

A 6-Month Questionnaire-Based Study On Knowledge, Attitude, And Practice Of Future Medico-Legal Problems Among Medical Students In A Tertiary Care Hospital.

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Abstract

Introduction: Forensic medicine, a vital but often overlooked branch of medicine, integrates medical expertise with judicial processes, aiding in crime resolution and ensuring justice through scientifically validated information. Traditionally linked to forensic pathology, the field now includes clinical forensic medicine (CFM), dealing with living persons and medico-legal interactions. Despite reduced curriculum emphasis, knowledge in forensic medicine is crucial due to increased public awareness of legal rights and the expansion of doctors' responsibilities under consumer protection laws.

Materials and Methods: A cross-sectional study was conducted with final-year medical students and interns at Tertiary Care Hospital, Belagavi, Karnataka, from July to December 2023. A sample of 145 students was selected using a randomised convenient sampling method; 138 completed the survey. Data was collected via a 23-item electronic questionnaire, assessing demographics, knowledge, attitudes, and practices related to medico-legal issues. Statistical analysis was performed using SPSS, with descriptive statistics and significance set at $p < 0.05$.

Results: The study included 82 females (59.4%) and 56 males (40.6%), with a mean age of 24.46 ± 1.45 years. High knowledge was reported by 66.27%, positive attitude by 71.47%, but only 14.5% demonstrated excellent practices. Significant knowledge gaps included understanding the legal importance of complete reports and obtaining informed consent before photography. Major stressors identified were fear of legal repercussions (54.17%) and familial pressures (69.79%).

Discussion: The findings reveal good knowledge and attitudes among students but highlight gaps in practical application, particularly in report completeness and consent protocols. Addressing these gaps through enhanced training in undergraduate, residency, and postgraduate programs is crucial.

Conclusion: There is a need for structured forensic medicine training in medical curricula to bridge theory-practice gaps, ensuring future doctors are well-prepared for medico-legal responsibilities. Recommendations include introducing CFM training in undergraduate education and providing specialized programs for residents and postgraduate emergency doctors.

Keywords: Forensic Medicine, Clinical Forensic Medicine, Medico-Legal Issues, Medical Education

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I. Introduction

Applying medical knowledge to the legal system, forensic medicine is a difficult and sometimes disregarded area of medicine.¹ It plays a pivotal role in the judicial system by offering critical scientific analyses that assist in resolving legal disputes. By carefully examining physical evidence, forensic medicine helps determine causes of death, identify victims, and establish timelines for criminal events.² This meticulous process not only aids law enforcement in solving crimes but also ensures that the legal proceedings are guided by objective, scientifically validated information, thereby enhancing the precision and fairness of judicial outcomes.^{3,4}

Traditionally, forensic medicine referred specifically to forensic pathology, which investigates causes of death. However, the term has evolved to encompass all aspects of forensic work, including clinical forensic medicine (CFM). CFM is a branch of medicine that involves interactions with legal, judicial, and police officials, typically concerning living persons. This term has gained widespread use only in the past two decades. Over the years, CFM practitioners have gone by a number of names, including forensic medical examiners, police surgeons, and forensic medical officers. These titles reflect appointed roles rather than the nature of their work. Today, the term forensic physician is more commonly accepted.⁵

Over time, the undergraduate curriculum for forensic medicine has been reduced, leading to a decline in its perceived importance. Nonetheless, it is crucial for doctors to have adequate knowledge in this field, especially as the general public becomes more aware of their legal rights through easily accessible media. With medical care now falling under the consumer protection act, doctors' responsibilities have increased, making a thorough understanding of Forensic Medicine and Toxicology essential. It is critical that victims who have survived violent crimes and trauma be examined by professionally qualified clinical forensic physicians in order to address their forensic demands.⁶ In developed countries, examinations and report preparations are conducted exclusively by doctors specialized in CFM or forensic pathologists. In contrast, in India, even duty or general medical officers without knowledge of medico-legal cases (MLCs) are often tasked with such reporting.⁵ Regulatory oversight and adherence to professional standards are vital for the smooth functioning and credibility of the field. Medical education in India is governed by the Medical Council of India's regulations at both undergraduate and postgraduate levels.

