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Assessment of Breastfeeding clinical skills among nursing students using objective structured clinical examination (OSCE)

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Abstract: Evaluation is a systematic process to collect, analyze and interpret the data which is implemented in order to control progression of the programs accurately toward predetermined goals and to understand the cost-effectiveness or determination of value of ongoing programs. Judgment of clinical skill is a vital component of nursing education and its appraisal methods persistently bother all nurse educators in nursing education. Appropriate judgment methods improve students' performance whereas flawed methods can lead to incorrect decisions that adversely influence the performance of students. Many methods are currently in practice to check clinical competencies of students e.g. written examinations, viva voce, online evaluation, simulated tests, records of daily performance, and objective structured clinical examination (OSCE). **Research Methodology:** A quantitative research approach and Quasi experimental research design was used for the present study. Simple random technique was used to select the samples. The study was conducted on 64 undergraduate nursing students of third year. The breastfeeding skill was assessed using self-administered observational checklist. **Results and findings**: The Pretest clinical skills falled in the category of poor to fairly good whereas it has increased in the good and very good in the post test after implementation of OSCE. The OSCE seems to be effective .t test was applied where p value isles than 0.00001 which supported the effectiveness of the OSCE. The demographic variables were tested for association by applying Chi square test. No variable found to be associated with the clinical skills. **Conclusion:**The OSCE proves to be a effective learning method especially in a scenario where real world exposures of learning is difficult for the students

Keywords: Breastfeeding, Nursing students, Objective, structured, clinical, examination

1. INTRODUCTION:

Assessment of midwifery students' clinical competency is one of the most difficult responsibilities of the faculty members and teachers of health plans.[1] Paying attention to the clinical assessment and using techniques to evaluate the students' abilities, competencies, and skills are significantly important.[2] Midwifery profession particularly has a key role in caring for women and babies during pregnancy, partum and postpartum periods, and promoting the healthof the mother and the baby.

Nurse-midwifery students report feeling unprepared to support breastfeeding families upon graduation because they receive inadequate training in clinical lactation [3]. Throughout nursing, midwifery, and medical school, there are limited opportunities to actively practice skills because mothers often do not want trainees crowding their rooms and touching their

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newborns [4]. Healthcare professional students leave their maternal-child rotations with experience as an observer, not an active healthcare provider. The Objective Structured Clinical Examination(OSCE) is considered as a useful method of teaching because it is a safe practice to help students gain more confidence when confronted by technical instruments present in the hospital environment. It is defined as "the method of choice for evaluation of learner's clinical competence. OSCE demonstrate particular advantages over traditional forms of testing such as multiple choice tests, in assessing communication and interpersonal skills, professional judgment and moral/ethical reasoning. OSCE is as examinations where students demonstrate their competence under a variety of simulated conditions. The competencies include patient care, medical knowledge, interpersonal and communication skills, professionalism, practice-based learning and improvement throughout the course curriculum [13]

High-fidelity simulation is the ideal learning modality for technical and non-technical skills acquisition and transfer to patient care [5, 6]. The objective structured clinical exam (OSCE) is an approach where a standardized patient actor interacts with a health professional student in a mock clinical scenario. The clinical case scenario (conceptual fidelity) combined with the realistic nature of the clinic room and mock patient (psychological fidelity) enables the student to suspend disbelief and practice clinical skills in a way that leads to improved learning outcomes [7, 8]. A breastfeeding-related OSCE has been described in midwifery education, is one of the important learning system available for the students to learn the clinical skills [9,10]. The nursing occupation is characterized by the fact that a significant amount of time is spent on competency-related activities. The assessment of clinical competence is therefore an important issue in nursing education and the utilization of objective structured clinical evaluation for that purpose was considered to be very important in this study. The objectives of the study were 1.) To assess the breastfeeding clinical skills in nursing students

2.) To assess the effectiveness of OSCE regarding breastfeeding clinical skills in nursing students and 3) To find the association of breastfeeding clinical skill with demographic variables

2. RESEARCH METHODOLOGY:

The present study was conducted in college of nursing, Aurangabad Maharashtra. Total 64 undergraduate nursing students of third year were selected for the study. The simple random sampling technique was used to select the samples based on sample selection criteria. In which students who are willing to participate and who are available at the time of data collection were selected.

The study samples were given brief introduction about self and the study. Permission to conduct the study was obtained from The Principal College of Nursing. It took 30 to 35 min for the students to complete the procedure.

The Quantitative research approach with quasi experimental research design was used to assess the Breastfeeding skills of the nursing students. The self-administered observation checklist was used to assess the breastfeeding skill, the Tool had two parts. Part I consists of Demographic variables of the students, there were total 5 items . Part II consists of Observation checklist of 14 items to assess the breastfeeding skill. The validity of the tool was done by 17 experts in various fields and reliability of the tool was done before the study.

