**Effectiveness of formal training in bioethics of 3rd semester undergraduate medical students in recognizing bioethical issues and principles in patient care**

**Abstract:**

Despite well described code of conduct for physician the recent increase in litigation against doctors is an issue of concern which says that doctors and health professionals are confronted with many ethical problems regularly. The aim of the present study was to see the ability to recognize different bioethical issues in relation to patient care amongst 3rd semester undergraduate students and also the change in the pattern of recognition of bioethical issues after formal training. The data was collected using pre tested self-administered questionnaire. All of the respondents in the study group were of the opinion that medical ethics is very important but only 24% aware about existence of ethics committee in the institute. Changes has been observed after clinical exposure in response like disclosure of patient’s condition to close relatives (agreed 54% versus 84% pre and post-exposure respectively) and discussion of related ethical issues with clinical case discussion (agreed 74% versus 94% pre and post-exposure respectively). Some of the issues needs further clarification even after clinical exposure like doctors must not refuse to do abortion (56% disagreed and 38% agreed), consent regarding treatment in children (60% disagreed and 32% agreed) and uses of branded versus generic drugs (76% generic and 26% branded).There is a need to stress the importance of ethical practice in the undergraduate curriculum to make the doctors confident enough to deal the ethical dilemma for themselves and better professional efficiency.

**Keywords:** Effectiveness, Medical bioethics,Undergraduate,Medical students

**Introduction:**

The code of conduct for physicians was practiced in traditional Indian systems of medicine since eternity. “*Primum non nocere*” (do no harm) was the underlying universal principle of traditional Indian medicine system besides other principles applicable to the prevalent culture and the class systems of the society (1).Medical ethics is the set of ethical principles and rules that inspire and guide the professional conduct of physicians. Education in medical bio-ethics is a standard expectation in medical school curriculum and is more prevalent during the preclinical years before medical students start encountering the realities of patient care in clinical settings. Although bio-ethics is considered an essential component of medical practice, yet it has never been a part of proper medical curriculum. Implementation of a comprehensive curriculum including assessment for different domain of bio-ethics in the undergraduate medical course will help to develop a professionally sound Indian Medical Graduates(IMGs) who can possess requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively as a physician of first contact of the community. According to competency based undergraduate curriculum for the IMG by Medical council of India (MCI), the importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program based on Attitude, Ethics and Communication (AETCOM) competencies. Great emphasis has beenplaced on collaborative and inter-disciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity todifferences in thought, social and economic position and gender (2).

There have been many reports across the globe stressing the importance of incorporating ethical and legal issues in medical curricula especially in the beginning with pre-clinical courses (3,4).Medical ethics are integral to all clinical application that go far beyond the traditional goal of disease prevention, treatment and cure, particularly in area like genetic counselling and end-of-life care and a foundation in medical ethics is essential for students to become virtuous doctors of global standard.

Northeast India (officially North Eastern Region, NER) is the easternmost region of India, comprises eight states – Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura.North Eastern region has got a population of about 40 million(3.8% of total Indian population) in an area of about 2.6 Lakh square kms covered by about 400 hospitals where doctor population ratio is approximately 1: 5000 against a national figure 1:2000, with an overall 50% deficiency in medical manpower and overall 60% in total health sector.It has been a challenge to give quality medical care in the NER state due to the peculiar problems of the region, viz. remoteness, difficult transportation and communication, economic backwardness, shortage of trained medical manpower, ineffective utilization of existing facilities, ethnic violence, insurgent extortion networks, porous international border facilitating illicit drug trade (5).North Eastern Indira Gandhi Regional Institute of health and Medical Sciences (NEIGRIHMS), situated in Shillong, Meghalaya is one of the largest tertiary care centres in North Eastern India catering to a large population from the north eastern states of India and also from theneighbouring countries. The present study was conceived with the aim of ability to recognize different bio-ethical issues in relation to patient care amongst 3rd semester students. Further the change in the pattern of recognition of bioethical issues after formal training on principle of bioethics was also evaluated.

