

Original Research Article

## Evaluation of Bioethics Workshop Using Pre- and Post-Test Questionnaire

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### ABSTRACT

**Background:** The previous studies reported a lack of awareness about bioethics among the medical undergraduate students and teaching staff. Hence, this study was planned to promote Bioethics through a workshop and aimed to evaluate the impact of this workshop.

**Methodology:** The study population was medical students and teaching staff who participated in the Bioethics workshop. Pre-and post-test quasi- experimental model was used to assess the impact of workshop. Pretested and validated self-administered structured questionnaire was employed in pre- and post-test. The data was statistically analysed using paired t - test with significance level set at 5%.

**Result:** Total 213 participants completed the study, of which 77% were medical students and 23% were the teaching staff. There was statistically significant improvement (5.29 vs 7.43) noted in the mean post-test score of the participants. Item-wise analysis also found significant improvement in the correct response.

**Conclusion:** A well-organized workshop can improve the knowledge and attitude towards bioethics among the participants. Similar types of studies are recommended in other medical institutions.

**Key- Words:** Item analysis, Medical ethics, Medical students, Paired t test

### INTRODUCTION

Bioethics is a relatively new word coined by a biochemist, Van Rensselaer Potter, in 1970 in an endeavor to draw attention to the fact that the rapid advances in science had proceeded without due attention being paid to the values. [1] In today's world it has a more general meaning, which includes medical and healthcare ethics. Potter said that he coined the word bioethics using two Greek words, *bíos*, life, representing the facts of life and life sciences, and *éthos*, morals, referring to values and duties. [2,3] Physicians and other health care professionals have to make health care decisions. Many of the facts they consider have values built into them.

The doctor patient relationship has been described as the corner stone of

medical practice. Most effective and productive relationship involves the doctor being in tune with the patient's actual concerns as well as an accurate diagnosis. In health care patient satisfaction is a combination of experiences, expectations and needs perceived. [4] But of late in the Indian scenario, the doctor patient relationship has more of a service provider and customer annotation, which has decreased faith of patients. This has been considered as a cause to several attacks on doctors by the patient's relatives. To address this problem the Maharashtra University of Health Sciences had established a National Nodal Centre of UNESCO for Bioethics in March 2015. [5]

What better place to instill values than a medical college training future

doctors. The UNESCO Bioethics Core Curriculum sets out to introduce the bioethical principles of the Universal Declaration on Bioethics and Human Rights to university students. [6] Hence, the Terna-MUHS-UNESCO Bioethics unit organized a workshop on bioethics for the medical students and teaching staff. We conducted a pre-test and post-test based on the education given during the workshop, which aimed to evaluate the impact of workshop on the knowledge and attitude towards the bioethics.

## MATERIALS AND METHODS

The present study was conducted in tertiary care hospital and medical college in a well-planned metro city in India. The study population was participants of a workshop on Bioethics which included MBBS students and teaching staff of the institute. The workshop on bioethics was conducted over two days and the following topics were discussed: Introduction of Bioethics, history, codes and guidelines, principles of bioethics, professionalism and communication skills. Pre-test and post-test quasi experimental design was used to study the impact of the workshop.

### Questionnaire:

The questionnaire consisted of ten questions based on history and present guidelines of clinical trials, principles of bioethics and professionalism. Questions were framed to analyse the knowledge and attitude towards bioethics. All ten were multiple choice questions. The same questionnaire was used for both pre-test and post-test. The questionnaire was pretested (Cronbach's alpha coefficient = 0.87), validated and amended to by the language experts and a final version of the questionnaire was selected for the present workshop.

### Data Collection:

Voluntary participation was sought for the workshop from the students and staff. The participants were informed regarding the purpose of the workshop and their responsibility to answer the

questionnaire to the best of their knowledge. The self-administered pre-test questionnaire was given and the completed forms were collected before the session started. After all the sessions of the workshop were completed, the post test was conducted. Score for the correct response was one and zero for an incorrect or not attempted response.