The undergraduate curriculum in India spans four-and-a-half years, followed by a 12-month compulsory practical internship, culminating in the award of a MBBS medical degree. The primary goal of teaching forensic medicine in India is to produce well-informed physicians aware of their medico-legal responsibilities. Objectives include equipping students with the ability to make accurate observations, draw logical conclusions to aid in justice administration, understand the law related to medical practice, diagnose and manage common poisonings, and address associated medico-legal issues competently.

During their internship, students undergo seven days of compulsory training in casualty and 15 days of optional training in forensic medicine. This training is designed to impart knowledge of various medico-legal responsibilities, teach students to identify medico-legal problems, prepare medico-legal reports, conduct thorough post-mortem examinations, and diagnose and treat common poisoning cases under supervision.

As forensic medicine continues to evolve, its contributions remain invaluable in ensuring justice is served with greater accuracy and fairness. The purpose of this study is to evaluate final-year medical students' knowledge, understanding, and attitudes towards the practice of medicolegal issues at Tertiary Care Hospital in Belagavi, Karnataka. The findings are expected to highlight the current state of forensic medicine education and its implications for future medical practitioners.

II. Materials And Methods

Final-year medical students and interns at the Tertiary Care Hospital in Belagavi, Karnataka, participated in a cross-sectional study. A randomised convenient sample was used to choose the participants, and the process took six months, from July 2023 to December 2023. The sample size was calculated using an internet tool for sample sizes. With a 5% confidence interval, a 95% confidence level, and a total of 255 students, the sample size was determined to be 145 students. There were 138 students in the final sample after incomplete answers were eliminated. To preserve face validity, a field expert created an electronic, predesigned, self-administered 23-item questionnaire in English. Following an explanation of the study's purpose, students were asked to willingly complete the questionnaire. Age, gender, country, and university registration number were all included in the demographic information. There were two practice questions that focused mostly on visual documentation, eight questions that assessed attitude, and eleven questions that tested knowledge. Two of the questions asked about the opinions of the students. While some questions included just "yes" or "no" alternatives, the majority of questions had answers that could be answered objectively, such as "yes," "do not know," or "no." Every right response was rated as "excellent," every wrong response as "bad," and any response indicating ignorance as "no knowledge." The total knowledge levels (good, no knowledge, and awful) were calculated by adding together all comparable responses. Next, the percentages of each response were calculated. A similar approach was used to the responses pertaining to practice and attitude. Answers that were considered "positive" or "positive attitude" were distinguished from those that were "negative" or "borderline," respectively. The project was given ethics committee permission, and all personal information was handled in confidence.

Statistical Analysis

Software 23 for Windows, the Statistical Package for the Social Sciences (SPSS Inc. Chicago, IL, USA), was used to statistically analyse the data. For categorical variables in descriptive statistics, percentages were utilised, whereas mean and standard deviation were utilised for variables that were regularly distributed across time. Figures (1-3) were constructed using Microsoft Excel 2010. The statistical significance was determined by using a P value of less than 0.05.

III. Results

The research comprised 82 (59.4%) girls and 56 (40.6%) men, with a mean age of 24.46±1.45 years. Figure 1 shows that 66.27% of students reported having high knowledge overall, 19.24% reported having no knowledge, and 14.49% reported having low knowledge. 71.47% of students reported having a positive attitude

overall, 14.31% reported having a borderline attitude, and 15.67% reported having a negative attitude. But just 14.5% of respondents mentioned using excellent practices (Figure 1).

According to Table 1, the least knowledgeable respondents (less than 50% correct answers) were those who worried about the legal significance of their incomplete reports (39.86%), notifying family members before calling the police (41.3%), and the importance of victims' or relatives' informed consent before taking photos (46.38%).