Descriptive statistics was used, Frequency and percentage was used to classify demographic data. Mean and standard deviation and t-test was used to assess the breastfeeding skill by

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OSCE method. In inferential statistics the Chi-square test was used to find association of skill with selected demographic variables

ISSN:0975-3583,0976-2833 VOL12,ISSUE01,2021

3. RESULT AND DISCUSSION:

Section 1 : Demographic characteristics

Maximum Participants 48.44% of the students were of 21 Years of age followed by 21 (32.81%) and 22 Years (15.63%) and least were 23 and above (3.13%). The maximum students were male (73.44%) whereas female candidates were (26.56%). Maximum percentage marks of the participants in previous year of BSc Nursing were 61-70 (53.1%) followed by 51-60 (25%), 71-
80 (10.9%) and less than 50 (6.3 %). The least one got more than 80 (4.7%). Maximum students
got NEET score of 101-200 (45.31%) followed by 201-300 (29.69%), leass than 100 (17.9%) and least one were 301-400 (7.81%). Maximum students 40.63% got the percentage of marks obtained in HSc in the range of 61-70% followed by 71-80 (32.81) more than 80 (12.50%) less than 50 (10.94%) and least one 51-60 (3.13%).

Section 2: Breastfeeding clinical skills in nursing student

This section deals with the assessment of clinical skills on breastfeeding among nursing students using objective structured clinical examination. The clinical skills score is divided under following heading of poor, fairly good, good and very good.

Pretest:-

The below table shows that in the pretest most (57.81%) of the subjects had fairly good knowledge and (42.19%) had poor knowledge. In pretest none of the students had good and very good knowledge on breastfeeding. Majority (81.25%) were had fairly good skills on giving instruction and assist the mother to remove the baby from the breast, most (78.1%) had skills in explaining the mother about breastfeeding and assisting the mother with the procedure, (73.43%)had fairly good knowledge on demonstrating and assisting the mother to clean the breast. While(31.2%) , (28.12%) were had poor skills in assisting mother for football hold position and in recording the information in patient's chart respectively.

ITEM WISE ANALYSIS

S.N	Procedure	Frequency(2)	%	Frequenc y (1)	%	Frequenc y (0)	%
1	Prepares the tray	0	0	39	61	25	39
2	Explain mother about breastfeeding and how you will assist with the procedure	0	0	50	78	14	22
3	Demonstrate & assist the mother to clean the breast	0	0	47	73	17	27
4	Describe & assist mother for cradle hold position	0	0	35	55	29	45
5	Explain & assist mother for Football hold position	0	0	20	31	44	69

ISSN:0975-3583,0976-2833 VOL12,ISSUE01,2021

6	Explain & assist mother for cross cradle hold position	0	0	42	66	22	34
7	Explain & assist mother for side lying position	0	0	25	39	39	61
8	Instruct & assist mother to latch on to the nipple and the areola correctly	0	0	45	70	19	30
9	assistance for correct attachment of baby to breast and start sucking	0	0	36	56	28	44
10	Instruct and assist to remove the baby from the breast	0	0	52	81	12	19
11	Instruct and assist to Burp the baby	0	0	29	45	35	55
12	Encourage mother to feed the baby from the second breast in same manner	0	0	33	52	31	48
13	Wrap the baby and lay him on his side	0	0	40	63	24	38
14	Record all pertinent information in patients chart	0	0	18	28	46	72

Posttest:-

The below table shows the posttest clinical skills of the students were in the category of good (67.19%) and very good (32.81%). In the posttest (60%) have gained good knowledge on recording the information in patient's charts, (54.6%) performed well in giving instruction to remove the baby from the breast, (53%) had good skills in preparing the tray. While, only (3%) students had faced trouble in the categories of encouraging the mothers to feed the baby from second breast and wrap the baby and lay him on his side. The posttest score reveals that the intervention was effective on increasing the clinical skills on breastfeeding among students.

ITEM WISE ANALYSIS

S.N	Procedure	Frequency(2)	%	Frequency (1)	%	Frequency (0)	%
1	Prepares the tray	34	53	30	47	0	0
2	Explain mother about breastfeeding and how you will assist with the procedure	31	48	33	52	0	0