**Material and Methods:**

A cross sectional study was carried out using self-administered questionnaire among the fifty 3rd semester undergraduate MBBS students. Two sets of questionnaire were given based on principles of medical bioethics. The first set of questionnaire covered demographic information and four basic questions. The second set of questionnaire covered 14 self-administered questions on common ethical issues and each question was designed in a ‘Likert scale’ pattern carrying a minimum score of 1 (1= strongly disagree) and maximum score of 5 (5= strongly agree). The students were asked to fill a structured questionnaire form afterverbal information and consent. The questionnaires were validated first by three senior medical faculty whohas undergone training in revised medical education course and by five studentsto confirm clarity and authenticity before distribution.Following this, the questionnaire was distributed amongst 50 undergraduate students of 3rd semester batch. The students were then given lectures on bioethics by trained teachers from the institute over next six months. After six months of training and bedside clinical exposure, students were assessed again with same set of questionnaire.The statistical analyses were performed using SPSS 17.0 (Chicago, USA).

**Results:**

Among the 50 participants whose responses were analysed, 28 (56%) were male and 22 (44%) were female. Their ages ranged from 20 to 22 years.

Table 1 describes the students’ attitude to medical ethics and the source of their information on this. All of the students had some basic idea about medical bioethics and all of them felt that knowledge of bioethics is very important and to be included in medical curriculum. Overall, only 24% of the respondents had knowledge of the existence of the institutional ethics committee (IEC) in the institute. Lectures (86%) and clinical classes (24%) were considered the predominant sources of knowledge followed by ethical books/journal (6%).

Table 2 describes the student’s knowledge in relation to different components of bioethical issues. Most (96%) of the students felt patients should always be informed of wrong doing by anyone involved in his/her treatment. Though majority 76% of them agreed that patient wishes must be adhered on the other hand 50% of students felt doctor should do what is best irrespective of the patient’s opinion. Majority (82%) of them disagreed for the statement confidentiality cannot be maintained in modern care. Regarding disclosure of patient’s condition to the close relative, almost half of them agreed and one fifth of them being in neutral position. Nearly 78% of them disagreed that consent is required only in case of operations and not for tests and medications. Most (72%)of them disagreed certain medical practitioners charging more from rich patients to compensate for treating the poor is a good practice and 24% of the students were uncertain about this. It is interesting to note that 16% agreed and 14% were uncertain as to whether ethical conduct is important only to avoid legal action and 70% disagreed with the statement. Majority (78%) of the students agreed that ethical issues of patient care must also be discussed during clinical rounds. Half of the students were of opinion privacy of the patient must not be ignored for benefit of larger group and 38% of them disagreed about this. Majority of the (74%) agreed that children should never be treated without the consent of their parents or guardian except in case of emergency and 20% of students were neutral about the statement. There is an almost equivocal response regarding the law allows abortion as one third of students agreed, disagreed and neutral in the comment that doctors must not refuse to do abortion. More than half of students (56%) disagreed the statement it’s better to use brand name rather than generic name of drug in one’s practice and 16% of students were uncertain about this. Most of them (90%) of them felt clinically confirmed case must undergo laboratory investigation as a routine.

