



## Efficacy of Two Different Methods of Teaching on Students Competencies in Performing Nursing Procedure Among Undergraduate Nursing Students

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### ABSTRACT

**Background:** The concept of competency is completion of a single task of any nursing procedure at the bed side. In repeated practice at the clinical practice the task becomes the competency. This focuses on the underlying complexities involved in the performance of roles on the standardized patients by health care professionals. **Objectives of the study:** To assess the effectiveness of clinical teaching for cranial nerve examination. To assess the effectiveness of video assisted teaching for cranial nerve examination and to compare the effectiveness of clinical teaching and video assisted teaching for cranial nerve examination. **Materials and Methods:** In this study, Evaluative comparative research approach was used. Research Design was Comparative, interventional, Cross over design. Samples were selected by using simple random sampling technique. Samples were selected from Third year Basic B.Sc. Nursing students of Srimathi Radhikabai Meghe Memorial College of Nursing and the Sample Size were 50. **Results:** Assessment of competency score of the nursing students in group A before Clinical teaching and group B before video assisted teaching at pre test all the students had poor level of competency score because the students were exposed at first time to that particular procedure at the bed side. Assessment of competency score of the nursing students after Clinical Teaching 8% of them had good and 92% of them had excellent level of competency score. Assessment of competency score of the nursing students shows after Video Assisted Teaching, 60% of them had good and 40% of them had excellent level of competency score. Both the instructional methods are equally good but they are having their own strength and limitations in demonstrating skill at the bed side. **Conclusion:** Clinical competency can be improved only by more than two methods of teaching and repeated practice of clinical skills.

### KEYWORDS :

#### Introduction:

The important aim of the Health Assessment is to collect data from the clients, close relatives and family members to determine overall level of functioning to make a specialized clinical judgment. This can be trained by using different instructional methods.<sup>1</sup> when performing a neurological examination, the health care providers reviews the patient's health history with special attention to the current condition. The neurological examination includes mental status, functions of the twelve cranial nerves (including vision), strength, coordination, reflexes, and sensation. Nursing is a field requires clinical skill to improve the competency of the learners as when they deal and handle with real life situations. Nurse educators have a vital role to provide most effective clinical instruction to facilitate best learning. Learning experiences in nursing must provide opportunities to apply theoretical principles to real life situations on a daily basis at bedside / community. The clinical teaching method in nursing is a type of group conference in which a patient or patients are observed, studied, discussed, demonstrated and directed towards the improvement and further improvement of nursing care provided by the nursing student.<sup>1</sup>

**Brandee Cox** and **Lori** conducted a study in Australia in 2007 to determine the need for registered nurses to be adequately equipped to conduct systematic neurological assessments. 50 nurses were selected by random sampling technique and used a questionnaire designed to elicit short-answer responses in order to investigate how registered nurses described their neurological assessment practices and what type of data they collected. The findings indicated that only 33% respondents possess divergent conceptualizations of neurological assessment, and only 37% nurses were able to conduct neurological examination.<sup>2</sup>

En chiu, Kuei-Yueh Cheng Tzu-Kuan Sun Ku-Chou Chang, in 2006 conducted a study in Taiwan, selected 100 nurses and were stratified based on their clinical level of experience and prior training on the National Institute of Health Stroke Scale. The results showed that in the second post-test, that 73 out of 100 nurses after formal training on neurological assessment demonstrated very good knowledge and skills in neurological assessment of stroke patients.<sup>3</sup>

Christa Them, Eva Schulc, Annette Roner, Johann Behrens conducted a pilot study, they selected 200 nurses by random sampling technique and administered questionnaire to elicit responses. Study revealed that 78% nurses believe neurological assessment is a medical function and nurses are not supposed to perform neurological assessment. So there is a need to change the attitude and knowledge of nurses regarding neurological assessment.<sup>4</sup>

