# Title page

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**Title**:

Knowledge, attitude and practice of bioethics among Interns in Tertiary care Hospitals

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## Running title

KAP of bioethics among Interns

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**Abstract**:

Bioethics has an important role in medical teaching and influences the attitude of medical professionals significantly and the same has been implemented in the undergraduate curriculum by MCI. However, the translational effect of theoretical bioethical knowledge to practice is not properly seen in medical graduates especially interns. Our study aimed to investigate the knowledge, attitude, and practice of bioethical principles among interns in a tertiary care hospital using a cross-sectional study by questionnaire method. 109 interns from 17 medical colleges participated in the study. Interns are unaware about the basic bioethical guidelines like ICMR bioethical principles (aware-26%vs unaware-74%, z= 7.17 & p <0.0001), Nuremberg code (aware- 9% vs unaware – 91%, z=11.9 & p<0.00001), and Helsinki’s declaration (aware- 8% vs unaware – 92%, z=12.19 & p<0.00001). Only 5.5% (n=6) have attended the bioethical training during their internship via CME program or workshop. 15.6% of interns opine that ‘financial gain’ is the primary target of being physician and 24.8% of interns have never taken an informed consent. Moreover, 21.1%, 31%, and 12% interns felt that it was ethical to indulge in fee-splitting, receive a commission from pharmaceuticals, and charge rich people more to compensate poor people. Interns of the medical field in South India are lacking adequate knowledge, practice in the application of bioethical principles during their internship period.

**Keywords**: Ethics; bioethics; Medical ethics; Interns; CRRI;

# Introduction

Started as a simple ‘Hippocratic Oath’, Medical ethics (bioethics) has been progressively evolved into a multi-domain complex system at present. Though defined as ‘branch that concerns with knowledge, attitude, and practice of ethics in the medical field’, bioethics is often not considered as a separate subject in most of the medical teaching institutions in the past century. Recognizing that bioethics has a vital role in medical teaching and implementing the same influences the attitude of medical practitioners profoundly[1], the Medical Council of India has implemented the ‘Ethical Code Regulations’ in 2002.[2] Gradually, various universities across India have started to develop an ‘Ethical curriculum’ for their faculty and students.

Despite these measures, the ‘paper-to-practice’ translational effort of bioethics remains diminutive. Medical students across the world often face ethical dilemmas and lack of adequate knowledge to solve basic ethical problems that they encounter in their hospital environment.[3],[4]As it happens, the registered medical practitioners also confront litigations due to ethical issues frequently.[5] Increasing awareness about their rights among patients, prescribing unnecessary tablets, referring patients to a specific hospital for fee-cut, and promoting specific pharmaceutical formulations by registered medical practitioners have been reported by various media that added additional lawsuits against doctors.[6],[7],[8]

Much litigation of medical negligence and malpractice could be due to the lack of following the bioethical principals. Hence, the ‘future doctors’ especially the interns in the hospital require awareness about the bioethical principals and its practical implementation in day to day life of the medical field. Nevertheless, a literature search of this topic indicated that only a few studies were conducted across India to assess the understanding of bioethical principles among interns. Therefore, we aimed to assess the knowledge, attitude, and practice of bioethics among interns of various tertiary care hospitals in Tamilnadu, India.

**Methodology:**

The study was submitted to the Institutional Ethical Committee, Thanjavur Medical College, Thanjavur, Tamilnadu, India, and the approval for the same was obtained (Certificate No: TMC/2019/651). Our study was a cross-sectional study that was conducted from August 2019 to January 2020 among the interns of various medical colleges.

A questionnaire addressing the knowledge, attitude, and practice of bioethics was developed. Twelve questions addressing the knowledge about various ethical guidelines and the role of the ethical committee were framed under the knowledge domain. Ten questions addressing the attitude of interns towards patients with various aspects of bioethics like maintaining confidentiality, patients' choices, and right to information, etc., were framed under the attitude domain. Eight questions addressing the malpractice like fee-splitting, unwanted investigations, advertising, etc., were framed under practice domain. All questions were framed as closed questions with binomial or multiple choices as a response. The questionnaire was subjected to internal validation and modified accordingly.

Interns of all the medical colleges were approached for study participation. Informed consent was obtained from all the participants before study participation. The questionnaire was sent to the participants through Google forms (Password protected) and the forms were set in such a way that it accepts only one response fromeach participant. The responses were then analyzed using Graphpad Prism version 5 and data were expressed as percentages. Two proportions ‘Z’ test was used to compare the difference between the proportions among the groups. p<0.05 was considered statistically significant.

**Results:**

**Baseline characteristics:**

A total of 109 interns from 17 different medical colleges across Tamilnadu have participated in the study. Out of 109 participants, 54.1% (n= 59) were males and 45.9% (n=50) were females. There was no gender bias observed in the study as the difference between the proportion of gender was insignificant (z=1.21 and p=0.222). All the interns were aged between 22 – 24 years.

