

*Original Research Paper*

## Effectiveness Of Teaching Program in Increasing the Knowledge Of Medical Students in Pediatric Bioethics: A Questionnaire Based Study

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### ABSTRACT

**Background:** Bioethics education started in the recent past with the AETCOM module (attitude, ethics and communication). Knowledge of ethics in a specialized field such as pediatrics is an important competency for a basic doctor.

**Methodology:** The investigators enquired into the knowledge of third year students in pediatrics using a validated “Test of Residents Ethics Knowledge for Pediatrics (TREK-P)” questionnaire. The domains were professionalism, adolescent medicine, genetic testing and diagnosis, neonatology, decision-making in life sustaining treatments, and decision-making for minors. An interventional prescheduled class was taken on ethical issues prevailing in pediatrics, so as to inform the students on the ethical way of thinking.

**Results:** The study results bring out the fact that many of the important issues especially those related to genetic testing, neonatology, end of life decisions and decision making in minors was found to be lacking and which showed us statistically significant increase in awareness following the positive intervention. The various ethical issues in pediatrics embody the principles of bioethics especially autonomy, nonmaleficence, beneficence, and justice. Students should be given a focused session on various ethical concerns so as to have a right alignment of attitude. Questionnaires to this effect would help in quantifying the ethical lacunae.

**Conclusion:** This study brought forth importance of ethical knowledge in healthcare and continued development programs for the physician in training.

**Keywords:** Questionnaire, domains, bioethics, students, pediatrics.

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### Introduction

Medical curriculum is a highly subjective specialty of study, and reports indicate that the emphasis of most students is towards attaining the required knowledge for their future practice, while that of the teaching hospitals/institute is to help them achieve the necessary skill through required classroom, bed side, clinical and community teachings. In this model of pedagogy existing in many countries, the essential fact that medical practice also includes a moral component is lost and

students are not taught bioethics and skills on resolving ethical dilemmas they will encounter as healthcare professionals.

Global reports indicate that teaching bioethics is important as this will help the clinician understand the importance of including a patient's or family's values in clinical decision-making, maintain high ethical standards, maximize benefit, and minimize harm to the patient [1]. However, the existing gap in the knowledge, accompanied by a highly aware public has increased the reporting of unprofessional behaviours by healthcare professionals [1]. In lieu of these observations and understanding the need to impart knowledge of medical ethics and practical application of clinical ethical reasoning skills are essential components in medical practice, most medical schools in the developed countries have now included medical ethics teaching in their curriculum [2-7].

With respect to India, teaching of ethics as a formal part of the curriculum is largely absent and the Medical Council of India (MCI), the apex body since vision 2015 (ATCOM) has incorporated attitude and communication (ATCOM) but only later it was changed to attitude, ethics and communication (AETCOM) [8]. The dawn of bioethics education began with this epoch-making move. Hence bioethics has been taught from the very beginning in the medical curriculum. Bioethics has now structured classroom teaching, mentor-protégée modules, continuing medical education workshops, video and movie-based programs for the past few years.

Of all aspects in medical ethics, treating children at times is ethically complicated. This is principally because they are not autonomous, and the decision making is usually left to their parents [9-10]. Additionally, the physicians also need to consider that in accordance to the article 12 of the United Nations Convention on the Rights of the Child (CRC), children above the age of six have the right to express their view freely in making health-care-related decisions affecting them and that the physician/s need to consider their opinion seriously [10]. This study enquired into the attitudes and awareness of medical students on specific ethical issues related to paediatrics. The comparison was made to those students who were not having bioethics classes. The students were mainly pooled for the survey from the bioethics program conducted in the institute. The study was conducted using the validated "Test of Residents Ethics Knowledge for Paediatrics (TREK-P)" [11].

### **Methodology**

Medical students in third year were administered Ethics Knowledge for Pediatrics which is 36 true/false questions that tested knowledge in several domains of pediatric ethics: professionalism, adolescent medicine, genetic testing and diagnosis, neonatology, end-of-life decisions, and decision making for minors [11]. All questions and their correct answers were derived from published statements from the American Academy of Pediatrics Committee on Bioethics. The institutional ethics committee sanction was obtained.

For the study, purposive sampling was adopted. The study was conducted in compliance with the "Ethical principles for medical research involving human subjects" section of the Helsinki Declaration and ICMR GCP guidelines. The students were explained the objective of the study and also that their participation was completely anonymous and voluntary. Written consent was obtained on separate sheet from all the willing participants before the administration of the questionnaire and their anonymity was maintained. The intervention was a lecture given by a bioethicist related to exclusively to paediatric bioethics. The pre and the post intervention analysis was made therefrom.

Data was collected from the willing students through a self-administered TREK-P questionnaire that is in lines to the guidelines suggested by American Academy of Paediatrics (AAP) Committee on Bioethics. The questionnaire contains 23 survey items and tests knowledge in professionalism (2 questions), adolescent medicine (3 questions), genetic testing and diagnosis (5 questions), neonatology (4 questions), decision-making in life sustaining treatments (5 questions), and decision-making for minors (4 questions) with true or false as choices for each question. In their study, Kesselheim and co-workers (2012) have reported that the TREK-P questionnaire had a robust internal reliability with a KR-20 of 0.73, moderate difficulty with mean of 0.73 (range, 0.16–

0.97) and a corrected point biserial correlation mean of 0.26. They were collected back immediately after anonymous completion.

### Statistical analysis

Data was entered in Microsoft excel and analysed on the online based Vassar Stats statistical program. All quantitative variables are illustrated through mean and standard deviation and the *t* test was applied. A *p* value of < 0.05 was considered significant.

