

## Effectiveness of Lecture with Video versus Lecture with Demonstration for Teaching Medical Ethics among the Undergraduate Medical Students

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### Abstract

**Background:** The medical students of today are the health care providers of tomorrow. Every doctor is expected to exercise a reasonable degree of care and skill or requires a particular level of learning to be a professional of that branch and this brings us to the importance of skills exercised with reasonable degree of care and caution failing which will contribute to medical negligence. The basics of medical ethics and negligence are being taught in Forensic medicine to 2nd year MBBS students where we use the traditional interactive lecture method but whether the budding doctors cultivate professionalism by just traditional lecture methods is doubtful.

**Methods:** This educational interventional study was conducted by the department of forensic medicine at Travancore medical college, Kollam from July 2019 to Dec 2019. A total of 120 students were included in the study. A questionnaire was also given to assess the student's perception based on a five point Likert scale at the end of intervention. A cross over between two groups was done after that to avoid ethical issues.

**Results:** The results were statistically significant for lecture with video group. Comparison of student's perception on Likert's scale about the teaching learning method yielded significant difference for lecture with video group over lecture with demonstration group with  $p < 0.001$ .

**Key Words:** Lecture with video group, Medical ethics, Likert's scale.

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### Introduction:

The medical students of today are the health care providers of tomorrow. Every doctor is expected to exercise a reasonable degree of care and skill or requires a particular level of learning to be a professional of that branch and this brings us to the importance of skills exercised with reasonable degree of care and caution failing which will contribute to medical negligence. The basics of medical ethics and negligence are being taught in Forensic medicine to 2nd year MBBS students where

we use the traditional interactive lecture method but whether the budding doctors cultivate professionalism by just traditional lecture methods is doubtful. There can be no single best way of learning with merits alone, so the effectiveness of any teaching tool can only be acquired by student's feedback. This can be filled by teaching the students by educational intervention by substituting the traditional didactic lecture can be combined with video or demonstration to make it more interesting and worth remembering. There is paucity of data on the comparison of the teaching- learning methods in teaching medical negligence among the medical students. Hence this study was undertaken to know the effectiveness of lecture with video and lecture with demonstration in teaching medical negligence.

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### Materials & Methods:

This educational interventional study was conducted by the department of forensic medicine at Travancore medical college, Kollam from July 2019 to Dec 2019. 120 students of II year M.B.B.S were enrolled into the study after obtaining Informed consent. Students were divided into 2 groups of 60 each by stratified randomized sampling. One group was considered as lecture with video and the other as lecture with demonstration.

The groups, lecture with video group and lecture with demonstration group received three sessions of teaching on three aspects of medical ethics namely Informed consent, medical negligence and euthanasia. OSPEs were conducted immediately after the respective session and one week later after the end of the intervention. A questionnaire was also given to assess the student's perception based on a five point Likert scale at the end of intervention. A cross over between two groups was done after that to avoid ethical issues.

**Statistical analysis:** Data were entered in excel sheet and analysed using SPSS version 16.0. Results were expressed as

proportions, mean  $\pm$  SD or medians. Comparison of MCQ scores and perception between two different teaching methods was done using Mann Whitney U test. To compare the pre and post-test difference in scores MCQs, Wilcoxon signed rank test was done. P value  $<0.05$  was considered statistically significant.

### Results and Observations:

The mean ranks of OSPE 1 and OSPE 2 scores were higher among lecture with video group compared to lecture with demo group i.e. 63.57 v/s 57.43 and 62.27 v/s 58.73 respectively whereas the mean ranks of OSPE 3 was higher among lecture with demo group compared to lecture with video group i.e 63.51 v/s 57.49. The difference in the mean ranks was not statistically significant between the two groups of teaching methods ( $P>0.05$ ). (Table 1)

On comparing pretest and post test scores between the two teaching methods, post-test OSPE scores increased for lecture with video method whereas decreased for lecture with demo method which was not statistically significant ( $P> 0.05$ ) as shown in Table 2.

**Table 1: Comparison of OSPE Scores with Different Teaching Methods (Lecture with Video V/S Lecture with Demonstration)**

Assessment methods	Groups	N	Mean Rank	Mann-Whitney U	Z	P-Value
OSPE 1	Lecture with video	60	63.57	1616.0	-0.972	0.331
	Lecture with demo	60	57.43			
OSPE 2	Lecture with video	60	62.27	1694.0	-0.559	0.576
	Lecture with demo	60	58.73			
OSPE 3	Lecture with video	60	57.49	1619.5	-0.952	0.341
	Lecture with demo	60	63.51			

**Table 2: Comparison of OSPE scores before & after 1 week of intervention**

Assessment methods	Groups	Pretest average score	Post-test score	Wilcoxon signed rank test (two - tailed)	
		Mean $\pm$ SD	Mean $\pm$ SD	Z value	P value
OSPE	Lecture with video	13.47 $\pm$ 3.09	14.25 $\pm$ 3.74	- 1.17	0.242
	Lecture with demo	13.20 $\pm$ 2.70	12.15 $\pm$ 4.25	- 1.44	0.150