Table 3 describes the response following clinical posting and theoretical lectures oh bioethics by senior teachers.All of the students agreed that patient should always be informed of wrong doing by anyone involved in his/her treatment. Majority (86%) of students still belief that patient’s wishes should always be adhered toand at the same time most of them (96%)disagreedthat doctor should do what is best irrespective of the patient’s opinion which is in contrast to the pre-training response (34%). Although majority of students disagreed that confidentiality cannot be maintained in modern era, a group of students (16%) being neutral in this response. Most of the students are cleared about the concept of disclosure of patient’s condition to close relatives as compared to pre-training response [agreed 54% (pre-exposure) versus 84% (post-exposure)].Majority (88%) of the students also noted the importance of concept form as they disagreed that consent is required only in case of operations and not for tests and medications. Most of them were not agreed that ethical conduct is important only for avoiding legal action. One of the important responses observed after their bedside clinical posting was that most of them were concerned about the discussion of related ethical issues with clinical case discussion [agreed 74% (pre-exposure) versus 94% (post-exposure)]. Some of the issues needs further clarification even after clinical exposure like doctors must not refuse to do abortion (56% disagreed and 38% agreed), consent regarding treatment in children (60% disagreed and 32% agreed) and uses of branded versus generic drugs (76% preferred generic brand and 26% preferred branded name). Overall, there is significant reduction of neutral response between pre and post training evaluation (pre exposure 101 neutral response and post exposure 20 neutral response).

**Discussion:**

In order to construct an effective ethics teaching curriculum for undergraduate students, the first step is to determine their current basic knowledge, perceptions and practices related to ethical issues and patients’ rights. Ethical problems are common among the students in our study. The majority of students responded that it is very important to implement a course on bioethics in the medical curriculum. This indicates the importance of preparing residents to deal with ethical dilemmas and providing them with guidance, support and supervision.Ethics committees are the most prominent formal institutional mechanism for considering and resolving ethical dilemmas in medicine. Despite that, hospital ethics committees are largely untested, unproven and unknown entities (6). In the present study, only 24% of the students were aware of the existence of the institutional ethics committee and many of them did not know its specific functions. This highlights the need for the administrative section of teaching hospitals to publicise their work at regular intervals for the benefit of trainees. The institutional ethics committee should publish reports related to its involvement in different health-related activities within the institution, and these should be circulated among the students as well.The main sources of ethics knowledge as quoted by the study population were classroom lectures, clinical case discussion and books on ethics like textbook on forensic medicine. This finding is similar to that in previously completed studies (7,8).

Clinical exposure enhances the medical skills along with learning strategies and our study showed significance change towards accountability, professionalisms, and respect to patient’s decision which should be present in each health professional. However a study in private medical university showed a decline in professionalism in the beginning of clinical clerkships of 3rd year as compared to the students receiving basic sciences training (9).A good number of researches have been done to assess the ethical and moral behaviour during internship/clerkship in health care centres. By observing the academic and professional practices, studies have shown various academic fraudulences by students from proxies of attendance to cheating in examinations and persuading teachers by illegal methods to obtain high scores. To eradicate such misconducts from academic and professional settings, Accreditation Council for Graduate Medical Education has encouraged the inclusion of professionalism in education of trainees (10).

In the present study, majority of students agreed for maintaining the basic ethical principles for protecting the dignity, rights, safety and well-being of patients. During their training period (both theory and bedside clinics) four basic ethical principles; namely respect for persons (autonomy), beneficence, non-maleficence and justice have been discussed thoroughly. Most of the responses were in accordance to rest of the national and international studies. Some of the important issues have been observed in the present study. In the present study majority (56%) of students felt it is better to use generic name rather than brand name during giving prescription to patients and 16% of them dint have any opinion. The response rate for using generic name was increased to 76% after clinical exposure. The reason may be during bedside rounds they see generic prescription and during lectures it was mentioned that as per MCI regulation every physician should prescribe drugs with generic names legibly and preferably in capital letters and he/she shall ensure that there is a rational prescription and use of drugs (the Gazette of India on 08.10.2016) (11).Similar results have been reported by other studies from India (8,12).

Students often expressed contradictory views in different areas of ethical issues e.g. while dealing with treatment of patients, most students (76%) agreed to adhering to “patient’s wishes”, on the other hand half (50%) of the students felt that “doctor should do what is best” irrespective of patients opinion. Chatterjee et al, in his studies form Kolkata published similar results with 54% and 64.3% respectively (8).In Another study conducted in Chennai, 87% of physicians reported they consider patients opinion before taking any major treatment decisions however 81% of them reported they do best for patients irrespective of their opinion (13).Study inKarnataka reported around 62% of respondents would always adhere to patients wishes in course of treatment (12).

