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Research article

A descriptive study to assess the perception of nursing students and supervisors about the effectiveness of OSCE during vital signs assessment procedure in the selected college of Mumbai city

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Abstract

Aim: 1. To conduct OSCE 2. To assess the perception of nursing students and supervisors about OSCE 3. To compare the perception of nursing students and supervisors between routine clinical evaluation (RCE) and OSCE. **Material and methods:** The research approach and design was Qualitative Descriptive. The subjects were 30 students of 1st-year RGNM. OSCE conducted under 4 stations namely Healthful, Performance, Interaction, and Response. Data was collected using Demographic data profile; Clinical checklist for hand washing, vital signs assessment procedure; related viva and opinionnaire. Data were analyzed using descriptive and inferential statistics. **Results:** Healthful- 16.69% (5) had excellent, 66.6% (19) had Very good, 19.98% (6) had Good score & none of them had an Average or poor score in hand washing. Performance- 73.26% (22) had excellent, 16% (5) had Very good, 9.99% (3) had Good score & none of them had an Average or poor score in vital signs assessment. Interaction- 56.61% (17) had excellent, 43.29% (13) had Very good score &none of them had a Good, Average or poor score in viva. Response- 10 Opinionnaire on personal perception about OSCE administered to participants. 100% (30) of them had positively responded. Supervisor's Data: 7 opinionnaires administered to supervisors. 100% (30) of them had positively responded. **Conclusion:** OSCE proved to be an excellent method of clinical evaluation than RCE.

Key words: Perception, Nursing students, and Supervisors, Effectiveness, OSCE, Vital signs

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1. Introduction

Not everything that can be measured is important, Not everything that is important can be measured [6]. Evaluation is the systematic process of determining the extent to which the pupil achieves educational objectives. Evaluation is a continuous process of collecting, recording and interpreting information. Teaching, learning, and evaluation are interdependent. The evaluation includes selecting appropriate technical methods, its administration, and interpretation of results.

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The purpose of the evaluation is to improve learning. Evaluation helps the learner to know what they should learn. It also provides information about their progress and recognizes the areas of learning difficulties. [1]

Clinical evaluation is a critical element in the professional education program. It is very important to assess the student's competency in actual practice. The main purpose of the clinical evaluation is to assess quality and standards of clinical performance and to give them feedback to facilitate achievement of objectives. Evaluation is always based on objectives. The method used for evaluation should be flexible, reliable, valid, feasible and acceptable to clinical instructors and students. [2]

Wellar in 2007 stated that learning assessment is an integral component of the teaching-learning process and a contentious topic amongst educationalists. Students are

assessed in an effort to measure their learning, provide constructive feedback for further development, measure the quality of education and ascertain eligibility for registration.[7]

"The curriculum tells the staff what to teach...
The OSCEs tells the students what to learn!"[6]

The field of nursing education is changing every day to meet the rapidly changing needs of the healthcare industry. So the personnel involvement in the nursing education should adopt these changes with the right set of skills. The teaching, evaluating are the integral parts of the learning process. The teacher is a facilitator of learning, should create an environment that facilitates learning. There should be mutual trust between the teacher and learner. [8]

In nursing education, assessment of theory and practically done often simultaneously. It is three dimensional which includes the cognitive, psychomotor and affective domain of learning to provide a holistic picture of student's performance. [4]

The current problems of clinical teaching are lack of observation and inadequate feedback to the students. The clinical settings in which the students practice also influence the holistic development of clinical skills. The method used for assessing and evaluating the student's performance also affect the quality of clinical teaching. The traditional method assesses the overall performance of the student.[5]

Clinical evaluation of the student is an area of controversy. Students often complain variations in teachers expectation and subjectivity in the grading system.[6] To overcome the defect in the traditional conventional method, OSCE was introduced by Harden et al**.** OSCE is an assessment tool in which components of clinical competencies such as history taking, physical examination, procedures, interpretation of lab results, communication, attitudes etc are tested with a set checklist.[11]

