiner during OSCE better as compared to traditional clinical examination	5.2	13.9	27.3	44.5	9.2
OSCE may influence methods of teaching	6.9	8.7	24.3	46.8	13.3
OSCE with standardized patient is better than ward assessment with real patients	10.4	18.5	26	35.8	9.2
The sequences of OSCE stations are logical and appropriate	6.4	9.8	32.4	37	14.5

SD= Strongly Disagree D= Disagree N= Neutral A= Agree SA= Strongly Agree

Two-third of the students answered that they received positive feedback most of the time by their teacher and 50.9% of the students answered that supervision by their teachers were inadequate. Regarding teaching methods, 41.2% of the students answered that their teacher adopted traditional teaching methods and49.1% of the students answered that their teachers adopted both traditional and innovative evaluation methods. 61.3% students answered that there are adequate resources in hospital for teaching learning activities during clinical practice and 59.0% answered that there is adequate resources in academic environment for teaching learning activities. The findings of the study are presented in following tables. Characteristics of the OSCE (Table 1), advantages of OSCE (Table 2), disadvantages of OSCE (Table 3), quality of performance testing in OSCE (Table 4),

Table 2: Medical Students' Perception regarding Objective Structured Clinical Examination: Advantages of OSCE (n=173)

Statements	Responses				
	SD	D	N	A	SA
	%	%	%	%	%
OSCE has a positive impact on students learning	6.9	15.6	32.9	36.4	8.1
It is highly accepted by students	4.6	14.5	31.8	45.7	3.5
Improves clinical skills and knowledge of students	4	11.6	32.4	44.5	7.5
No bias in time and questions by examiners	4	14.5	22.5	42.2	16.8
More conceptual learning	7.5	9.2	25.4	46.2	11.6
Feedback given by examiners was very helpful	4	9.8	28.9	46.2	11
OSCE is very useful and relevant to study and the type of work students will be doing after graduation	9.2	12.7	45.7	24.3	8.1

SD= Strongly Disagree D= Disagree N= Neutral A= Agree SA= Strongly Agree

Table 3: Medical Student's Perception regarding Objective Structured Clinical Examination: Disadvantages of OSCE (n=173)

Statements	Responses				
	SD	D	N	A	SA
	%	%	%	%	%
OSCE may be exhausting and lengthy with increased number of stations	21.4	26.6	28.3	17.3	6.4
Comprehensive assessment may be possible	8.7	25.4	30.1	30.1	5.8
Little difficult to manage time at stations	11.6	16.8	28.9	31.2	11.6
No direct interaction with examiners	15	13.3	21.4	36.4	13.9

SD= Strongly Disagree D= Disagree N= Neutral A= Agree SA= Strongly Agree

Table 4: Medical Students' Perception regarding Objective Structured Clinical Examination: Quality of performance testing in OSCEof OSCE (n=173)

Statements	Responses				
	SD	D	N	A	SA
	%	%	%	%	%
Overall, in order to do well on this exam, I needed to be able to apply the knowledge, I learned in my course at college	13.3	9.2	41	27.2	9.2
The use of problem-solving and critical thinking skills while still being objective	3.5	13.9	28.3	48	6.4
This exam helped me think about area I may have weakness in before entering the clinical area	5.8	11.6	36.4	36.4	9.8
Patient's cooperativeness affect performance	6.9	5.8	26	42.2	19.1
OSCE scores reflect individual performance at the exam	15.6	15.6	38.7	26.6	3.5
The examiners were polite and professional	4	19.7	37.6	32.4	6.4
Students prepare differently for OSCE than for other clinical examination	4.6	6.9	31.2	48	9.2
OSCE minimized your chance of failure in the exam as compared to other test formats	4	11	26.6	49.1	9.2

Setting and context at each station felt authentic	6.4	11.6	29.5	43.4	9.2
Time per station was adequate	6.4	11	32.9	43.4	9.2
This exam went beyond testing of memorization of facts	4	15	26	43.9	11
Instructions were clear and unambiguous	6.9	4.6	32.4	43.9	12.1

SD= Strongly Disagree D= Disagree N= Neutral A= Agree SA= Strongly Agree

Table 5: Medical Students' Perception regarding Objective Structured Clinical Examination: Objectivity of OSCE (n=173)

