

## EFFECTIVENESS OF VIDEO-ASSISTED TEACHING PROGRAM AND TRADITIONAL DEMONSTRATION OF MECHANISM OF LABOR ON UNDERGRADUATE MEDICAL STUDENTS

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Received:16/12/2019

Revised:20/12/2019

Accepted:28/12/2019

### ABSTRACT

**Background:** In the obstetric curriculum of undergraduate medical students teaching and learning of normal mechanism of labor is very important. We planned to study the effectiveness of video-assisted teaching combined with traditional method on improving the competence of undergraduate medical students regarding mechanism of normal labor **Materials and Methods:** A total of 120 students attending labor room posting in Medical College, Thrissur Obstetrics department were selected and divided in to two groups of 60 each by lottery method. Pre-test was conducted using a self-administered questionnaire for both groups. Subsequent video assisted teaching and traditional teaching was conducted by the investigator after which post test was conducted. Clinical skills were tested by Objective Structured Clinical Examination (OSCE). **Results and Conclusion:** The knowledge, attitude and practice are improved by video-assisted teaching program. The post-test intervention scores were not improved by the video assisted teaching as compared with the traditional group indicating that traditional demonstration has impact which is non-inferior to video assisted teaching in improving the skill. (p-0.35028). For practical skill learning sense of touch is essential and this cannot be imparted by videos alone though the classes may be made interesting. Females scored more compared with males in video assisted learning (p-value 0.017488.)

**Keywords:** Effectiveness of video-assisted teaching, Traditional Teaching, OSCE, Mechanism of Labor

### INTRODUCTION

In the obstetric curriculum of undergraduate medical students teaching learning of normal mechanism of labor is very important. Students have to acquire knowledge and master the skill of demonstrating the normal mechanism of labor. For conducting normal vaginal delivery basic understanding of normal mechanism of labor is needed. India produce the largest number of doctors than anywhere else in the world (30,408 from 271 medical schools). Medical colleges that proliferated in the private sector contributed to this largely. (1) The picture of medical education India is gloomy following the proliferation of medical colleges due to admission of suboptimal quality of students with poor motivation; shortage of teachers, teachers untrained in modern teaching-

learning technology; gross shortage of patients in many institutions; a less than desirable evaluation system; and poor internship supervision (2) Teaching different subjects and skills needs using various methods and techniques. The instructor's way of teaching is a major factor that affects the learning process of the student. (3) Now a day's newer method of learning like video assisted teaching has been introduced to compensate for the lack of faculties and lack of time. We want to compare the effectiveness of traditional with video-assisted teaching cum traditional method on improving the competence of undergraduate medical students regarding mechanism of normal labor.

The objectives of the study was to assess the effectiveness of video combining with the dummy pelvis and skull demonstration of normal mechanism of labor among MBBS students compared with conventional small group teaching using dummy pelvis and skull alone.

**Research Question:**

Whether traditional demonstration of normal mechanism of labor using dummy pelvis combined with video assisted teaching is a better method than traditional demonstration alone on learning skills of medical students

**Hypothesis (Tested at 0.05 level of significance)**

H1: There will be significant difference between mean pre-test and post-test knowledge score and demonstration skill of normal mechanism of labor among MBBS students after video assisted traditional demonstration method.

**METHODS**

The study was approved by the Institutional Review Board of Govt. Medical College Thrissur. 120 sixth semester MBBS students coming for labor room posting to the Department of Obstetrics and Genecology was selected after getting informed consent. Students had lectures and discussions on the subject earlier but were not given demonstrations on normal mechanism of labour. All students were identified by a reference number throughout the study period. This study was carried out in four stages.

**Stage 1: Assessment Before Training**

To assess the knowledge acquired earlier on the mechanisms of normal labor a pre-test was given to all participants. Ten multiple-choice questions (MCQs) that tested the basic knowledge of the students on mechanism of normal labour were used. The questionnaire was developed by a panel of Gynaecologists and was pretested with 15 undergraduates.

**Stage 2: Teaching Sessions**

The students were divided in to two groups of 60 each by lottery method. Participants of each group were further subdivided into 6 groups of ten each. Group 1 students had traditional demonstrations on mechanism of normal labour using dummy and pelvis. Group 2 students had video-based demonstration of the mechanism of normal labour in addition to traditional demonstration using dummy and pelvis and they were the experimental group.

