



International Journal of Medical Research & Health Sciences

www.ijmrhs.com Volume 2 Issue 4 Oct-Dec Coden: IJMRHS Copyright ©2013 ISSN: 2319-5886

Received: 25th Aug 2013 Revised: 17th Sep 2013 Accepted: 29th Sep 2013

Research article

COMPARATIVE STUDY ON TEACHING OF BIOETHICS TO HEALTH CARE PERSONS USING DIFFERENT METHODOLOGIES

Vedavathi H¹, Tejasvi TS², * Shreenivas P Revankar³

¹Associate Professor, ³Assistant Professor, Department of Pharmacology, Shimoga Institute of Medical Sciences, Shimoga, Karnataka, India

²Assistant Professor, Department of General Medicine, Shimoga Institute of Medical Sciences, Shimoga, Karnataka, India

* Corresponding author email: sprevankar@yahoo.com

ABSTRACT

Introduction: Bioethics has gained lots of importance in the present days and especially very important in the field of medical research. Doctors, medical students, nursing staff and other paramedical staff are directly or indirectly involved in the clinical and research activities. A proper training in bioethics is very essential especially for medical students nursing and other paramedical staff. There are various teaching methodologies like a black board (lecturing), power point presentations, case discussions, group discussions and film/movie clipping related to bioethics. Each of the teaching methodology is effective in a particular group. **Materials and methods:** Four different teaching methodologies were used to teach bioethics in four different categories namely MBBS students, doctors/interns, nurses and lab technicians. All were exposed to all types of teaching methodology. An evaluation was done by performance based and choice based evaluation system. **Results:** Case discussion was most popular choice of MBBS students and Doctors/Interns. Among nurses and lab technician's film discussion was best in terms of performance and choice. **Conclusion:** Bioethics covers more about abstract issues related to the health discussion on this topic help in better understanding and clarification.

Keywords: Bioethics, Teaching Methods, Evaluation

INTRODUCTION

Bioethics is a study of typical controversial issues brought about by advances in biology and medicine, it relates to medical policy, practice and research. In general context ethics is about giving priority to individual needs and moral values in an attempt to curb and control potential societal abuses.¹ The term bioethics was coined in 1927 by Fritz Jahr.² Van Ransseler Potter gave it a broader meaning and coined the word global ethics. It is a link between biology, ecology medicine and human values in order to

attain the survival of human beings and other animal species.^{2,3} The scope of bioethics can expand with biotechnology including cloning, gene therapy, life extension, human genetic engineering and manipulation of basic biology through altered DNA, RNA and proteins.⁴

The fundamental principles of bioethics included in Belmont report are autonomy, beneficence and justice the others which were added later on are non malfeasance and sanction of life.⁵ Medical ethics is study of moral values and judgements. It

encompasses its practical applications in clinical settings as well as work on its history, philosophy, theology and sociology.⁶ Bioethics has addressed a broad swath of human enquiry ranging from debates over the boundaries of life care (eg.abortion, euthanasia, surrogacy, allocation of scarce health care resources) to the right to refuse medical care.⁷

Teaching and learning are the two sides of the same coin. There are various teaching methods like lectures, power-point presentations, group discussion, seminars, role play, film or documentary presentations, case discussions etc.⁸ Each of them has their own advantages and disadvantages.⁹ The teaching methodology to be used also depends on the topic to be covered; i.e. for a particular topic a particular methodology may be effective. The effectiveness of teaching is dependent on individual interest, but more over the methodology used is also important.¹⁰

The most accepted criterion for measuring good teaching is the amount of student learning that occurs. Teaching in the absence of learning is talking; effective teaching is that which produces beneficial and purposeful student learning through the use of appropriate procedures.¹¹ Students are most qualified sources to report on the extent to which the learning experience was productive, informative, satisfying and worthwhile. A meta-analysis of 41 researches provides validity that, student ratings tend to be reliable, valid, unbiased and useful.¹² Health care professionals are the ones who are constantly exposed to various issues related with bioethics. This group includes the doctors, nurses, and laboratory technicians, medical and nursing students. The ability to understand the concepts of bioethics varies in each of these health care personals. There is a need for identifying the proper teaching methodology for each of this group; hence the present study was undertaken.