Table 2 demonstrates that the students' least positive attitude (41.3%) on their current level of overall medico-legal education and knowledge was their least accurate attitude response (less than 50% correct answer).

Table 3's student responses to the two questions (15.94% and 13.04%) revealed poor practice. According to the students, fear of potential legal repercussions (54.17%) and the victim's family (69.79%) were the primary sources of stress and strain while handling medico-legal issues (Figure 2).

According to final-year medical students, undergraduate years (57.25%) were deemed to be the finest educational stage for medico-legal training programmes, somewhat higher than residency (55.8%) or postgraduate years (46.38%) (Figure 3).

Table 1: Participants knowledge of their future medico legal problems.

	Yes	No	Do not Know
1. In case of criminal suspicion of living or dead victims, the physician must notify the police authority immediately through official procedure?	122(88.4)	7(5.07)	9(6.52)
2. In case of criminal suspicion, do you think that notification to the police authority is an essential legal procedure and has its legal responsibility?	120(86.9)	10(7.25)	8(5.80)
3. In the same context, should you notify the relatives about your suspicion prior police notification?	57(41.3)	22(15.94)	59(42.75)
4. Do you expect any sort of pressure/stress from relatives or others preventing you from disclosure of a criminal suspicion	90(65.22)	48(34.78)	-
5. Should your workplace in the future provide a unified protocol about management of sexual abuse and physical abuse cases?	111(80.4)	12(8.7)	15(10.87)
6. Do you think that photography by medical staff can have a role or useful in managing physical and sexual assault victims before referral to forensic medicine doctors?	92(66.67)	15(10.87)	31(22.46)
7. Do you think that photographic documentation could protect the medical staff from remote legal consequences	99(71.74)	17(12.32)	22(15.94)
8. Is the informed consent from the victim or relatives is crucial before photographic documentation in these cases?	64(46.38)	30(21.74)	44(31.88)
9. Do you think that proper documentation for each medico-legal case is essential including (full description of wound, measurement, timing of injury and photography)	115(83.3)	6(4.35)	17(12.32)
10. Do you think that incomplete medico-legal reports issued from the medical department at your workplace are legally valuable?	55(39.86)	40(28.99)	43(31.16)
11. Do you expect major legal consequences, penalties of medicolegal reports in courts?	81(58.70)	13(9.42)	44(31.88)

Table 2: Participants of their future medico-legal problems.

	Yes (positive)	No (negative)	DK (borderline)
1. Do you think that your future workplace provides instruments (Camera) and requirements for photographic documentation?	79(57.25)	21(15.22)	38(27.54)
2 Do you think that your future workplace should provide a specified protocol about collecting evidence from a medico-legal case (clothes, swabs, bullet, remnants of foreign bodies, etc.)?	107(77.54)	12(8.7)	19(13.77)
3 Do you think that your future workplace should provide sexual assault kits for evidence collection until referral to forensic medical centers?	95(68.84)	10(7.25)	33(23.91)
4 Do you think that your future workplace should provide you with a training program in evidence collection in medical departments?	122(88.41)	16(11.59)	-
5 Do you think that your future workplace should provide a well-organized chain of custody for evidence collection until delivery to police authority?	102(73.91)	11(7.97)	25(18.12)
6 Should you have any training program in writing medico-legal reports in ER?	104(75.36)	34(24.64)	-
7 Do you think that current overall education and knowledge about medico-legal cases is appropriate?	57(41.30)	61(44.0)	20(14.49)
8 Do you need more training programs concerning management of medico-legal cases at medical practice?	123(89.13)	8(5.80)	7(5.07)

Table 3: Participants practice of photographic documentation.

	Yes (practice)	No (no practice)
1 Did you practice or help in photographic documentation for any of medico-legal cases?	22(15.94)	116(84.06)
2 Did you have any training for photographic documentation of medicolegal cases?	18(13.04)	120(86.96)

Figure 1 Total response for knowledge, attitude, and practice of future medico-legal problems by the participants.