Only 10% of students strongly disagreed and 18% disagreed if law allows abortion doctors must not refuse to do abortion similar to a study conducted by Subramanian et al which reported only 15% of physicians in disagreed (13).In another study from Northeast India, Manipur 60% of doctors disagreed to the statement doctors must not refuse to do abortion when law allows (14).Similarly another multi centric study conducted among doctors and nurses from North India reported 63% of them reported doctors can refuse to doabortions (15).This could be due to students in our study is from purely pre-clinical students and they are probably not sure about the rights of a doctor as 34% of them marked to neutral response.

A statement on autonomy ‘Consent required only in case of operations and not for tests and medications’ was disagreed by 78% (strongly disagreed by 40% and disagreed by 38%). Thus, about one-fifth (20%) of the students either do not feel the need of consent for tests and medications or not sure about the issue. After formal training the figure increased up to 88%. Similar responses have observed in many studies globally (3,16).

Bioethics or medical ethics has to be taught by a specialist in medical ethics. Although in the new CBME programme MCI has given very much importance regarding implementation of knowledge of bioethics in 1st year medical students presently only the forensic and community medicine faculties teach medical ethics and they focus more on medical jurisprudence (17).There is a need to encourage training of medical faculty in ethics or bioethics and eventually, to create a separate and independent department of medical ethics or bioethics.

**Limitation:**

This study has the limitation that it does not cover a wider range of undergraduate students, as well as the fact that it is only descriptive in nature.The sample size of this study was limited due to the number of students in the college. It may not represent the national scenario. All the principles of biomedical ethics have not beenexplored to the same extent. As the sample size was small, no comparisons were planned betweenthe groups and statistical tests were not used.

**Conclusion:**

This study findings indicate a gap exist in knowledge about importance of bioethics among undergraduate students. Contradictory views in different areas of ethical issues like dealing with consent form, law of abortions and using generic versus branded drugs is exist. The fact that many respondents had neutral opinion to some questions may indicate their lack of awareness or knowledge in that area and their inability to decide although most of them got cleared after basic training. Hence there should be sufficient training classes, workshops, conferences to stress the importance of ethical practice and to make the students confident enough to deal the ethical dilemma.