Studies proved that OSCE is most reliable and valid evaluation technique. OSCE appears to measure an aspect of both clinical competence and theoretical knowledge. OSCE is a fairly new evaluative system in the field of nursing. Hence the investigator was motivated to conduct a study to evaluate the nursing student's performance in the assessment of procedure using objective structured clinical examination to compare it with the traditional method. [10]

'The Objective Structured Clinical Exam (OSCE): A Qualitative Study exploring the Healthcare Student's Experience' done by Susan Fidment Faculty of Health and Wellbeing, Nursing and Midwifery Department. This study explored the healthcare student's experience of an OSCE (Objective Structured Clinical Exam). The OSCE is a form of assessment in which the student demonstrates clinical skills, and underpinning knowledge, usually in simulated conditions. Historically, it has originated from medical education and is now being adopted by other disciplines of healthcare education. Because the OSCE is a new experience for most students, it is important as educators, that we explore this assessment from the perspective of the student. A literature review revealed a paucity of research in this area. Hermeneutic phenomenology was used as this study's underpinning methodology. Data were collected through semi-structured interviews with students. Preparation of students for an OSCE requires effective planning and simulation needs to be grounded in practice. This study concludes that students valued the OSCE as a worthwhile assessment. [9]

The Objective Structured Clinical Examination is a versatile multipurpose evaluative tool that can be utilized to assess healthcare professionals in a clinical setting. It assesses competency, based on objective testing through direct observation. It is precise, objective, and reproducible allowing uniform testing of students for a wide range of clinical skills. Unlike the traditional clinical exam, the OSCE could evaluate areas most critical to the performance of health care professionals such as communication skills and ability to handle unpredictable patient behavior. The OSCE style of clinical assessment, given its obvious advantages, especially in terms of objectivity, uniformity, and versatility of clinical scenarios that can be assessed, shows superiority over traditional clinical assessment. It allows evaluation of clinical students at varying levels of training within a relatively short period, over a broad range of skills and issues. OSCE removes prejudice in examining students and allows all to go through the same scope and criteria for assessment. This has made it a worthwhile method in medical practice. [19]

2. Methodology

Hypothesis:

H1: OSCE is better than routine clinical evaluation.
H2: Routine clinical evaluation is better than OSCE.

Purposes of OSCE:

1. To provide objective based feedback.
2. To enhance ongoing learning.
3. To determine Strengths and Learning Needs.
4. To provide essential procedural skills along with right knowledge and attitude.
5. To facilitate self-assessment.
6. To deliver High-Quality objective based feedback.
7. To bridge the gap between routine evaluation technique and OSCE programme.
8. To build up motivation & self-esteem among nursing students.
9. To improve the student's performance to a specific grade.
10. To gain the confidence of student's in the clinical area.

The research design and approach was a descriptive survey. The subjects were 30 students of 1st-year RGNM. OSCE conducted under 4 stations namely Healthful, Performance, Interaction, and Response.

Variables under study:

Dependent variables: perception of nursing students and supervisors.

Independent variables: OSCE.

Demographic variables: Demographic variables under the study were age, Sex, Stream of higher education, Previous knowledge about OSCE.

Settings of the study

The investigator conducted the study in MCH laboratory of selected nursing school. MCH laboratory set into different stations of OSCE namely Healthful (3 Mins), Performance (7 Mins), Interaction (`10 Mins), Response (5 Mins). Pre and Post OSCE candidates were separated.

Population: 1styear R.G.N.M students were selected as population.
Sample: Sample consisted of 1st year RGNM students of the selected school of Mumbai city.
Sample size: the Pilot study was conducted on 5 students of 3rd year RGNM and the Main study was performed on 30 students of 1st year RGNM.

Sampling criteria: Purposive convenient sampling technique.

Inclusion criteria:

1. Students who are willing to participate in the study
2. Students of 1styr RGNM.
3. Students present on the day of the main study.
4. Students who are able to understand and speak English.

Exclusion criteria:

1. Students other than 1styr RGNM.
2. Students are absent on the day of the main study.
3. Students who are not willing to participate.