ISSN:0975-3583,0976-2833 VOL12,ISSUE01,2021

3	Demonstrate & assist the mother to clean the breast	28	44	36	56	0	0
4	Describe & assist mother for cradle hold position	29	45	35	55	0	0
5	Explain & assist mother for Football hold position	30	47	34	53	0	0
6	Explain & assist mother for cross cradle hold position	31	48	33	52	0	0
7	Explain & assist mother for side lying position	27	42	37	58	0	0
8	Instruct & assist mother to latch on to the nipple and the areola correctly	32	50	32	50	0	0
9	assistance for correct attachment of baby to breast and start sucking	30	47	34	53	0	0
10	Instruct and assist to remove the baby from the breast	35	55	29	45	0	0
11	Instruct and assist to Burp the baby	28	44	35	55	1	2
12	Encourage mother to feed the baby from the second breast in same manner	23	36	39	61	2	3
13	Wrap the baby and lay him on his side	32	50	30	47	2	3
14	Record all pertinent information in patients	39	61	25	39	0	0
	chart						

The pretest clinical skills of the students were in the category of fairly good (57.81%) and Poor (42.19%). No one was in the category of good as well as very good. That shows that there is poor to average clinical skills among the students regarding breast feeding. The students performed fairly in the components like instructions like burping of the baby, assisting the mother in sideline position, explaining and assisting in football position, assisting the mother in cradle hold position and assistance for correct attachment of baby to breast and start sucking. After the Intervention the post test scores were assessed for clinical skills with the same checklist.

ISSN:0975-3583,0976-2833 VOL12,ISSUE01,2021

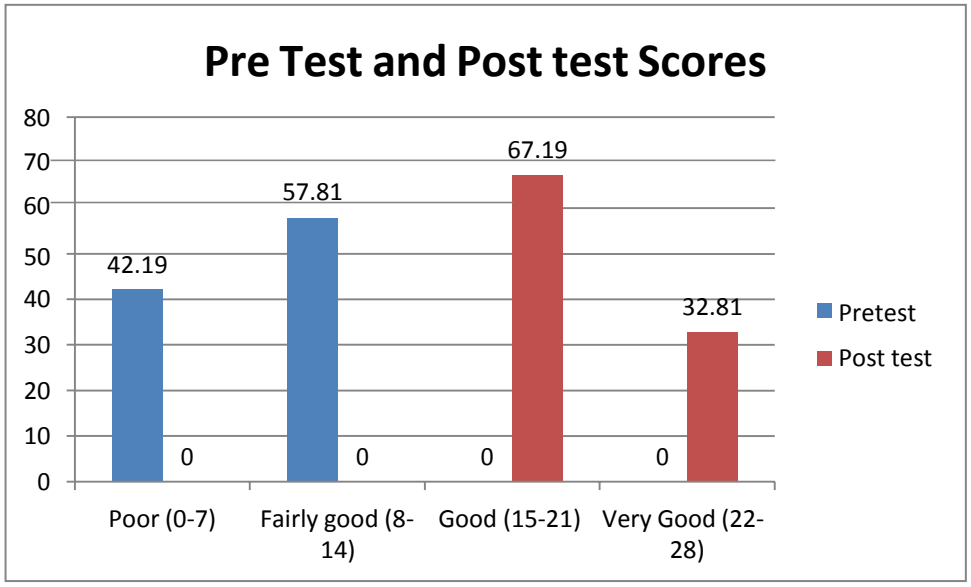

Fig 1: Pretest and Post Test skill scores

The post test clinical skills of the students were in the category of good (67.19%) and very good (32.81%). The students performed well in the neglected pretest areas and additionally in assistingthe mothers in cleaning the breast, encouraging the mothers to feed the baby from second breast, and recording the details in the patient chart. No one were in the category of Poor as well as fairly good. The post test clinical skill scores were enhanced after the intervention.

Section 3: Effectiveness of OSCE regarding breastfeeding clinical skills in nursing students

Clinical Examination	**Poor (0-7)**	**Fairly good (8-14)**	**Good (15-21)**	**Very Good (22-28)**	**Mean**	**SD**	**DF**	**T value**	**P Value**
Pre Test	**27**	**37**	**0**	**0**	**7.98**	**2.7**	**63**	**34.90**	**.0001**
Post test	**0**	**0**	**43**	**21**	**20.6**	**2.3**			

The Objective structured Clinical examination was planned and implemented. The mean difference between the Pretest and post test scores was calculated to see the effectiveness of the intervention which is 12.64. This showed that there is enhancement of the clinical skills after the implementation of the OSCE to the nursing students. To check the significance Chi square test was applied to check the effectiveness and its significance and to compare the observed values in the data to the expected values. The value calculated was 34.90. The corresponding p value is less than 0.00001. Therefore results are significant and showed that the intervention OSCE was effective in enhancing the clinical skills in the post test.