Teaching and practice sessions as well as the skill test for both groups were conducted in the setting of labor room of Govt.Medical College Thrissur.

**Stage 3: Knowledge Assessment**

After the teaching sessions on the same day, the students in both groups were given a post-test.This included ten MCQs for assessing their knowledge and necessary practical points acquired during the practical session.

**Stage 4: Skill Assessment**

The students in both groups were assessed by OSCE. Two examiners who were blinded, assessed both groups independently using a checklist, and an average score was given to each participant. The scores on this test were planned in such a way to assess the effectiveness of the two methods on the students’ skill development. The scores were used only for the purpose of this study and not for assessment in the course.

Once all the data were collected, the video was made available for the students in the traditional teaching group (control). A paired t-test was used to determine any significance difference between the pre- and post-test results of each group.

When the normality assumption of the data is not satisfied for a two-sample t-test, the Wilcoxon test (nonparametric test) was used. The hypothesis tests were evaluated at 0.05 significance.

**RESULTS**

There were 60 students each in the traditional group (control)and video assisted teaching group (experimental group).In the control group mean age was 21.8833 variance 2.7828 with SD 1.6682 and in the video assisted group mean agewas 21.6500,variance 0.9771with SD 0.9885.(Table 1)

**Table 1 Age and sex distribution of students in traditional and Video assisted Teaching**

	Traditional (control)		Video assisted	
<b>SEX</b>	F	M	F	M
<b>Number</b>	38	22	34	26
<b>Mean age</b>	21.60	22.36	21.47	21.96

There were 38 (63.33%) females and 22(36.67%) males in the traditional group and 34(%) females and 26 (%) males in Video assisted group.

The pre-test mean was 7.4833 and post-test mean 11.7833. The pre-test score for both sex are shown in (Table 2). T test for pre and post test scores of controls showed t-value -9.27321(p-value < .00001) (Table 3)

Mann-Whitney/Wilcoxon Two-Sample Test (Kruskal-Wallis test) for difference in the females and males showed H = 5.66, df1, (P 0.0173) is shown in Table 3.

**Table 2 Pre and post- test scores for traditional(control) and video assisted (experimental) Groups**

	Control-Pre test		Control -Post test		Experimental Pre-test		Experimental Post-test	
	F	M	F	M	F	M	F	M
<b>Number</b>	38	22	12.2368	11.0000	34	26		
<b>Mean</b>	8.2632	6.1364	2.1316	5.0476	8.7941	6.5385	12.9412	11.0769
<b>Variance</b>	7.7127	9.8377	2.1316	11.0000	12.2897	10.3385	1.6934	7.1938
<b>Std Dev.</b>	2.7772	3.1365	1.4600	2.2467	3.5057	3.2153	1.3013	2.6821
<b>Minimum score</b>	2	1	9	5	1	1	10	6
<b>Median</b>	9	8	12	11	9	6	13	11
<b>Maximum</b>	14	11	14	14	14	12	14	14

**Table 3 Skill scores of Traditional and video assisted group(Independent t-test/ Kruskal-Wallis test)**

Skill scores	Mean		Independent t-test/ Kruskal-Wallis test H “t”/H	p
	Control group	Experimental group		
Pre-test skill	7.48	7.81	0.55134.	0.291222
Females	8.2632	8.7941	Kruskal-Wallis test H = 5.66	0.0173
Males	6.1364	6.5385		
*OSCE	2.68	2.61	0.20175	0.840458
Post –test	11.78	12.13	0.93777	0.35028
Females	12.2368	12.2897	Kruskal-Wallis H = 7.6481	0.0057
Males	11.0000	10.3385		

\*OSCE-objective structured clinical examination

The pre-test scores in the traditional and video assisted groups were analyzed by T test and the t-value was -0.55134. (p-0.291222.)

Traditional vs video assisted post test scores showed t-value -0.93777(p-0.35028). In females the t-value is -2.15044 and the p-value is .017488. In males the t-value is -0.10652 (p- 0.457815).