**Knowledge domain**:

Concerning awareness about the bioethical guidelines, 57% (n=62) of interns were aware of the Hippocratic Oath. Only 26% (n=28) of interns were aware of the ICMR guidelines. A very few interns, 9% (n=10) and 8% (n=9) were aware of the Nuremberg Code and Helsinki’s declaration, respectively. When the interns were enquired upon the source of acquiring knowledge about the bioethical principles, it was found that via ‘experience at work’ (67.9%, n=74) and ‘during training period’ (55%, n=60) ranked first and second in contributing the same, respectively. Lectures /seminars contributes 22.2% (n=46) and via ‘internet’ mode was found to be 27.5% (n=30). Newspaper contributed least regarding the bioethical awareness amongst the interns (13.8%, n=15). Nearly half of the participants (49.5%, n=54) declared that they were unaware of the existence of ethical committee in their institutions and 61.5% (n=67) stated that they were unaware of the existence of separate ethical committee for animals and human research projects. Moreover, only 5.5% (n=6) have attended the bioethical training during their internship via CME program or workshop.

**Attitude domain**:

Various questions were framed to test the bioethical principle attitudes amongst the interns and the results are summarized in Table 1.

Table 1. The attitude of Interns towards the application of bioethical principles

|  |  |  |  |
| --- | --- | --- | --- |
| S. No | Questions related to attitude domain | n | % |
| 1 | I consider ‘financial gain’ is the primary target of the physician | 17 | 15.6 |
| 2 | I opine that doctors know the best irrespective of patients opinion | 64 | 58.7 |
| 3 | I feel that patients need not be always informed of wrongdoing | 28 | 25.7 |
| 4 | I feel that patients wishes need to be adhered always | 49 | 45 |
| 5 | Confidentiality cannot be maintained in modern care and should be abandoned | 21 | 19.3 |
| 6 | Consent is required only for surgery and not for any investigations | 18 | 16.5 |
| 7 | I feel no harm in ‘fee-splitting’ and I think it is ethical | 23 | 21.1 |
| 8 | I feel ethical that rich people can be charged more to compensate for poor people | 34 | 31.2 |
| 9 | I feel it is not unethical to receive commissions from the pharmaceutical companies | 13 | 11.9 |
| 10 | I feel ethical conduct in the medical profession is only to avoid legal actions | 43 | 39.4 |

Data are expressed as n and %. The total N= 109.

**Practice domain**:

Various questions regarding the practice of bioethical principles were framed and the responses obtained were summarized in table 2.

Table 2. The practice of Interns towards the application of bioethical principles

|  |  |  |  |
| --- | --- | --- | --- |
| S. No | Questions related to practice domain | n | % |
| 1 | I have never taken an informed consent | 27 | 24.8 |
| 2 | I never ask the patients about the knowledge of their diseases | 13 | 11.9 |
| 3 | I will not entertain the patients’ questions during the visit | 20 | 18.3 |
| 4 | I feel I often encounter unnecessary consultation | 33 | 30.3 |
| 5 | I have order unnecessary investigations for the patients | | |
| Often | 12 | 11.1 |
| Moderately | 42 | 38.5 |
| Rarely | 42 | 38.5 |
| Never | 13 | 11.9 |
| 6 | I often refer patients to the specialists unnecessarily | 48 | 44 |
| 7 | I minimize the truth about the prognosis of disease to avoid problems in the future | 22 | 20.2 |
| 8 | Euthanasia is ethical | 73 | 67 |

Data are expressed as n and %. The total N= 109.

**Discussion**:

Our study aimed to test the knowledge, attitude, and practice of bioethical principles among the interns of various medical colleges across the Tamilnadu. We found that significant proportion of the interns are unaware about the basic bioethical guidelines like ICMR bioethical principles (aware-26% vs unaware-74%, z= 7.17 & p <0.0001), Nuremberg code (aware- 9% vs unaware – 91%, z=11.9 & p<0.00001), and Helsinki’s declaration (aware- 8% vs unaware – 92%, z=12.19 & p<0.00001). Only the moderate proportions of the interns are familiar with Hippocratic Oath (57%) which could be due to teaching in their first-year studentship and occasionally while attending the ‘convocation’ conducted for their senior medical graduates during their subsequent academic years.

We found that the major source of acquiring knowledge regarding the bioethical principles for interns was to be ‘training period’ and ‘experience from work’. Surprisingly, the internet (27.5%) acted as a meagre source for acquiring bioethical principles in our study. This indicates that interns are unaware of the websites or ‘source of information’ related to ‘human ethics’. This is reinforced by the fact observed in our study that 49.5% of interns were unaware of the existence of ethical committee in their institute and 61.5% did not know the difference ethical committee exists for human and animal studies. Thus, it could be speculated that significant proportions of interns acquire bioethical knowledge only by exposing themselves to situations without bioethical knowledge and learned it later retrospectively.