**References:**

1. Indian Council of Medical Research. National ethical guideline for biomedical and health research involving human participants. New Delhi, India: ICMR. 2017 Available at: http://www.icmr.nic.in/ethical\_guidelines.pdf(last accessed on 6th May’ 2019)
2. Medical Council of India, Competency based Undergraduate curriculum for the Indian MedicalGraduate, 2018. Vol. 1; pg 12
3. Aacharya RP, Shakya YL. Knowledge, attitude and practice of medical ethics among medical intern students in a Medical College in Kathmandu. Bangladesh J Bioethics 2015;6(3):1-9
4. Mattick K, Bligh J. Undergraduate ethics teaching: revisiting the Consensus Statement. MedEduc. 2006; 40(4):329-32
5. Barman B, Nongpiur A, Bora K, Synrem E, Phukan P, Sarma K. Clinical and laboratory presentation of abdominal tuberculosis in Shillong, Meghalaya: experience from Northeast India. Indian Journal Medical Specialities; 2017(8):134-138
6. Denham MJ, Foster A, Tyrrell DA. Work of a district ethical committee. British Medical Journal, 1979, 2:1042–1045
7. Walrond ER, Jonnalagadda R, Hariharan S, Moseley HS. Knowledge, attitudes and practice of medical students at the Cave Hill Campus in relation to ethics and law in healthcare. West Indian Med J. 2006;55(1):42-7
8. ChatterjeeB,Sarkar J. Awareness of medical ethics among undergraduates in a West Bengal medical college. Indian Journal of Medical Ethics Vol IX No 2 April-June 2012
9. Sobani Z, Mohyuddin MM, Farooq F, Qaiser KN, Gani F, Bham NS, et al. Professionalism in medical students at a private medical college in Karachi, Pakistan. J Pak Med Assoc. 2013;63:935-9
10. Project of the ABIM Foundation, ACP–ASIM Foundation, and European Federation of Internal Medicine. Medical Professionalism in the New Millennium: A Physician Charter. Ann Intern Med. 2002;136:243–246
11. Indian Medical Council. (Professional Conduct, Etiquette and Ethics). Regulations, 2002 (AMENDED UPTO 8th OCTOBER 2016) available at <https://www.mciindia.org/.../rulesAndRegulations/Ethics%20Regulations-2002.pdf>
12. Angadi MM, Shashank KJ, Jose AP. A study to assess knowledge regarding medical ethics among undergraduates in Shri B M Patil Medical college, Bijapur, Karnataka. Int J Pharm Bio Sci. 2014;5(1):647-53
13. Subramanian T, Mathai AK, Kumar N. Knowledge and practice of clinical ethics among healthcare providers in a government hospital, Chennai. Indian J Med Ethic. 2013;2:96-100
14. Borgen SA, Rajkumari B, Laisharam J, Joy A. Knoweledge and Attitude of Doctors on Medical Ethics in Teaching Hospital Manipur. Ind J Med Ethic. 2009;6:194-7
15. Chopra M, Bharadwaj A, Mitha P, Sign A, Siddiqui A, Rajesh PR. Currnt status of Knowledge, Attitude ad Practices towards Healthcare Ethics amongDoctors and Nurses from North India-A Multicenter Study. JKIMSU. 2013;2:102-7
16. Hariharan S, Jonnalagadda R, Walrond E, Moseley H. Knowledge, attitudes and practice of healthcare ethics and law among doctors and nurses in Barbados. BMC Med Ethics. 2006;7:E7
17. Ravindran GD. Medical ethics education in India. Indian J Med Ethics. 2008; 5(1):18-19

**TABLES:**

**Table 1: Participants according to their knowledge of medical ethics (Total number 50)**

|  |  |  |
| --- | --- | --- |
| Do you have any basic knowledge about medical professionalism and ethics | | |
| Yes | 50 | 100% |
| No | **0** |  |
| Is there an ethics committee in your institution? | | |
| Yes | 12 | 24% |
| No |  |  |
| Don’t know | 38 | 76% |
| How important is to implement knowledge of bio-ethics in medical curriculum? | | |
| Not important |  |  |
| Important |  |  |
| Very important | 50 | 100% |
| What is your source of knowledge? | | |
| Lecture classes | 40 | 80% |
| Ethical books/journal | 03 | 06% |
| Clinical training | 07 | 14% |
| Television/Newspaper |  |  |

Table 2:

**Table 2: Participant’s knowledge before exposure to clinical posting (total number 50)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sl no | Question/Statement | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
| 1 | Patient should always be informed of wrong doing by anyone involved in his/her treatment | 0 | 0 | 2 (4%) | 18 (36%) | 30 (60%) |
| 2 | Patients’ wishes should always be adhered to | 0 | 4 (8%) | 8 (16%) | 19 (38%) | 19 (38%) |
| 3 | The doctor should do what is best irrespective of the patient’s opinion | 2 (4%) | 15 (30%) | 8 (16%) | 11 (22%) | 14 (28%) |
| 4 | Confidentiality cannot be maintained inmodern care | 11 (22%) | 30 (60%) | 7 (14%) | 1 (2%) | 1 (2%) |
| 5 | Close relatives must always be told about the  patient’s condition | 2 (4%) | 10 (20%) | 11 (22%) | 19 (38%) | 8 (16%) |
| 6 | Consent is required only in case of operations and not for tests and medications | 20 (40%) | 19 (38%) | 2 (4%) | 9 (18%) | 0 |
| 7 | Certain medical practitioners charging more from rich patients to compensate for treating the poor is a good practice | 16 (32%) | 20 (40%) | 12 (24%) | 1 (2%) | 1 (2%) |
| 8 | Ethical conduct is important only for avoiding legal action | 15 (30%) | 20 (40%) | 7 (14%) | 6 (12%) | 2 (4%) |
| 9 | During clinical rounds along with clinical aspects of a patient’s care, it is also essential to discuss ethical issues of that patient | 0 | 5 (10%) | 6 (12%) | 35 (70%) | 4 (8%) |
| 10 | Privacy of one patient may be ignored for the benefit of the larger group | 8 (16%) | 11 (22%) | 6 (12%) | 13 (26%) | 12 (24%) |
| 11 | Children (except in emergency) should never be treated without the consent of their parents or guardian | 1 (2%) | 2 (4%) | 10 (20%) | 21 (42%) | 16 (32%) |
| 12 | If law allows abortion, doctors must not refuse to do abortion | 5 (10%) | 9 (18%) | 17 (34%) | 16 (32%) | 3 (6%) |
| 13 | In one’s practice it is better to use the brand name than the generic name of a drug | 6 (12%) | 22 (44%) | 8 (16%) | 13 (26%) | 1 (2%) |
| 14 | Clinically confirmed cases should also undergo laboratory investigations as a routine | 0 | 3 (6%) | 7 (14%) | 32 (64%) | 8 (16%) |

**Table 3: Participant’s knowledge after exposure to clinical posting (total number 50)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sl no | Question/Statement | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
| 1 | Patient should always be informed of wrong doing by anyone involved in his/her treatment | 0 | 0 | 0 | 12 (24%) | 38 (76%) |
| 2 | Patients’ wishes should always be adhered to | 0 | 5 (10%) | 2 (4%) | 32 (64%) | 11 (22%) |
| 3 | The doctor should do what is best irrespective of the patient’s opinion | 24 (48%) | 24 (48%) | 2 (4%) | 0 | 0 |
| 4 | Confidentiality cannot be maintained inmodern care | 2 (4%) | 30 (60%) | 6 (12%) | 10 (20%) | 2 (4%) |
| 5 | Close relatives must always be told about the patient’s condition | 2 (4%) | 6 (12%) | 0 | 31 (62%) | 11 (22%) |
| 6 | Consent is required only in case of operations and not for tests and medications | 23 (46%) | 21 (42%) | 0 | 6 (12%) | 0 |
| 7 | Certain medical practitioners charging more from rich patients to compensate for treating the poor is a good practice | 35 (70%) | 11 (22%) | 0 | 4 (8%) | 0 |
| 8 | Ethical conduct is important only for avoiding legal action | 37 (74%) | 10 (20%) | 0 | 3 (6%) | 0 |
| 9 | During clinical rounds along with clinical aspects of a patient’s care, it is also essential to discuss ethical issues of that patient | 0 | 3 (6%) | 0 | 11 (22%) | 36 (72%) |
| 10 | Privacy of one patient may be ignored for the benefit of the larger group | 15 (30%) | 11 (22%) | 3 (6%) | 15 (30%) | 6 (12%) |
| 11 | Children (except in emergency) should never be treated without the consent of their parents or guardian | 17 (34%) | 13 (26%) | 4 (8%) | 10 (20%) | 6 (12%) |
| 12 | If law allows abortion, doctors must not refuse to do abortion | 16 (32%) | 12 (24%) | 3 (6%) | 17 (34%) | 2 (4%) |
| 13 | In one’s practice it is better to use the brand name than the generic name of a drug | 28 (56%) | 10 (20%) | 0 | 12 (24%) |  |
| 14 | Clinically confirmed cases should also undergo laboratory investigations as a routine | 0 | 0 | 0 | 39 (78%) | 11 (22%) |