MATERIALS AND METHODS

The study population was divided into four groups which included participants from different categories like medical students,

intern/junior doctors, nursing staff and lab technicians from the medical college and hospital. A group consisted of ten candidates each from each category, It included ten MBBS students, ten interns/junior doctors, ten nurses and ten lab technicians (N=40). Boys and girls were equally distributed in each group. A total of 160 participants were included in the study.

Inclusion criteria: Students from second year MBBS were chosen, taking into consideration that they sufficient knowledge of basic medical science. Random selection of forty students was done; majority of the students had secured first class in first year examinations. Hence the bias in selection of the participants was ruled out. Junior residents/internees, forty in number were randomly distributed in four groups with ten members in each group. They had better knowledge on ethical issues.

The nurses included in the study were from diploma (General nursing and midwifery) background, had fair knowledge and good communication skills in English.

Laboratory technicians, who had completed DMLTC (diploma in lab techniques course) were included in the in the study. They had sufficient knowledge of understanding and communicating in English but knew very little about ethics. A total of forty members working in the various depts. were included in the study.

Exclusion criteria: Those who lacked the above criteria's were excluded from the study. Nursing staff had no theoretical knowledge of bioethics. Topics chosen were easy to understand and formed the core of bioethics. The four topics chosen were Informed consent, Medical negligence, and ethical issues of HIV/AIDS and Clinical trials.¹³ Four different teaching methodologies used in the study were Black board /lecturing, Power-Point presentations, Case discussions and film clippings followed by discussions. Lecture is a talk or a verbal presentation given by a lecturer, trainer or a speaker to an audience. This method is economical, can be used for a large number of

students, material can be covered in a structured manner and the teacher has a great control of time and material. Power-point presentations make use of computer and LCD-projector, material to be covered is restricted. Discussion is a free verbal exchange of ideas between group members or teacher and students. In case-discussion a case related to the topic is explained followed by discussion. In film discussion a film or documentary related to the topic is screened for 25 minutes, followed by discussion on the ethical issues related

An evaluation was done by two types of analyses i.e. performance based and choice based. Performance based evaluation, scores of pre and post evaluation test were taken into consideration to assess the performance.^{14,15} Pre and post evaluation tests were done with the help of questionnaires designed in each of the topics. The topic to be taught was not informed to the participants. Pre-evaluation test was given simultaneously to all the groups i.e. all the 160

members had to take the pre-evaluation test at the beginning of the day. Post evaluation was done immediately at the end of their respective classes. The type and number of questions asked in the pre and post evaluation test were same, the time duration of the class was restricted to forty five minutes only which was followed by post evaluation test for fifteen minutes. The questions asked were of multiple choice and of yes/no type. The questions were displayed on the screen using LCD projector. Improvement was calculated based on difference in pre and post evaluation scores.¹⁵

A choice based evaluation was done on the last day, after exposing all the candidates to different teaching methodologies. In this system the candidates were asked to rate different methods of teaching used by their teachers on a scale of 1-4, one being the least important and 4 being the most important teaching method. The results of the study were compiled and analyzed by percentage method.^{16, 17}

Table 1: Schedule of the study

		Teaching methodology			
	Topic	Lecture class	Power point presentation	Case discussion	Film clip followed by discussion
Day1	Informed consent	Group 1	Group2	Group 3	Group 4
Day2	Medical negligence	Group 2	Group 3	Group 4	Group 1
Day3	Ethical issues of HIV/ AIDS	Group 3	Group 4	Group 1	Group 2
Day4	Clinical trials	Group 4	Group 1	Group 2	Group 3

RESULTS

Table 2: Results of performance based evaluation

Teaching Method	MBBS students				Junior residents/interns			
	Post#	Pre*	Diff*	% imp ^s	Post*	Pre*	Diff *	% imp*
Lecture	14.025	9.65	4.375	21.87	15.7	12.45	3.25	16.25
Power point	14.050	9.55	4.5	22.50	15.85	12.40	3.45	17.25
Case disc#	14.55	10.10	4.45	22.25	15.55	12.55	3.00	15.00
Film/disc#	14.15	9.20	4.95	24.75	14.85	11.85	3.00	15.00
	Nurses				Lab technicians			
Lecture	9.00	6.00	3.00	15.00	5.62	3.37	2.25	11.25
Power point	8.75	5.50	3.25	16.25	6.00	3.25	2.75	13.75
Case disc#	9.75	6.00	3.75	18.75	4.87	3.12	1.75	8.75
Film/disc#	10.25	6.25	4.00	20.00	7.75	3.25	4.50	22.50