Statements	Responses				
	SD	D	N	A	SA
	%	%	%	%	%
OSCE exam scores provides a true measures of essential clinical skills	16.2	14.5	36.4	28.3	4.6
OSCE scores are standardized	5.2	16.8	24.9	44.5	8.7
OSCE provides a practical and useful experiences	7.5	7.5	24.9	47.4	12.7
Personality, ethnicity and gender will affect OSCE scores	10.4	38.2	19.7	12.1	19.7
Inter-patient variability (between patients with same disease) will affect scores	15	38.2	27.2	12.1	7.5
Inter-evaluator variability (between evaluator with same task) will affect scores	19.1	37.6	22	13.3	8.1

SD= Strongly Disagree D= Disagree N= Neutral A= Agree SA= Strongly Agree

objectivity of OSCE (Table 5), medical students' level of perception regarding OSCE (Table 6), association between students' level of perception towards OSCE and students' characteristics (Table 7), association between students' level of perception towards OSCE and students' teachers' characteristics (Table 8) and association between students' level of perception towards OSCE and students' teaching learning facilities (Table 9).

Table 6: Medical Students' Level of Perception regarding Objective Structured Clinical Examination (n=173)

Level of Perception	Frequency	Percentage
Positive perception (Median≥142)	89	51.4
Negative perception (median<142)	84	48.6
Total	173	100

Median=142, Interquartile Range (Q3-Q1=151-128) Minimum=76 Maximum=172

Table 7: Association between Students' Level of Perception towards Objective Structured Clinical Examination and Students' Characteristics (n=173)

Variables	Level of Perception		χ^2	p-value
	Positive perception	Negative Perception		
	%	%		
Age in year				
≤23	50	50	0.943	0.331
>23	60.9	39.1		

Gender				
Male	54.3	45.7	1.157	0.282
Female	45.6	54.4		
Year of study				
4th year	40	43.7	9.837	0.002*
5th year	63.9	36.1		
Choice of study MBBS				
By own interest	53.8	46.2	4.037	0.045*
Not by own interest	26.7	73.3		
Evidenced based learning				
Always	55.6	44.4	4.157	0.041*
Sometimes	36.8	63.2		
Learning approach				
Surface	6.4	63.6	3.713	0.054
Deep	55	45		
Self-awareness				
Sufficiently self-awareness	43.9	56.1	1.224	0.269
Insufficiently self-awareness	53.8	46.2		
Performance level				
Beginner	52.5	47.5	0.175	0.676
Competent	49	50.9		
Interpersonal relationship with clinical teacher				
Good	41.2	58.8	3.053	0.081

**Significance level at 0.05*

Table 8: Association between Students' Level of Perception towards Objective Structured Clinical Examination and Students' Teacher's Characteristics (n=173)

Variables	Level of Perception		$\chi 2$	p-value
	Positive perception	Negative Perception		
	%	%		
Feedback by teachers				
Positive	52.4	47.6	0.163	0.687
Negative	48.9	51.1		
Supervision by teachers				
Adequate	55.3	44.7	0.991	0.319
Inadequate	47.7	52.3		

**Significance level at 0.05*

Table 9: Association between Students' Level of Perception towards Objective Structured Clinical Examination and Students' Teaching Learning Facilities (n=173)

Variables	Level of Perception		X2	p-value
	Positive perception	Negative Perception		
	%	%		
Feedback by teachers				
Positive	52.4	47.6	0.163	0.687
Negative	48.9	51.1		
Supervision by teachers				
Adequate	55.3	44.7	0.991	0.319
Inadequate	47.7	52.3		

Significance level at 0.05

DISCUSSION

This study was intended to find out perception and associated factors regarding objective structured clinical examination among medical students studying in Chitwan Medical College, Bharatpur-5. Randomly selected 173 students were included in this study from MBBS 4th and 5th year. Present study showed that 86.7% of the students belonged to age group ≤ 23 years with median age 23 years; interquartile range (Q3-Q1=24-22), minimum age 20 years and maximum age 28 years. Regarding gender 2/3rd of the students were male.