Limitations: Study is limited to:

- 1st-year RGNM students.
- A sample size of 30.
- Vital signs assessment procedure
- Structured checklist-based evaluation and feedback only.
- Only framed formulated questions for Viva.
- Only one supervisor per station

Ethical considerations:

Ethical approval was sought from Principal and class coordinators of the respective class. The researcher also obtained permission from a sister in charge to relieve subjects during data collection. Permission from MCH lab in charge also secured. Written informed consent was obtained from each participant. The researcher assured the participants of confidentiality and anonymity and no name or any form of identity was indicated on the tool. The students were examined one at a time in an MCH lab for them to feel secure and free and be able to perform/answer sincerely without any feeling of intimidation. The participants were informed that participation in the study was purely on voluntary basis and that no risks were anticipated.

Complete tool and data collection:
Station I– Healthful (Hand washing)

The icon **'healthful'** is used to represent this station. This station is for 3 minutes. The supervisor observes the steps performed by the students during hand washing. After hand washing supervisor gave feedback about the performance of the student to help him/her to improve skills.

Station II – Performance (Procedure)

'Performance' is the icon which is used to represent this station. It is for 7 minutes. The supervisor evaluates the performance of the students as per the checklist and an immediate feedback is given to the student about the student performance.

Station III – Interaction (Viva)

'Interaction' is the icon which is used to represent this station**.**It is for 10 minutes. Supervisor interacts with the students to know the knowledge skills as per the checklist and an immediate feedback is given to the student about the student performance.

Station IV – (Response) Feedback

The icon **'response'** is used to represent this station. It was for 5 minutes. The volunteers explain the different statements mentioned in the format and receive the feedback from the subjects about the study session.

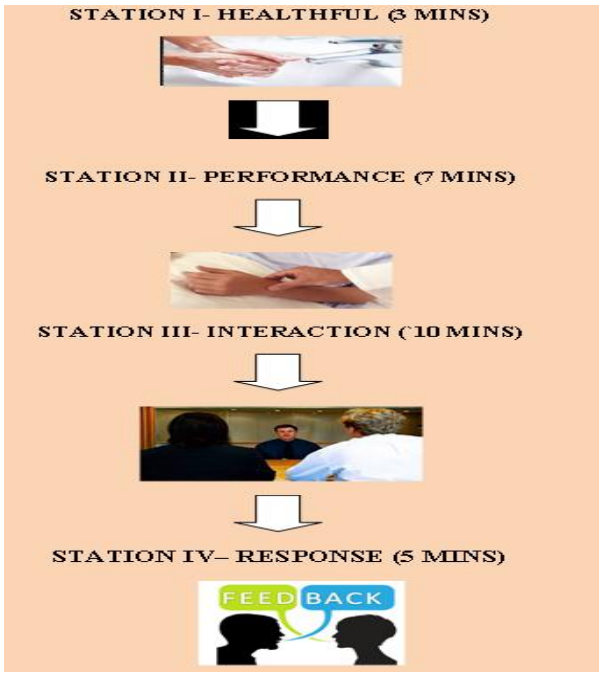
Scoring and score interpretation

The scoring for checklist was with the standardized tools, that is:
9-10 = Excellent
7-8 = Very good

5-6 = Good
3-4 = Average
< 3 = Satisfactory

Healthful session held for 3 mins which included pre and post procedure hand washing using 6 steps of it. Station II was **Performance** which included the actual procedure of assessing vital signs. Under this tray set up, procedure steps, scientific principles, proficiency in a skill, patient information and preparation, recording and reporting included. Station III was **Interaction** which included procedure related viva to assess students corresponding knowledge. Lastly, Station IV **Response** conducted to assess feedback from students about OSCE. Also, supervisor's opinion about OSCE rating obtained.

Data was collected using Demographic data; Clinical checklist for hand washing, vital sign assessment procedure, related viva and 10 opinionnaires about OSCE. Data were analyzed using descriptive and inferential statistics.