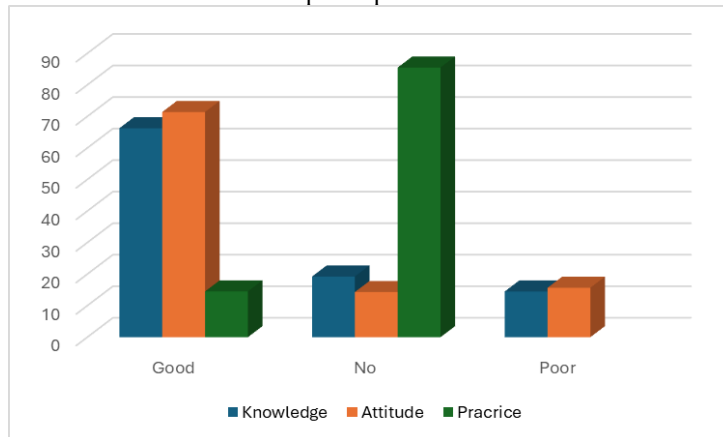


Figure 2 Sources of stress/pressure by medico-legal problems in participants opinion.

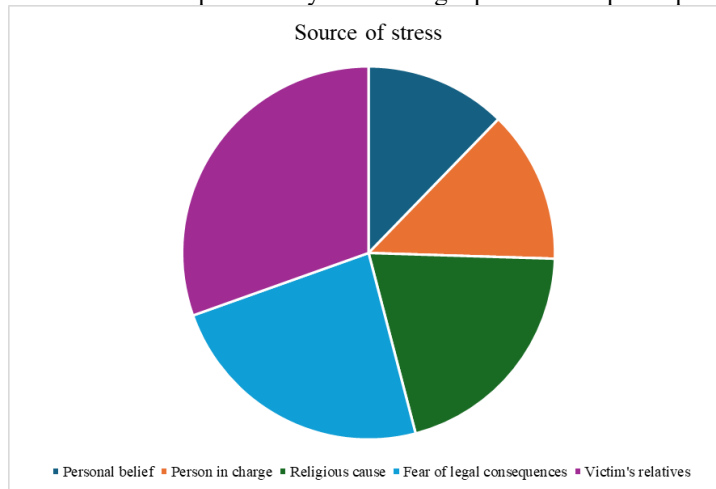
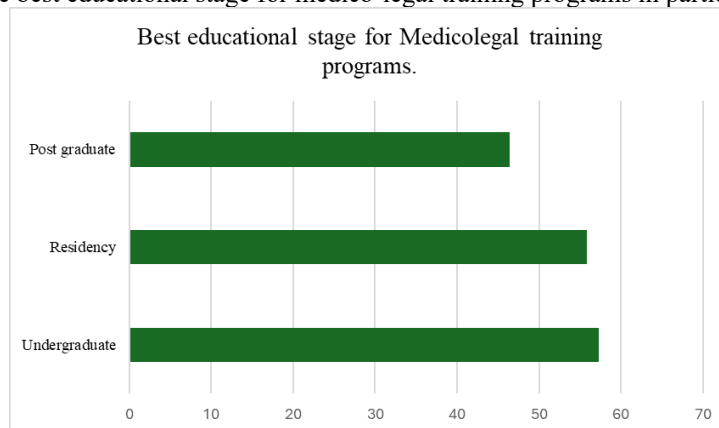


Figure 3: The best educational stage for medico-legal training programs in participants opinion.