In addition to this, a serious lacking of proper ethical attitude towards patients and following bioethical principles among the interns was reflected in our study. 58.7% of interns opined that ‘doctors know best irrespective of patients’ opinion, 45% interns felt that patients’ wishes need not be adhered always, and 19.3% interns believe that confidentiality need not be maintained. The results in this aspect are similar to the study conducted amongst medical students in Tamilnadu, India.[9]

Our study also tested the malpractice/unethical attitude among the interns. We found that 21.1%, 31%, and 12% interns felt that it was ethical to indulge in fee-splitting, receive a commission from pharmaceuticals, and charge rich people more to compensate poor people. This is was similar to a study conducted in West Bengal among the medical students.[10]To make the matter worse, 15.6% of interns opine that ‘financial gain’ is the primary target of being physician, which is a direct violation of basic Hippocratic Oath. 80.7% of interns in our study agreed that confidentiality should be maintained which was higher (91%) in a study conducted in postgraduates in South India.[11]This could be because postgraduates are much aware of the bioethical principles than the medical undergraduates, as they have to undergo ‘research methodology and bioethics’ training in their first year of the postgraduate period.[12] Another important observation made in our study is that 39.4% of interns agreed that ethical conduct was to avoid legal actions, which was similar to a study conducted in Karnataka, South India.[13]

Regarding the practice domain in our study, nearly 88% of interns ordered unnecessary investigations without considering the violation of ethical principles like Non-maleficence. We also found that 44% of interns refer the patients unnecessarily to the specialists. This is because interns might have just followed the orders issued by their superiors. However, the significant proportion (88%) observed in our study is alarming and should not be overlooked. One can expect that proper bioethical training during the intern period should at least reduce, if not effectively, the practice of unnecessary investigations that are being done by the interns.

In our study, 16.5% of interns agreed that consent is taken only for surgeries and not for any investigations that reflect the serious lacking of knowledge regarding principles of bioethics. A similar proportion (17%) was observed in another study conducted among medical students in South India.[11]

Moreover, it was also noted that 24.8% of interns have never taken an informed consent or at least exposed to the art of taking informed consent. This can be explained by the fact that only 5.5% of interns in our study have undergone bioethical training during their internship. Hence, the art of informed consent is not known to the majority of interns in our study.

The major strength of our study is that it has been conducted as ‘multi-centric’ while the majority of studies conducted in this area of research were in one hospital. Being a multi-centric study, the results generated in our study can be generalized to the broader population. The major limitation of our study was that we administered the questionnaire using ‘Google forms’ and the responses obtained were scientifically inferior to the direct interview.

**Conclusion**:

Interns of the medical field in South India are lacking adequate knowledge, practice in the application of bioethical principles during their internship period.

**Future direction**:

Interns should be directed to undergo compulsory bioethical training during their internship period. Bioethical principles should be included in the curriculum and taught in all the years of medical education as a separate subject to reinforce the principles.

**References**:

1. Sulmasy DP, Geller G, Levine DM, Faden RR. A randomized trial of ethics education for medical house officers. J Med Ethics 1993 Sep;19(3):157–63.
2. (AMENDED UPTO 8th OCTOBER 2016) [Internet]. [cited 2020 Aug 11]. Available from: https://webcache.googleusercontent.com/search?q=cache:3VDAQ\_5mDsgJ:https://www.mciindia.org/documents/rulesAndRegulations/Ethics%2520Regulations-2002.pdf
3. Feudtner C, Christakis DA, Christakis NA. Do clinical clerks suffer ethical erosion? Students’ perceptions of their ethical environment and personal development.Acad Med 1994 Aug;69(8):670–9.
4. Jiang S, Yan Z, Xie X, Tang W, Lu F, He J. Initial knowledge of medical professionalism among Chinese medical students. Med Teach 2010;32(12):961–70.
5. Pandey SK, Sharma V. Commentary: Increasing cases of litigations against ophthalmologists: How can we minimize litigations during ophthalmic practice? Indian J Ophthalmol2019 Oct 1;67(10):1527.
6. Berger D. Corruption ruins the doctor-patient relationship in India. BMJ 2014 May 8;348:g3169.
7. Chatterjee C, Srinivasan V. Ethical issues in health care sector in India. IIMB Manag Rev2013 Mar 1;25(1):49–62.
8. Bansal RK, Das S. Unethical relationship between doctors and drug companies.J Indian Forensic Sci2005;27(1):40‑2.
9. S I, S B. Knowledge and attitude related to medical ethics among medical students. Int J Community Med Public Health 2018 May 22;5(6):2222–5.
10. Chatterjee B, Sarkar J. Awareness of medical ethics among undergraduates in a West Bengal medical college. Indian J Med Ethics 2012 Jun;9(2):93–100.
11. Janakiram C, Gardens SJ. Knowledge, attitudes and practices related to healthcare ethics among medical and dental postgraduate students in south India. Indian J Med Ethics 2014 Apr 1;11(2):99–104.
12. Radhika M, Srinivas P, Pavani NPM.Knowledge, Attitude, and Practices of Bioethics amongPostgraduate Students – An Institution-Based Study.Int J Oral Care Res 2018;6(1):S72-6
13. Angadi MM, Shashank KJ, Jose AP. A study to assess knowledge regarding medical ethics among undergraduates in ShriBM Patil Medical College, Bijapur, Karnataka.Int J Pharma Bio Sci 2014 Mar;5(1):647-53.