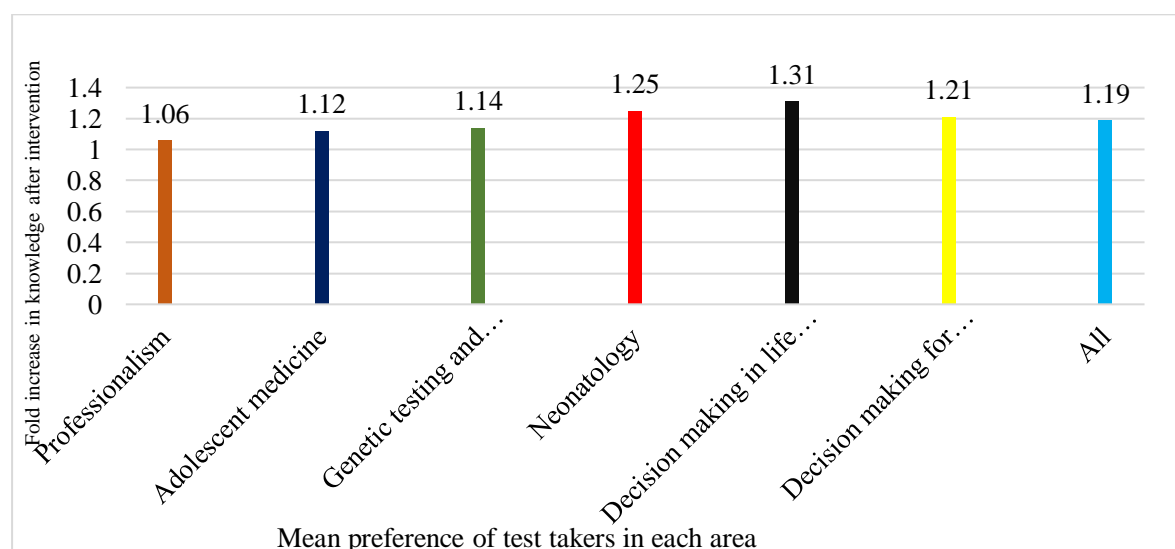
### Results

**Table 1 - Difference in the scores of the participants before and after Bioethics training as ascertained by Ethics Knowledge for Paediatrics (TREK-P) questionnaire**

Domains	Test point		Fold increase	T value	P value
	Pre intervention	Post intervention			
Professionalism	1.22±0.65	1.30±0.64	1.06	0.81	0.40 <sup>NS</sup>
Adolescent medicine	0.98±0.92	1.10±0.91	1.12	0.85	0.39 <sup>NS</sup>
Genetic testing and diagnosis	2.06±0.96	2.34±0.70	1.14	2.18	0.03*
Neonatology	1.49±1.1	1.86±1.00	1.25	2.28	0.02*
Decision making in life sustaining treatments	1.79±1.05	2.34±1.05	1.31	3.42	0.0007*
Decision making for minors	2.04±1.02	2.46±1.04	1.21	2.64	0.009*
All	9.58±3.01	11.39±2.32	1.19	4.42	<.0001*

\*significant (*p* < 0.05), NS – not significant

**Figure 1- Effectiveness of intervention in different areas**



### Discussion

The opinion of students on various ethical issues in paediatrics showed variations in awareness of the ethicality in paediatric issues. An interventional prescheduled class was taken on ethical issues prevailing in paediatrics, so as to inform the students on the ethical way of thinking. The study results bring out the fact that many of the important issues especially those related to genetic

testing, neonatology, end of life decisions and decision making in minors was found to be lacking and which showed us statistically significant increase in awareness following the positive intervention. Student showed a dismal lack of understanding about decision making in minors. The role of assent and consent was not clearly understood in healthcare practice and in clinical research.

The various ethical issues in paediatrics embody the principles of bioethics especially autonomy, nonmaleficence, beneficence, and justice [12].

Aspects of professionalism especially altruism, commitment to learning, expertise is necessary for students not only from the paediatric aspect but also, for being doctor as a whole. The study conducted among medical residents in Spain revealed better understanding of professionalism at the beginning of their residency which gradually decreases during the course [13].

Genetic testing and diagnosis is necessary to prevent and treat disorders based on genetics. Genetic counselling etc is also a very important contradiction in paediatrics that should be in the spectrum of knowledge of students. The understanding of medical students in the area of genetics which can be applied in clinical practice is limited [14].

End of life decision making in children is wrought with dilemmas. Understanding of ethical issues in paediatrics, withdrawal of life support system etc played an important role for a student in paediatrics. Medical students were reluctant to stop interventions in end of life care [15]. The knowledge of students on the ethical handling of paediatrics concerns in healthcare and research is mandatory. This holds true for all the subjects that a student would require as a basic doctor. Such standardized ethical knowledge questionnaires in different disciplines would help clearer understanding for students. Paediatric training programs should include such questionnaires in varying degrees so as to affirm ethical knowledge in students. Students fared badly in the overall assessment before the intervention but achieved total awareness post intervention when considering all the parameters. But there was slight variability in professionalism and neonatology. From the study, we realize that students should be given focused session on various ethical concerns so as to have a right alignment of attitude. The right to life is inevitably applied to children and their life must be safeguarded [16].

## Conclusions

The students in paediatric postings should be aware of ethical considerations in paediatric healthcare and clinical research. Questionnaires to this effect, would help in quantifying the ethical lacunae. This study brought forth importance of ethical knowledge in healthcare and continued development programs for the physician in training.

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