## DISCUSSION

New technology has broadened the available teaching tools for students. (4) Learning different practical skills is one of the problems and apprehensions in higher education especially in Medical education. In our study the post-test scores were not improved by the video assisted teaching as

compared with the traditional method indicating that traditional demonstration has impact which is noninferior to video assisted teaching in improving the skill. (p- 0.35028).

This is consistent with the finding of Karimi Mouneghi H in that the routine educational method, demonstration is more effective in practical learning skills in comparison with the video-based education method.(5)

T test for pre and post -tests of traditional teaching showed a statistically significant increase in post-test skill. (p-value < .00001).The pre and post -test t test for video assisted teaching also showed significant increase in skill (p- < .00001). Learners experience is made real in educational videos by combining

sight and sound together. Efficacy of video teaching over lecture cum demonstration in improving knowledge and skill, for antenatal examination of nursing students was done by Scaria, TM & Valsaraj. They found that video teaching is an effective method for teaching the students. (6)

Dr. Wilbur Schramm, did an analysis of 393 comparisons of video and conventional teaching methods in schools and colleges. He reported that 86% of them showed at least 'same amount of learning' by video and one fourth of these reported 'more learning'. (7) Devi B, Khandelwal B assigned randomly 60 third-year students of Bachelor of Science in Nursing in to experimental (video-assisted teaching program) and a control group (traditional demonstration) regarding obstetrical palpation. The pretest and posttest skill scores of students in the video-assisted teaching program scored significantly over traditional demonstration group ( $t = 18.35, p < 0.001$ ). (3)

In our study there was not much difference in the age of students (controls mean age was 21.8833 with SD 1.6682 and in the experimental group mean age was 21.6500 with SD 0.9885). The pre-test scores in the traditional and video assisted groups were analyzed by T test and found no significant difference between the groups ( $p$ -value 0.291222.)

Gender wise analysis was done in our study. There was statistically significant association of the post-test knowledge scores of subjects with gender. Females scored statistically significantly compared with males in video assisted learning ( $p$ -value 0.017488.) Females performed better post test scores in traditional and video assisted methods.

In a cross over study, Ramlogan S, Raman V, Sweet J et al compared the knowledge and skill attained by third-year dental students in three clinical exercises in periodontology through video and live lecture. (8) Students preferred video and liked it to be integrated in the lecture rather than as a substitute for the lecture. (8) A study conducted on 80 undergraduate nursing students using active lecture cum demonstration (ALCD) and active lecture cum video (ALCV) on learning drug administration, ALCV proved to be more effective than ALCD. (7)

Educators can use a variety of teaching-learning methods and styles in clinical settings to teach a procedure or technique. This should suit the nature of the students. The advancement in technology should be adapted to the tastes of the younger generation. The traditional teaching definitely has

stood the test of time and shouldn't be replaced completely by the newer technologies. We should focus on the mixing of traditional methods with the modern teaching methods especially in the competency based medical education so that the students will benefit from the blended teaching learning methods.

## CONCLUSION

For practical skill learning sense of touch is essential and this cannot be imparted by videos though the classes may be made interesting. In traditional demonstration, the teacher observes the students and corrective steps are taken then and there. The experience and personality of the faculty is also an important determinant. Traditional demonstration has the advantage that the procedure can be interrupted at any time and repeated any number of times under direct supervision till the student acquires the necessary skills. There is no substitute for clinical demonstration. Video-assisted teaching is only supplementary to the traditional demonstration. This is especially true in bed side clinics as in many places bed side clinics are being replaced by video demonstrations. Further research with multiple teaching methods can be conducted to validate this. Teacher should be aware of the gender difference in learning skills by students in various methods. A hybrid method as suggested may be suitable for all in future. Newer teaching methods and accessories may lead to getting rid of invaluable traditional methods. Senior Professors and many students are not convinced of the need for changes in education also. If we do not succeed in imparting clinical skills to students, the harmful consequences will hurt the whole society especially the patients. (5)

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**How to cite this article:** Roshini K.N., Andrews MA, Effectiveness of video-assisted teaching program and traditional demonstration of mechanism of labor on undergraduate medical students. *Int.J.Med.Sci.Educ* 2019;6(4):72-76