In this study, among 173 students, regarding Objective Structured Clinical Examination (OSCE), 51.4% of the students had positive perception. It states that despite of OSCE being important, only half of MBBS students have positive perception toward OSCE. The finding of the study are supported by the study conducted by Siddiqui (2012) where about half of the students had negative perception regarding OSCE. Actually, objective structured clinical examination (OSCE) is a timed, multi-station examination in which learners perform tasks in realistic setting, which help to increase clinical competency and enhance learning retention and at each stations learner's performance is evaluated with specific checklist and standardized patients were used in OSCE in substitution for real patients. But in our context, OSCE is started typically from 4th year among medical students (i.e. MBBS) which is structurally time-bound with only two minutes for every question and questions are given to students from slide view and neither standardized patients nor real patients are used. The findings of the study are differing from study conducted by Raheel and Naeem (2013) where majority of the respondents had positive perception.[3] So, in order to increase positive perception in our context, reforms such as curriculum implementation, organization should create environment to facilitate for actual conduction and implementation of OSCE and redesigning of learning objectives, training faculty in conduct of OSCE, involving more external examiners and establishment of a skill's lab would help to improve concept, practice and utilization of OSCE. The most important competency of student is individual competency and this OSCE help to increase individual competency and which ultimately help to improve students' clinical competency.

The current study findings showed that students' level of perception towards objective structured clinical examination had statistically significant association with year of study (p=0.002). It states that in 5th year, 63.9% of the students had positive perception regarding OSCE in regards of 4th year. Understanding regarding OSCE among students of 5th year is more than 4th year because 5th year student had already experienced about OSCE.

Likewise, students' level of perception towards OSCE had statistically significant association with choice of study MBBS. It states that 53.8% of students had positive perception regarding choice of studying MBBS by their own interest, in regards of choice of studying

MBBS not by their own interest. Being interested in something can mean that we care about it that is important to us. That is, being interested in a topic is a mental resource that enhances learning, which then leads to better performance and achievement. Various studies have revealed that students' interest in learning leads to greater degree of skill acquisition.[6-8]

Similarly, students' level of perception towards OSCE had statistically significant association with evidenced based learning (p=0.041). It states that 55.6% of students always utilized evidenced based learning, in comparison with students who sometimes utilized evidenced based learning as it is a scientific method of evaluation which play vital role in order to enhance learning retention and help to give clear clarity with scientific reason during learning.[9] The study finding would be more precise, if association was seen with learning approach, interpersonal relationship with clinical teacher, evaluative methods and optimum resources in academic environment and in clinical learning environment. Learning approach help learners to think critically and provide an opportunity to apply knowledge in real-world scenarios and allow learners to utilize higher order levels of thinking. Interpersonal relationship with clinical teacher play vital role in performance of students during OSCE. If the interpersonal relationship of students with clinical teacher is poor, affect learning of students during clinical posting as well as their clinical performance. Evaluation method play important role in evaluating clinical competency of students. Previously used traditional methods such as unstructured viva, traditional essay type question do not measure psychomotor domain and objectivity of evaluation and also do not cover psychomotor and communication skills. As Clinical skills are the core competencies that are required by the medical students to effectively perform duties in their professional life thus nowadays innovative methods like OSCE and OSPE are essential and used in order to evaluate clinical competency and it is a student assessment approach of objective nature in which the clinical competency aspect of the students is evaluated in a comprehensive, consistent and structured manner.[10,11] Besides these, adequate resources in academic environment like innovative teaching methods, curriculum design, laboratory facilities, library facilities and its effective implementation and in clinical environment like number of patients for practice and other facilities also plays vital role to improve the academic and clinical performance of the medical students. Hence all this enhances to improve students' performance as well as perception.

CONCLUSION

Objective Structured Clinical Examination has been globally recognized as gold standard of performance based assessment that aids in evaluating the clinical competency of medical undergraduate students. Based on the findings, present study concluded that about half of the MBBS students have positive perception toward objective structured clinical examination. Thus, in order to increase positive perception in our context, reforms such as efficient curriculum implementation, organization should create environment to facilitate actual OSCE and redesigning of learning objectives, training of faculty members in conduct of OSCE, involving more external examiners, simulated patients and establishment of a skill's lab would help to improve the perception of OSCE in medical students.

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