Pre*-average pre evaluation score; Post*-average post evaluation score, Diff*-difference between average pre and post evaluation scores, %imp^s-percentage of improvement ; disc#-discussion

Results of the performance based evaluation:

The major improvement in performance was seen by medical students. It was above 20% with all teaching methodology used, Maximum with film discussion (24.75) and minimum with lecture class (21.87). The other two teaching methods showed almost same improvement (22.5). The improvement percentage in junior doctors/interns was less but almost in the same range with different methods. It was highest with power-point (17.25), followed by a lecture (16.25), while it was 15% with case discussion and film-discussion. In this category it was noted that the pre-evaluation scores were in higher range compared to other categories. So the relative improvement was less.

Among the nurses highest improvement (20%) was seen with film-discussion followed with case

discussion (18.75) and power-point (16.25). They showed less improvement with lecture classes (15%). As nurses had limited knowledge on bioethics their pre-evaluation scores were less compared to doctors and medical students. Lab technicians had very low improvement compared to other categories. The pre-evaluation scores were least as they had no knowledge about bioethics. The improvement percentage were 8.75 with case discussion, 11.25 with lectures and 13.75 with power-point presentations but film-discussion brought about marginal improvement of 22.5%

Results of choice based evaluation: Table showing the preferences given by different categories (MBBS, junior doctors/interns, nurses and lab technicians) for different teaching methods.

Table 3: Results of choice based evaluation

Teaching method	Lecture				Power point				Case discussion				Film-discussion			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Preferences																
MBBS	13	12	8	7	8	11	16	5	16	15	5	4	3	2	11	24
Junior dr /internes	8	8	13	11	8	14	15	3	18	09	7	6	6	9	5	20
Nurses	9	13	8	10	9	8	14	8	8	5	13	14	14	13	5	8
Lab technicians	4	8	8	20	6	8	16	10	12	14	10	4	18	10	6	6

Table 4: Scores and percentage share of different teaching methods

	Lecture		Power point		Case discussion		Film/discussion	
	Score	% share	Score	% share	Score	% share	Score	% share
MBBS	111	27.75	102	25.5	123	30.75	64	16.00
Junior.doctors/interns	93	23.25	107	26.75	119	29.75	81	20.25
Nurses	101	25.25	99	24.75	87	21.75	113	28.25
Lab technicians	76	19.00	90	22.50	114	28.50	120	30.00
All candidates	381	23.81	398	24.87	443	27.69	378	23.63

Table 5: Concluding results of the study

Sl no	Category	Best teaching methodology based on	
		Performance -evaluation	Choice-evaluation
1	MBBS	Film followed by discussion	Case discussion
2	Junior.doctors/internes	Power point	Case discussion
3	Nurses	Film followed by discussion	Film followed by discussion
4	Lab technicians	Film followed by discussion	Film followed by discussion

Scoring was calculated based on the preferences given by the candidates. It was calculated on allocation of points i.e. the 1st preference was allotted four points, three points for 2nd preference, two points for 3rd preference and one point for 4th preference. The sum obtained was the overall score for each methodology under each category

The majority of the medical student's preferred case discussions which accounted for highest score of 123, lectures were their second choice to score 111 followed by PowerPoint in 102. Film discussion was their last choice. Doctors/interns also liked case discussions very much, power-point and lectures were subsequent choice and film-discussion was the last choice. Film discussion was a popular choice among the nurses and lab technicians. Nurses hated the case discussions while lab technicians did not like lectures the most.

DISCUSSION

In our study the participants were exposed to all the four different types of teaching methodology. The topics chosen were also of similar category there is every possibility of bias as a particular topic is taught effectively by a particular method. To overcome this we had opted for a two way evaluation system i.e. performance based and choice based evaluation system as compared to some of the studies. The performance based evaluation took into consideration the performance of candidate in pre and post evaluation. In choice based evaluation system we gave freedom to the candidates to grade the teaching methodology.