IV. Discussion

The current study found that a significant portion of medical students in their final year had favourable attitudes (71.47%) and good knowledge (66.27%) about medico-legal issues. However, they struggled in one particular area of competence (i.e., determining the legal importance of inadequate medical reports; 28.99%). This is shocking because most doctors should be quite concerned about insufficient reporting. Furthermore, only half of the students (54.17%) said that they would be under pressure to handle medico-legal issues due to potential legal repercussions. Many of the medico-legal reports, including those authored by medico-legal specialists or treating practitioners, were found to be incomplete in a retrospective assessment.⁷ This aligns with the outcomes of a different study.^{8,9} Researchers discovered a potential correlation between the length of the doctors' training and work experience and the accuracy of their reports.⁹ Therefore, it may be necessary for responsible organisations to adopt an early awareness campaign in order to further complicate the already existing reporting error caused by students' ignorance of the legal ramifications of inadequate reporting by these future physicians. The majority of students expected this because they thought their future job would provide them with training in creating medico-legal reports in emergency rooms (ERs) and in medical departments (88.41%). Many students were reluctant to warn victims or families before alerting the police (15.94%) or to get their permission before taking a picture of the victim (21.74%) because they felt that family was a major source of pressure and stress (69.79%). While some emergency physicians think it's permissible to take physical evidence from someone who is suspected of committing a crime, others think it's not in their patients' best interests.¹⁰ Physicians have an ethical duty to protect patient privacy.¹¹ In one study¹²; healthcare professionals believed that the aggression of the patients' families made handling forensic cases difficult. Similarly, one study¹² revealed that just a small percentage of health professionals (19.1%) and even those who graduated (2.9%) had training on how to handle a forensic case. Instructing undergraduates in the fundamentals of forensic medicine would assist doctors in conducting forensic medical exams and may help address the scarcity of forensic medical professionals with specialised training.¹³ Many students (44%) felt negatively about their present level of general education and understanding in medico-legal practice. Additionally, they believed that undergraduate years (57.25%) or post-graduate years (46.38%) would be the greatest times to pursue medico-legal training programmes. Residency (55.8%) and post-graduate years (46.38%) were considered less favourable. Medical schools should require their students to take forensic medicine courses, which should cover autopsy from both a theoretical and practical perspective.¹⁴ Clinically focused learning approaches should include instruction on how to diagnose physical and sexual abuse, how to document injuries with photos, how to manage forensic evidence in emergency rooms, and an introduction to the legal and ethical issues of managing medico-legal emergency situations.¹⁵ Furthermore, clinical forensic medicine need to be incorporated into the basic curriculum of any programme that trains emergency medicine practitioners, including residents and postgraduates in other disciplines.^{16,17} For medical undergraduates majoring in forensic medicine in China, forensic pathology is one of the most important and well-known subspecialties in the medical field. Undergraduates in forensic pathology, forensic psychiatry, forensic serology, and other associated subspecialties get instruction for five years during their specialised education programme.¹⁸ For medical undergraduates majoring in forensic medicine in China, forensic pathology is one of the most important and well-known subspecialties in the medical field. Undergraduates in forensic pathology, forensic psychiatry, forensic serology, and other associated subspecialties get instruction for five years during their specialised education programme.¹⁹ Basic understanding of the field and a comprehensive review of forensic pathology were characteristics of one forensic education programme.²⁰ It featured foundational knowledge of legal and medical matters, sophisticated forensic pathology methods, tools and chances to enhance students' professional attributes, and appropriate student mentorship.

The study's generalizability was lowered due to the convenient sample's lack of randomization, which was the main research constraint. The sample wasn't representative of all interns and final-year medical students. Participants who have really poor knowledge or a bad attitude might not answer the survey. The second limitation pertained to the precision of the answers obtained by the self-administered survey. Furthermore, the questionnaire only contained visual record of injuries; no information on other aspects of practice was provided.

V. Conclusion

Medical students in their last year should be well-prepared for their future practices by having a positive attitude and solid knowledge of medico-legal issues. Still, a number of gaps were discovered between theory and practice. The legal repercussions of false reporting, the requirement to get informed consent from patients or their families, and the particulars of interacting with relatives were not known to the students. Therefore, we advise medical schools to launch an undergraduate degree in clinical forensic medicine. Additionally, training programmes are necessary for residents and postgraduate emergency doctors to develop their knowledge of medico-legal duties, gain the technical skills necessary to assess victims forensically, and produce comprehensive reports.

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