3. Result

A) Distribution of frequency and percentage of demographic data variables are as follows:

Table no: 01

SN	Demographic data	Category	Frequency	%
1	Age	<18 yr	1	03.33
		18-20 yr	24	80.00
		> 20 yr	5	16.66
2	Gender	Male	4	13.33
		Female	26	86.66
3	Stream of higher education	Arts	2	06.66
		Commerce	4	13.33
		Science	24	80.00
4	Previous knowledge of osce	Yes	0	00.00
		No	30	100

Maximum participants i.e. 80%(24) are between 18-20 yr age and from science stream: 86.66% (26) are female whereas 100% were without any knowledge about OSCE.

B) Distribution of frequency and percentage according to hand washing (healthful) data variables.

Table no: 02

SN	Knowledge score	Frequency	(%)
1	Excellent (9-10)	5	16.66%
2	Very good (7-8)	19	63.33%
3	Good (5-6)	6	20%
4	Average (3-4)	0	0
5	Satisfactory (< 3)	0	0

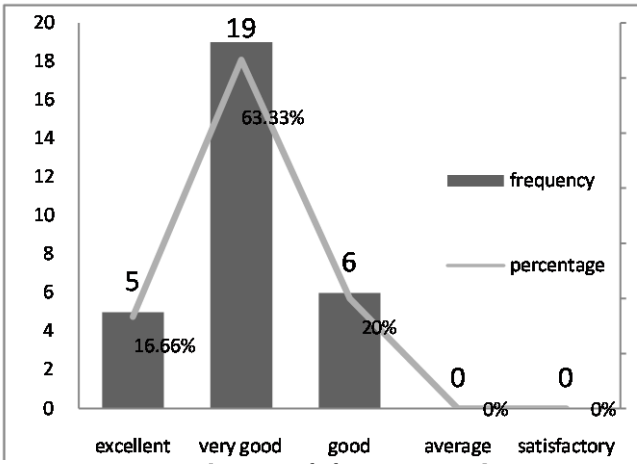


Fig No 1: Distribution of frequency and percentage according to hand washing [healthful data] variables

C) Distribution of frequency and percentage according to procedure (performance)

Table no: 03

SN	Knowledge Score	Frequency	(%)
1	Excellent (80 & above)	22	73.33
2	Very good (80-70)	5	16.66
3	Good (70-60)	2	6.66
4	Average (60-50)	1	3.33
5	Satisfactory (<50)	0	0

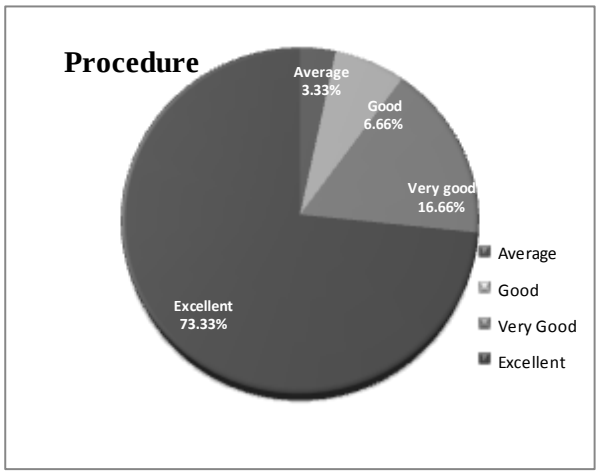


Fig No 2: Distribution of frequency and percentage according to procedure (performance)

Optimum participants i.e.,63.33% (19) scored very good 76.33% (22) of participants scored Excellent score with 80% and above marks.