**Harden 1988**, has defined OSCE as "an approach to the assessment of clinical competence in which the components of competence are assessed in a well planned or structured way with attention being paid to objectivity" or as an assessment of well-defined clinical skills. An OSCE requires each student to demonstrate specific skills and behaviors in a simulated work environment with standardized patients. It typically consists of a circuit or series of short assessment tasks (stations), each of which is assessed by an examiner using a predetermined, objective marking scheme.<sup>5</sup>

One of the cross sectional study conducted amongst 2nd year undergraduate medical students attending community medicine subject classes. Out of total 150 students, 138 were participated in the study. A pre-designed self-reported questionnaire was used as a tool for data collection. In this study, mean age of the students was 19.38  $\pm$  SD 0.69 years. Out of 138 students, 81(58.7%) were females and 57(48.3%) were males. Ninety nine (71.74%) students agreed that the length of MBBS curriculum should be 4.5 years. The most preferred mode for theory and practical teaching by students was focused group discussion and bedside clinic respectively. The most common obstacle faced by students during theory and practical learning was one way, non-interactive teaching. The students were interested in more interactive learning sessions and they felt that the understanding is better with focused group discussion and bedside clinics.<sup>6</sup>

One of the comparative study was conducted; randomized trials for two groups of 16 dental auxiliaries were included in London. The study reveals that there was no significant difference between the teaching methods except for bracket positioning where video was slightly better ( $P < 0.05$ ). The study concluded that, video teaching and lecturing were equally effective, with video achieving slightly better results.<sup>7</sup>

Another study was conducted on effectiveness of Video-Assisted Teaching on cardiopulmonary resuscitation to CEGEP students in Quebec. It was conducted by four different methods of teaching CPR on students, Group A 'control'; 4 h course, manikin to student ratio 1:4; Group B, 4 h course, manikin to student ratio 1:1; Group C, 2 h course, manikin to student ratio 1:1; Group D, video-assisted CPR instruction, manikin to student ratio 1:1 observation. The study concluded that the video-assisted CPR training appears to be feasible, enjoyable and effective than traditional CPR courses.<sup>8</sup>

**Materials and Methods:** The research approach was Evaluative comparative approach, research design used for the study was Comparative, interventional, Cross over design and Subjects were recruited by simple random sampling technique. The study has been conducted in Srimathi Radhikabai Meghe Memorial College of Nursing, Datta Meghe Institute of Medical Sciences (DU), Sawangi (Meghe), Wardha. The subjects were selected from third year Basic B.Sc nursing students. The study was conducted after obtaining the prior approval from the Institutional ethical committee. The subjects were explained about the nature and purpose of study. A written consent was obtained from the participants prior to their recruitment in the study. They were assured about the confidentiality of the data.

**Method of Data Collection:**

The subjects were divided into two groups (group A and group B), exposed to the pretest that are multiple stations OSCE to assess the competency level of the students in performing cranial nerve assessment at the bed side and then clinical teaching conducted on the real situation at the bed side for one group and the other group was exposed to video assisted teaching. After 5 days, participants identified standardized patient at the bed side, performed the procedure of cranial nerve assessment and the investigator assessed the level of competency by multiple stations OSCE. The groups were crossed over and then carried out the same.

**Results:**

**Table: 1**Comparison of competency score before and after clinical teaching (Student's paired t test) n=25

		Mean	N	Std. Deviation	Std. Error Mean	t-value	p-value
Group A	Pre Test	2.64	25	2.01	0.40	42.92	0.0001,S
	Post Test	34.00	25	2.68	0.53		

S-Significant

Mean competency score of the students before clinical teaching was 2.64and the standard deviation was 2.01 and after clinical teaching was mean score was 34and the standard deviation was 2.68. The tabulated 't' value was 2.06(df=24) which is less than the calculated 't' value i.e. 42.92 in Clinical Teaching at 5% level of significance. Also the calculated 'p'=0.0001 in clinical teaching which was much less than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that statistically significant difference was found between pre and post test competency score of students after Clinical Teaching therefore clinical teaching was effective to improve the skill of the nursing students.