When overall results were taken into consideration it was found that film discussion and case discussion as teaching methodology is a most effective means of learning compared to the lectures and power point presentations. Discussion involves more participation; learning is more effective and develops creativity among participants. This may be contradictory to some of the studies conducted on teaching

methodologies.⁹ Lecture as a teaching method creates new ideas, are good for large class but useful only when the concept and views of the topic are clear. Bioethics has more of abstract concepts.^{1, 3} In this study, case discussions and film presentations followed by discussion fared well mainly because they provide a platform for better understanding of abstract concepts in a simplified way.⁸ Bioethics as such need not be restricted to health care; it involves various fields so there is need to evaluate similar studies in other areas. In our study only four teaching methods were tried, this study can be improved upon by experimenting with other methods of teaching.

CONCLUSION

In our study we found that lectures and power point presentations are not much importance in imparting the knowledge of bioethics. The concepts involved in bioethics are abstract and it requires more of discussion for better understanding and clarifications. The topics of bioethics must be reserved for panel discussions in the CME and workshops, so as to improve the knowledge of bioethics among medical and paramedical personnel.

ACKNOWLEDGEMENTS

We thank ICMR (Indian council of medical research) for giving me an opportunity to participate in a one month long training programme and taking up the above study as a part of project. My special thanks to Dr Nandini kumar and Dr Vasanta Muthuswamy of ICMR.

REFERENCES

1. Andre, Judith Bioethics as Practice, Chapel Hill and London: University of North Carolina Press. 2002; Pg no35-37
2. Appel, Jacob, A Supreme Court for Bioethics. Huffington Post. August 9, 2009; http://huffingtonpost.com/jacob-m-appel/a-supreme-court-for-bioet_b_228967.html

3. Aulisio, Mark; Arnold, Robert; Younger, Stuart. *Ethics Consultation; from theory to practice*, Baltimore, London: Johns Hopkins University Press, 2003; pg 54
4. Glad Joh. *Future Human Evolution: Eugenics in the Twenty-First Century*, Hermitage Press, 2008; pg 41-44.
5. Crowley, Mary. *From Birth to Death and Bench to Clinic: The Hastings Center Bioethics Briefing Book*, Garrison, New York: The Hastings Center. 2008 Ed; 71-75.
6. Beauchamp Tom, Childress James. *Principles of Biomedical Ethics*, Oxford, New York: Oxford University Press, 2001; pg 152-54.
7. Häyry Matti, Tuija Takala, Peter Herissone-Kelly, Gardar Árnason. *Arguments and Analysis in Bioethics*. Amsterdam/New York: Rodopi; 2010
8. Kochkar, S.K. *Methods and Techniques of Teaching*. Sterling press New Delhi:2000; 13.
9. McCarthy P. *Common Teaching Methods*. 1992; Retrieved July 24, 2008, from. <http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/comteach.htm>
10. Hoyt MP, Pallett WH. *Appraising teaching effectiveness: Beyond student ratings*; Kansas State University, Center for Faculty Evaluation and Development; 1999 Pg No. 36.. Retrieved June 1, 2002, from <http://www.idea.ksu.edu/products/Papers.html>
11. Centra JA. *Reflective faculty evaluation*. San Francisco, CA: Jossey-Bas; 1993
12. Cohen PA. *Student Ratings of Instruction and Student Achievement: A Meta-Analysis of Multisection Validity Studies*. *Review of Educational Research*. yr 1981; 51, 281-309.
13. Singer PA, Viens AM. *Cambridge Textbook of Bioethics*, Cambridge: Cambridge University Press, 2008; pg 276-78
14. Arreola RA. *Developing a comprehensive faculty evaluation system*. Bolton, MA: Anker Publishing;1995; 37-40.
15. Ory JC. *Faculty thoughts and concerns about student ratings; Techniques and strategies for interpreting student evaluations*. *New Directions for Teaching and Learning*, 2001; no. 87. Pg 3-15.
16. Doyle T. *Evaluating Teachers Effectiveness*. Retrieved July 24, 2008, from ferris.edu/fctl/Teaching_and_Learning_Tips/EvalTeachEffec.htm.
17. Theall M, Franklin J. *Student Ratings of Instruction: Issues for Improving Practice*. *New Directions for Teaching and Learning*, 1990; 43.
18. Hamm PH. *Teaching and Persuasive Communication: Class Presentation Skills*. The Harriet W. Sheridan Center for Teaching and Learning; Retrieved July 24, 2009, from http://www.brown.edu/Administration/Sheridan_Center/publications/preskills.