D) Distribution of frequency and percentage according to viva (Interaction)

Table no: 04

SN	Knowledge score	Frequency	(%)
1	Excellent (10-9)	17	56.66
2	Very good (8-7)	13	43.33
3	Good (6-5)	0	0
4	Average (4-3)	0	0
5	Satisfactory(<3)	0	0

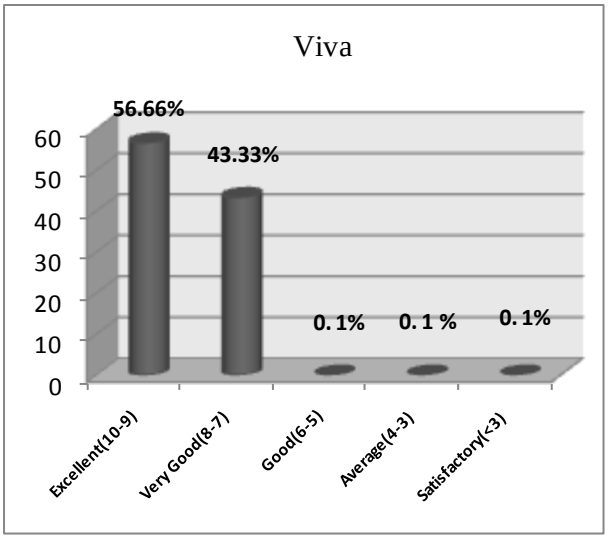


Fig No 3: Distribution of frequency and percentage according to viva (Interaction)

56.66% (17) had an excellent score with 9-10 marks and remaining all i.e 43.33% (13) with a very good score of 7-8 marks.

E) Distribution of frequency and percentage according to Student Feedback (response)

Table no: 05

SN	Opinionnaire	Frequency and percentage	
		Agree	Disagree
1	OSCE is a new term in clinical evaluation.	93.33% (28)	6.66 % (2)
2	OSCE helps to improve knowledge, attitude, and skills.	96.66% (29)	3.33% (1)
3	OSCE clarified our procedure related doubts.	100 % (30)	0% (0)
4	OSCE helps to reduce clinical errors.	96.66% (29)	3.33% (1)
5	Working in different stations improved my confidence level.	100% (30)	0% (0)
6	Intermittent feedback during OSCE by teachers after each station was beneficial.	100% (30)	0% (0)
7	OSCE helps to perform the procedure in sequential order.	96.66% (29)	3.33% (1)
8	I liked and enjoyed working in various stations of OSCE.	96.66% (29)	3.33% (1)
9	OSCE can be very well implemented in every procedure	96.66% (29)	3.33% (1)
10	I would like to undergo OSCE again.	96.66% (29)	3.33% (1)

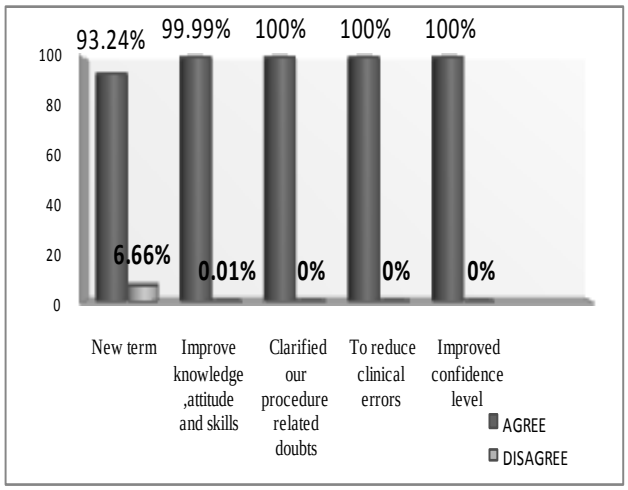


Fig No 4: Distribution of frequency according to feedback (Response)

F) Routine clinical evaluation versus OSCE

Table no: 06

SN	Knowledge score	RCE		OSCE	
		Frequency	(%)	Frequency	(%)
1	Excellent (5)	5	16.66	16.66	76.66
2	Very good (4)	17	56.66	56.66	19.98
3	Good (3)	5	16.66	16.66	3.33
4	Average (2)	2	6.66	6.66	0
5	Satisfactory (1)	1	3.33	3.33	0