### Statistical Analysis:

The data was compiled in a Microsoft excel sheet and checked for the completeness. To compare the pre-test and post-test scores, we used the paired t- test using the Graph pad prism software version 5.01. Significance level was set at 0.05. The response was converted to percentage and analysed item-wise and the analysis was classified into – 0 -25% - zero; 26 - 50% - Average; 51 – 75% - Good; and 76 – 100% - Excellent. Change in response was compared between pre-test and post-test, was tabulated as improvement/ no improvement of response.

## RESULT

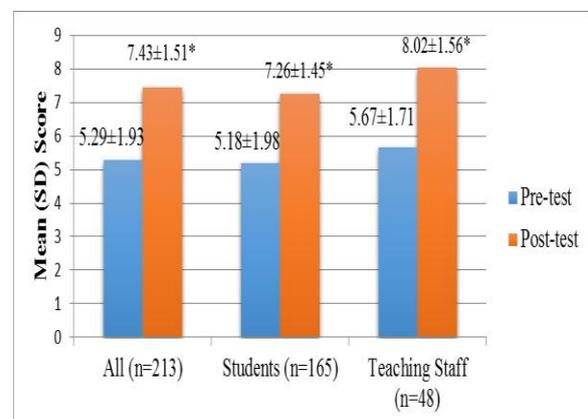


Figure 1: Mean pre- and post- test scores  
Paired t test used, \* statistically significant difference p value <0.05

This study was carried out in total 213 participants, of which 165 (77%) were medical students and 48 (23%) were the teaching staff. All participants completed both pre-test and post-test questionnaires. There was statistically significant difference (p value<0.0001) observed in mean pre-test and post-test scores of all participants (t=15.88, df=212); students (t=13.07,

df=164) and teaching staff (t=9.69, df=47) as depicted in Figure 1. Item-wise analysis showed statistically significant difference in

pre-test and post-test scores for all items as displayed in Table 1.

**Table 1: Item-wise analysis**

Parameter	Item number	Pre-test		Post-test		Change	Paired t value
		No.	%	No.	%		
History of medical ethics	1***	118	55.40	188	88.26	Good to Excellent	8.942
	2***	104	48.83	162	76.06	Average to Excellent	6.717
	10***	187	87.79	212	99.53	Excellent to Excellent	5.084
Current guidelines	3**	14	6.57	30	14.08	Zero to Zero	3.084
	4***	62	29.11	126	59.15	Average to Good	7.934
Principles of bioethics	5***	64	30.05	145	68.08	Average to Good	8.913
	6***	98	46.01	176	82.63	Average to Excellent	8.843
	7*	101	47.42	123	57.75	Average to Good	2.317
Professionalism	8*	192	90.14	205	96.24	Excellent to Excellent	2.533
	9***	183	85.92	211	99.06	Excellent to Excellent	5.664

Paired t test used with df=212. Statistically significant difference \*p value <0.05, \*\*p value <0.01 and \*\*\*p value <0.0001.

## DISCUSSION

The main aim of a medical curriculum is to generate clinically competent doctors with an ethical code of conduct to the society. [7] Earlier in India, this relationship between the doctor and patient was paternalistic. [8] However, there has been a remarkable variation in the medical sciences and technologies recently. These variations have led to the new dilemma in euthanasia, pain management, intensive care, medical genetics, biotechnologies and reproduction, superseding the earlier ethical guidelines. This has led to decay in the doctor-patient relationship and expanding the gap between medicine and society.

At present, the Medical Council of India (MCI) curriculum does not have "Medical ethics" as a separate subject in any of its courses. [8] In the curriculum, the students learn about the principles of medical ethics and the legal aspects in short which is educated in four to five hours under the subject of Forensic Medicine. A study conducted by Brogen et al [9] with the aim to understand the knowledge and attitudes of medical students on medical ethics in a teaching hospital, they observed the lack and inadequacy of the knowledge regarding codes of ethics and its curriculum during the undergraduate (UG) medical teaching. They also emphasized the need of addition of ethics in the medical curriculum through lectures, seminars, workshops or continuing medical education (CME). The