**Table: 2** Comparison of competency score before and after video assisted teaching (Student's paired t test) n=25

		Mean	N	Std. Deviation	Std. Error Mean	t-value	p-value
Group B	Pre Test	2.60	25	1.80	0.36	48.73	0.0001,S
	Post Test	29.46	25	1.96	0.39		

S-Significant

Mean competency score and the standard deviation of the students before video assisted teaching was 2.60±1.80 and at post test it was 29.46±1.96. The tabulated 't' value was 2.06(df=24) which is less than

the calculated 't' value i.e. 48.73 Video Assisted Teaching after at 5% level of significance. Also the calculated 'p'=0.0001 in group B which was much less than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that statistically significant difference was found between pre and post test competency score of nursing students after Video Assisted Teaching. Hence the video assisted teaching also is one of the new technology has been introduced in the teaching learning process to improve the skill of the nursing students.

**Table: 3** Efficacy of competency score between Clinical Teaching and Video Assisted teaching at post test (Student's unpaired t test)

Group	N	Mean	Std. Deviation	Std. Error Mean	t-value	p-value
Group A	25	34.00	2.68	0.53	6.81	0.0001,S
Group B	25	29.46	1.96	0.39		

S-Significant

Mean competency score for group A (Clinical Teaching) was 34.00±2.68 and in group B (video assisted teaching) it was 29.46±1.96. By using student's unpaired t test statistically significant difference was found in mean score of group A and group B (t=6.81, p-value=0.0001).Therefore clinical teaching is more effective than the video assisted teaching in first cross over. In order to develop a competency, the student needs to acquire knowledge, of course, but the learner also needs to acquire psychomotor, interpersonal, organizational and technical skills; values; a decision making capacity; and the ability to manage her/his emotions: in short, she/he needs to complete a process of personal development that is only enriched through experience, and only contact with the reality of practice can enhance their experience.

**Discussion:**

The objectives of this study was to investigate the effectiveness of two teaching methods that is clinical teaching verses video assisted teaching by analyzing competency by multiple stations OSCE. The present study revealed that competency score of the nursing students shows, clinical teaching is more effective than the video assisted teaching. The present study was supported by following studies: A descriptive cross-over study was conducted, in which the students served as their own controls, as they were examined after each of two sessions. In the first session, the students were taught digestive physiology by traditional lectures. In the second session, the same students were taught renal physiology by the same instructor using a case-based technique. Multiple-choice questions were used to assess each student's comprehension after each session and compared. At the end of the two sessions, students evaluated the teaching method on a questionnaire. Paired t tests were used to analyze differences. The performance in tests was statistically significantly better after didactic lectures (mean, 17.53) than after case-based teaching (mean, 16.47) (two-tailed p = 0.003). However, 65–72% of students found that case-based teaching improved their knowledge about the topic better than lectures.<sup>9</sup>

**Connie Chronister, Diane brown** conducted a study, in his study used comparative, crossover design. Students in an undergraduate critical care course were randomly divided into two groups. Both groups participated in a standardized simulation, and then one group received only verbal debriefing (V) and the other received video-assisted verbal debriefing (VA+V). Outcomes measured included quality of student skills (assessment and psychomotor), skills response time, and knowledge retention. Quality of skill improvement was higher and response times were faster for students in the VA+V group (time to initiate cardiopulmonary resuscitation, time to shock, and time to resuscitation. Higher knowledge retention was seen in the V group. VA+V positively affect nursing skills and response times. Knowledge retention was more positively affected by V.<sup>10</sup>

Geeta Parwanda et.al. 2014 , reported that video assisted teaching, increases knowledge score than demonstration method but demonstration method increases the practice than video assisted teaching. For improving the clinical competencies of the students, demonstration method is more effective than video assisted teaching.<sup>11</sup>

### Conclusion:

Learning by doing is the most effective method of teaching. The laboratory of the nursing students is the clinical field but the nursing students acquire the practical experience and skill only by doing procedures and taking care of the patients at the bed side. The clinical teaching should be well organized and to provide the desirable experience to the students. High tech high touch approach can enhance the skill of the nursing students and the nurse educators would be more judgmental to choose the instructional methods depend upon which procedure he / she is going to teach.

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