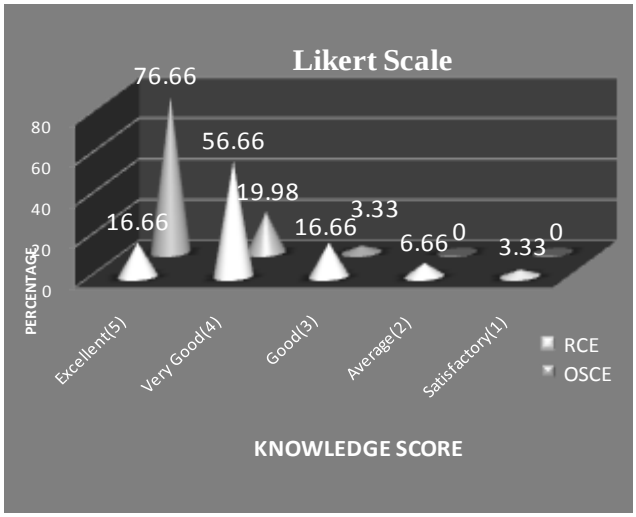


Fig No 5: Distribution of frequency according to likert scale

16.66% (5), 56.665 (17), 16.66% (5), 6.66% (2) and 3.33% (1) scored excellent, very good, good, average and satisfactory respectively for RCE.

Whereas 76.66 % (23),19.98%(6) and 3.33%(1) scored excellent, very good, good respectively for OSCE. None of them scored average or satisfactory for OSCE.

G) Distribution of frequency and percentage according to supervisor perception

Table no: 07

Opinionnare	Agree	Disagree
Complete task in a given period of time	100% (4)	0% (0)
OSCE ensures objectivity in evaluation	100% (4)	0% (0)
OSCE is a systematic way to conduct practical examination	75% (3)	25% (1)
Student exhibits improvement in confident level during OSCE	50% (2)	50% (2)
OSCE provides appropriate feedback to students after each evaluation	100% (4)	0% (0)
OSCE is better than routine clinical evaluation	100% (4)	0% (0)
OSCE can be very well implemented on every procedure.	100% (4)	0% (0)

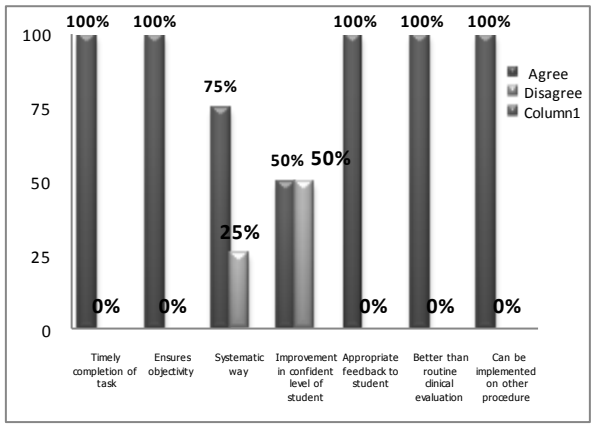


Fig No 6: Distribution of frequency according to supervisor perception

According to supervisors perception- 100%(4) of them felt OSCE helped in timely completion of task, ensured objectivity in evaluation, appropriate feedback provided better than routine clinical evaluation and can be implemented on every procedure.75.1%(3) agreed for OSCE as systematic way for conduction of practical examination and 25%(1) disagreed it.50%(2) felt that students exhibited improved confidence level during OSCE and 50%(2) disagreed with this statement.

4. Discussion

The Objective Structured Clinical Examination is a versatile multipurpose evaluative tool that can be utilized to assess healthcare professionals in a clinical setting. It assesses competency, based on objective testing through direct observation. It is precise, objective, and reproducible allowing uniform testing of students for a wide range of clinical skills. Unlike the traditional clinical exam, the OSCE could evaluate areas most critical to the performance of health care professionals such as communication skills and ability to handle unpredictable patient behavior. The OSCE style of clinical assessment, given its obvious advantages, especially in terms of objectivity, uniformity, and versatility of clinical scenarios that can be assessed, shows superiority over traditional clinical assessment. It allows evaluation of clinical students at varying levels of training within a relatively short period, over a broad range of skills and issues. OSCE removes prejudice in examining students and allows all to go through the same scope and criteria for assessment. This has made it a worthwhile method in medical practice.[19]

Demographic data

Age distribution is done in 3 categories which includes <18yrs, 18-20yrs, >20yrs. Table reflects that 3.33% (1), 80%(24) and 16.66%(5) subjects from age group <18, 18-20 yrs and > 20yrs respectively.