article also stressed the ignorance of the Institutional Ethics Committee (IEC). A similar study performed by Chatterjee et al [10] found only 10.9% of the student's awareness of the existence of the IEC and many did not know its specific functions. This highlights the need for the IEC of teaching hospitals to make known their work in various health-related activities at regular intervals for the benefit of trainees. The study also exposed that there is no comparable increase in knowledge of the ethical issues along with an increase in the years of medical education; the mean score of second year students was superior to that of their seniors. Parallel findings were given by Roberts et al, and Patenaude et al. [11,12] A similar study done by Hariharan et al, also showed 52% of senior medical staff and 20% of senior nursing staff at their institution, did not know much about the laws relating to their work. [13] A three-year cohort study by Patenaude et al [12] reported that students' understanding of ethics did not improve significantly with education. 72% of the students surveyed remained at the same stage of moral reasoning in their third year of study as in their first, as demonstrated by mean scores of 3.46 in the first year and 3.48 in the third year. In fact, 13% moved down to the lower stage and only 15% moved to the higher stage. The mean attitude score in relation to the intimate examination of patients to adhere to rules regarding informed consent and confidentiality also showed that second and

third year students had higher mean scores than their seniors. This suggests that the mode of teaching, and text book-oriented education, does not improve students' awareness of this subject. Clinically-oriented approaches with interactive components through case studies and workshops may be more effective. Thus, we conducted the present study to evaluate the impact of education in the form of workshop and whether it improves the understanding and attitude towards the bioethics. The workshop included case studies/ scenarios, group discussions, street play and group activities, making it fully an interactive session.

Our study findings showed significant improvement in the mean score of the participants after the workshop. Even the item wise analysis showed marked improvement in the response. This confirms the earlier theories about the medical education and improvement in the ethical practices. The interactive sessions are more effective than the regular text-book oriented education. Many of the students and teaching staff had come out with the novel ideas about developing the good clinical and ethical practices and were also eager to propagate their knowledge to the other students and staff who could not participate in the present workshop.

#### **Item-wise analysis:**

##### **a. History of medical ethics:**

There were three questions testing the awareness about the history of medical ethics. Post-test questionnaire showed significant progression about the knowledge of this part. Participants were curious to know more about the Nazi experiments, Tuskegee syphilis study and other unethical medical practices held in past.

##### **b. Current guidelines on medical ethics:**

Two questions tested the knowledge about the present guidelines on medical ethics, post education there was improved awareness on this aspect. Many participants wanted to participate in a workshop exclusively on the Indian ethical guidelines

emphasizing on Indian Council of Medical Research (ICMR) guidelines for clinical trials, Schedule Y and International Conference on Harmonisation- Good Clinical Practices (ICH - GCP) India.

##### **c. Principles of Bioethics:**

Three questions tested the awareness on principles of bioethics and there was marked improvement in response among the participants after the workshop. Many case studies were discussed to understand the four principles of bioethics, the Autonomy, Justice, Non maleficence and Beneficence.

##### **d. Professionalism:**

There were two items testing the facts about the medical professionalism. There was significant discussion about the topic after the workshop. The attributes of a good medical professional and the central functions in doctor-patient relationship were discussed in depth.

Overall, there was significant improvement in the mean score of the participants in the total score as well as in item-wise analysis. This suggested that an interactive educational method in the medical curricula is important, which was confirmed by the positive outcomes of the well-planned workshop. Comparable findings were confirmed by many similar studies in past. [14-17]

The only limitation of our study was that the long term effects of the education through workshop and the benefits acquired from this improved level of knowledge have not been studied either theoretically or practically.

## **CONCLUSION**

Finally in conclusion, there was confirmation that there was lack of awareness about bioethics and a well-organized workshop can improve the knowledge and attitude towards the subject. We recommend that similar type of studies can be conducted in other medical institutions to promote and impregnate the ethical values in medical professionals.

## ACKNOWLEDGEMENTS

The authors are thankful to Dr. KG Ghorpade and Dr. S Sukumaran, Head and Co-ordinator of the Terna-MUHS-UNESCO Bioethics Steering Committee respectively for their endless support and encouragement.

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How to cite this article: Laxman CV, Rani VV. Evaluation of bioethics workshop using pre- and post-test questionnaire. *Int J Health Sci Res*. 2017; 7(6):162-166.

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