\*  $P< 0.05$  considered statistically significant

**Table 3: Comparison of Teaching Methods Based on Median Scores of Perception**

Questions on Perception	Mean ranks L+V	Mean ranks L+D	U	P value
The session was interesting	44.32	76.68	829.5	<0.001*
This method made you understand concepts involved in medical ethics	81.40	39.60	546.0	<0.001*
This method helped in understanding the skills needed in medical ethics	84.92	36.08	334.5	<0.001*
Continuity in the learning was maintained	79.75	41.25	645.0	<0.001*
This method can generate interactive discussion	66.19	54.81	1458.5	0.02
There was scope of learning in small groups	63.22	57.78	1636.5	0.36
This method helps reproducibility of the gained knowledge	84.13	36.87	382.0	<0.001*
This method can be adapted for teaching other topics in forensic medicine	76.82	44.18	820.5	<0.001*
This exercise boosts your confidence to perform better	83.78	37.22	403.0	<0.001*
This method helps in retaining the knowledge for a long time	86.90	34.10	216.0	<0.001*

\*  $P < 0.05$  considered statistically significant

The mean ranks were significantly higher for lecture with video method compared to the other in understanding concepts (81.4 v/s 39.6) and skills (84.9 v/s 36.1), maintaining continuity (79.8 v/s 41.3), generating interactive discussions (66.2 v/s 54.8), reproducibility (84.1 v/s 36.9), generalizability for other topics in forensic medicine (76.8 v/s 44.2), confidence boosting (83.8 v/s 37.2) and retaining capacities (86.9 v/s 34.1) ( $P < 0.05$ ). However, it was vice-versa when elicited for session conducted by lecture with demonstration being an interesting one (44.3 v/s 76.7) ( $P < 0.05$ ). The difference in the mean ranks were not statistically significant between the two groups of teaching methods when perception was compared for scope of learning in small groups ( $P > 0.05$ ).

### Discussion:

This study compared lecture with video versus lecture with demonstration in teaching in teaching medical ethics and also

the student's perception about these two teaching learning methods. The mean score of OSPE scores of teaching sessions on two topics (informed consent and medical negligence) were significantly higher among the lecture with video group as compared to the lecture with demonstration. But the mean rank of OSPE scores of the topic(euthanasia) was better with lecture with demonstration group compared to lecture with demonstration. The difference between the mean ranks of OSPE scores between the two teaching learning methods was not statistically significant ( $P > 0.05$ ).

When the students were re-assessed after 1 week of the teaching learning intervention it was found that the OSPE scores increased with lecture with video and the scores decreased with lecture with demonstration. This was not statistically significant ( $P > 0.05$ ). With regards to the effect of lecture with video versus lecture with demonstration, there was statistically significant improvement in the students

learned by lecture with video. The students perceived that the lecture with video was the best method in understanding medical ethics. The findings concluded that lecture sessions incorporated with video presentation helped them in understanding the concepts of medical ethics, maintained continuity in the topic, generated interest and interactive discussions, boosts the confidence level, helped in reproducing the skill, and also helped in retaining the knowledge earned from the teaching session.

The improvement in scores with regards to knowledge and skill among the lecture with video group can be attributed to the fact that lecture with video can demonstrate stimulus and response variations. Devi B et al<sup>1</sup> in their study on students of nursing regarding obstetrical palpation concluded that the pretest and posttest skill scores of students in the video-assisted teaching program scored significantly over traditional demonstration group ( $t = 18.35$ ,  $p < 0.001$ ) which was consistent with our study. Nwozichi CU et al<sup>2</sup> in their video based teaching module to assess knowledge about testicular cancer and testicular self-examination among male undergraduate students revealed that video based teaching module was found to be very effective in delivering the knowledge which were consistent with our study. Kalwitzki M et al<sup>3</sup> in their study among the undergraduate dental students concluded that lecture cum video is a valuable tool in teaching the undergraduate medical students. Alqahtani et al<sup>4</sup> in their study of procedural video versus live demonstration done on 49 dental undergraduate students in teaching the procedures in orthodontics concluded that the group who had procedural video shown had significant improvement in the response to the evaluation conducted. Srivastava G et al<sup>5</sup> in their study on students to assess the technique of paediatric lumbar puncture revealed that students performed lumbar puncture with great confidence after the video teaching

and also followed the necessary practices.

### **Conclusion:**

From this study, we can conclude that the students perceived that lecture with video were the best method in understanding the medical ethics than the lecture with demonstration. With respect to medical ethics, lecture with video proved to be significantly better for retaining knowledge and reproducibility of skills which was seen in the MCQ scores. Student's perception regarding skills, scope for interactive discussion, confidence boosting and retaining capacity was significantly better perceived in lecture with video presentation

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