13.33% (4) candidates were made whereas majority i.e. 6.66%(26) candidates were female.
Distribution of subjects according to a stream of higher education revealed that majority of the subjects i.e 80% (24) were from science field whereas 13.33 %(4) and 6.66% (2) from commerce and arts field respectively
Distribution of subjects according to their previous knowledge about OSCE did. It was marked under 2 categories i.e Yes and No. All of them i.e 100 %(30) didn't have any previous knowledge about OSCE.

Assessment of healthful, performance, interaction and response station

Healthful: As per checklist 16.69% (5) had excellent, 66.6% (19) had Very good, 19.98% (6) had Good score & none of them had an Average or poor score in handwashing.

Performance: As per checklist 73.26% (22) had excellent, 16.66% (5) had Very good, 6.66 %(2) had Good score & 3.33 %(1) had an Average score in vital signs assessment.

Interaction: As per checklist 56.61 %(17) had excellent, 43.29% (13) had Very good score &none of them had a Good, Average or poor score in viva.

Response: Opinionnaire as OSCE is a new term; improves knowledge, attitude, and skill; clarifies procedural doubts, reduce clinical errors, improves confidence, provides intermittent feedback, sequential procedure, liked OSCE, can be implemented on other procedures and want to have in future given. 100%(30) Agreed to it.

Routine clinical evaluation versus OSCE

16.66% (5), 56.665 (17), 16.66% (5), 6.66% (2) and 3.33%(1) scored excellent, very good, good, average and satisfactory respectively for RCE.
Whereas 76.66 % (23),19.98% (6) and 3.33% (1) scored excellent, very good, good respectively for OSCE. None of them scored average or satisfactory for OSCE.
Paired t-test performed between Routine clinical evaluation (mean3.77) and OSCE (mean4.77).t test value was 4.9160 with df 29 which shows statistical significance.100 %(30) rated OSCE better than routine clinical evaluation.

Distribution of frequency and percentage according to supervisor's perception

A) Personal experience of the Supervisor: During the study there were four Supervisors for evaluating the students according to the performance by the students.

- The instructor found it easy to evaluate a distribution of marks was done in each step.
- There was no bias in the evaluation.
- Optimistic acceptance of feedback by the students.
- Most of the subjects fall in the excellent category.

B) Personal experience of the Students:

- Students found it easy to perform the procedure in sequential order.
- Students felt OSCE is less time consuming
- Students liked and suggested to implement OSCE as a substitute for routine clinical evaluation.
- There was no bias.
- Students want to undergo OSCE again.

Distribution of frequency and percentage according to supervisors perception reveals 100%(4) of them felt OSCE helped in timely completion of task, ensured objectivity in evaluation, appropriate feedback provided better than routine clinical evaluation and can be implemented on every procedure.75.1%(3) agreed for OSCE as systematic way for conduction of practical examination and 25%(1) disagreed it.50%(2) felt that students exhibited improved confidence level during OSCE and 50%(2) disagreed with this statement.

Conclusion

This study revealed that students and supervisors were very comfortable and friendly with OSCE stations. It also observed that OSCE was more accurate, timely and not biased. They have recommended it for further clinical evaluation methods. OSCE can be effectively used as clinical evaluation method in various nursing procedures.

Recommendations

1. The study can be replicated on a larger sample for generalization of the findings.
2. A comparative study can be conducted on ROUTINE CLINICAL EVALUATION technique and OSCE method.
3. The study can be done to assess the knowledge of the students about the various nursing procedure through OSCE.
4. Studies on the effectiveness of OSCE in the medical field.
5. A prospective study can be conducted on "Expectation and experiences about OSCE."

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researchers, participants, librarian and those who directly/ indirectly involved in completion of these.

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