ISSN:0975-3583,0976-2833 VOL12,ISSUE01,2021

Section 4: Association of the clinical skills with demographic variables

Table 2: Association of clinical skills with demographic variables

Demographic variables	Poor (0-7)	Fairly good (8-14)	Good (15-21)	Very Good (22-28)	DF	Chi square calculated value	P value	
Age in years								
20	5	16	0	0	9	16.91	0.77	No Association
21	16	15	0	0				
22	4	6	0	0				
23 & above	2	0	0	0				
Gender								
Male	7	10	0	0	3	7.81	1	No Association
Female	20	27	0	0				
Percentage of Marks in Previous year of B.B. Sc Nursing								
<50	1	3	0	0	12	21.02	0.97	No Association
51 -60	7	9	0	0				
61 – 70	17	17	0	0				
71 – 80	0	7	0	0				
>80	2	1	0	0				
NEET Score								
<100	2	9	0	0	9	16.91	0.67	No Association
101- 200	11	18	0	0				
201- 300	10	9	0	0				
301- 400	4	1	0	0				
Percentage of marks in HSc								
<50	3	4	0	0	12	21.02	0.99	No
51 – 60	0	2	0	0				

ISSN:0975-3583,0976-2833 VOL12,ISSUE01,2021

61 – 70	10	16	0	0				Association
71 – 80	9	12	0	0				
>80	5	3	0	0				

The results of pretest were associated with the socio demographic variables by applying Chi square test. All the variables were applied for the association with the scores of the clinical skills. The results showed that the p values are greater than 0.05 level of significance. Therefore the above table clearly depicts that no variable seems to be associated with the demographic characteristics of the students. The researcher presumed that the marks obtained in HSc /NEET/previous years may be associated with the clinical skills, but none of the variable showedany association.

4. DISCUSSION

Breastfeeding education is an integral part of the midwifery curriculum, the aim being to equip student midwives with the tools necessary to effectively support the infant feeding choices of mothers. Results of the present study showed that students gained a score of fewer score in pretest and raised in the post test after successful intervention of OSCE. The results are in
consensus with Michael and Villegas (2014)[11] held the OSCE examination to prepare the first year undergraduate students of midwifery in Australia at stations such as assessment of the infants who were delivered by caesarean section and monitoring the mothers after giving birth. At the end of the examination, after taking the opinions of the midwifery students, it was revealed that the students believed that OSCE has increased their self-confidence and ability to perform in clinical environment. Thus, according to the results of the present research, the designed OSCE examination could obtain the clinical condition of the students along with their strengths and weaknesses. Therefore, it can be predicted that, by performing this OSCE examination, students can practice to compensate their weaknesses and have more self- confidence and ability when entering the workplace. Also the previous scores in the NEET and HSC are not related with the ability to perform in present learning scenario.
The results are also in congruent with Wass Vetal who documented that Multiple choice questions, essays, and oral examinations could be used to test factual recall and applied knowledge, but more sophisticated methods are needed to assess clinical performance, including directly observed long and short cases, objective structured clinical examinations, and the use of standardized patients [12]

Limitations of the study
Limitations of this study include the limited sample size. It was conducted for the first time that the OSCE methodology was implemented and efforts were made to accommodate the maximum number of novice students based on the resources available. The methodology required the presence of several observers and additional personnel (e.g. timekeeper) which could hamper the replication of the OSCE in other settings where the personnel available is limited. Future studies can incorporate technology to reduce the burden of the personnel dedicated to the OSCE. In addition, the sample was collected from one location, which limits the generalizability of the results. Another limitation is the study's design which limits inferential analysis of the results to prove the benefit of the OSCE.

ISSN:0975-3583,0976-2833 VOL12,ISSUE01,2021

5. CONCLUSION

The study concluded that OSCE is a great way to teach and test clinical skills in the domain of breastfeeding, both for the mother and the baby. The OSCE has received excellent feedback for
its neutrality in student assessment and for providing a ‘hands-on' approach to testing clinical competence in situations where developing breastfeeding clinical skills performance in a ‘real world' clinical context is not possible. The post test scores of the student have increased effectively from the pretest. Therefore it is recommended that learning of the students must be enhanced by inculcating the OSCE in the regular curriculum phenomenon. OSCE can be a valuable tool to be used in other courses of the nursing undergraduate and graduate curriculum and not only in this University but in others as well as for healthcare workers who would like to learn for continuing education purposes in order help out breastfeeding mothers at their workplace.
Future studies can be recommended in the the implementation of the OSCE with community settings or women in the community. Women in the community can be trained about breastfeeding using the OSCE. Future implementation of the OSCE can include online teaching via programs such as Zoom or Skype or Microsoft teams where the instructor can meet online with the breastfeeding mothers or pregnant women. The incorporation of online activities can also facilitate the dissemination of the OSCE to other communities or states. Also Students should also be trained for this type of exam; the best way is to start examining them using this strategy (OSCE) earlier and more preparatory activities during the semester more staff needed is for this type of exams and more training should be done to staff through journal club.

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