

## ORIGINAL ARTICLE

## Knowledge and Perception of Medical Negligence in Medical Students

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## ABSTRACT

**Introduction:** Absence of reasonable care and skill, or willful negligence by medical practitioner in the treatment of a patient resulting in bodily/psychological injury or death of the patient is medical negligence. This survey was conducted to assess the knowledge and awareness of medical students and interns in a medical college.

**Materials & Methods:** It is an observational cross-sectional study in which 306 IIIrd Professional M.B.B.S. Part-2 students & Interns participated in 10 multiple-choice questions based on different aspects of negligence in medical practice and its prevention. The data collected were tabulated and statistically analyzed to draw conclusions.

**Results:** Out of 306 total respondents, 27.80% (n=85) had adequate knowledge, while 60.50% (n=185) had partial knowledge, and 11.80% (n=36) had poor knowledge. It was found that adequate knowledge was present in 36.41% (n=71) of IIIrd Professional M.B.B.S. Part-2 students, and 12.61% (n=14) of Interns.

**Conclusion:** IIIrd Professional M.B.B.S. had better knowledge about medical negligence when compared to Interns showing labile memory of lessons taught in UG curriculum. A reasonable approach to tackle this issue could be to ensure better medico-legal training for medical students.

## KEYWORDS

• Medical negligence • Knowledge • Perception • Medical students

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## INTRODUCTION

Professional negligence is defined as the absence of reasonable care and skill, or willful negligence of a medical practitioner in the treatment of a patient, which causes bodily/psychological injury or death of the patient.<sup>1</sup>

Management of a patient is not just giving the best treatment to the patient. It is extensive and includes developing a good doctor-patient relationship, eliciting an elaborate history, informing patient/relatives at every step, obtaining informed written consent, thorough clinical examination, conducting required investigations, correct diagnosis, choosing the most suitable treatment, the best management of the patient with proper advice (either hospitalized or treated at home) and follow up wherever required, timely referral if the patient requires additional/advanced care, etc.

A study published in New England Journal of Medicine reported that 99% physician in high risk specialties & 75% in low risk specialties has faced some or other form of negligence by the age of 65 years. Thus, medico-legal education is very much important in field of medicine.<sup>2</sup> At the same time, a doctor is expected to maintain the medical and medico-legal records and professional secrecy of patients, sometimes execute the responsibility of privileged communication and abide by the prevalent rules and regulations laid down by Health, Legal and Municipal authorities.

The best time to expose healthcare professionals to these concepts is during their formative years of education so that they can integrate their acquired knowledge into practicing medicine. There is a dearth of information available about the current level of knowledge that medical students and interns have. In this regard, this survey assessed the knowledge and awareness of medical students and interns with respect to their comprehension of medical negligence with the aim to sensitize them about this usually overlooked aspect in medical practice.

## AIMS AND OBJECTIVES

1. To assess students knowledge about medical negligence and its types.
2. To assess students awareness about clinical situations that constitute medical negligence.

3. To assess the knowledge about precautionary steps recommended for avoiding the charge of negligence.
4. To assess the awareness regarding possible defenses against the charge of medical negligence.

## MATERIALS AND METHODS

It is an observational cross-sectional study done at a Medical College in Pune, Maharashtra, India on willing study population of Medical students studying in IIIrd Professional M.B.B.S. Part-2 and students doing Internships over a period of 4 months. Ethical permission was obtained from Institutional ethics sub-committee obtained vide Ref. No. IESC/107/2022 dated 8/8/2022.

A pre-validated questionnaire consisted of demographic details such as the name, gender, and current academic year of the participant and 10 multiple-choice questions based on different aspects of negligence in medical practice and its prevention. Confidentiality was maintained throughout by excluding the participants' names and keeping individual results secure.

The data collected were tabulated and statistically analyzed to draw conclusions using the software Epi Info™ Version 7.

## OBSERVATIONS AND RESULTS

Of the 497 possible respondents (250 students studying in IIIrd Professional M.B.B.S. Part-2 and 247 interns, who have all undergone training in medical ethics), 306 completed the questionnaire, giving a response rate of 61.56%. This has been illustrated in Figure 1.

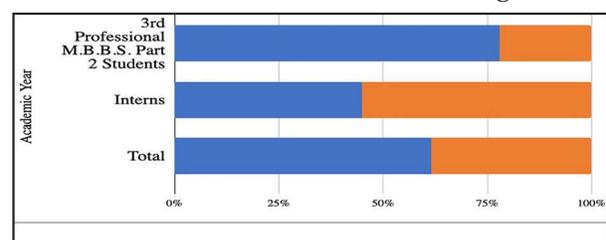


Figure 1: Response Rates

Table 1: Distribution of Respondents by Gender

Gender	No. of Respondents	Percentage
Male	203	66.30%
Female	103	33.70%

Table 1 shows the breakdown of participants according to their gender. 203 (66.3%) of the respondents were male, and 103 (33.7%) were female. The same has been illustrated in Figure 2.

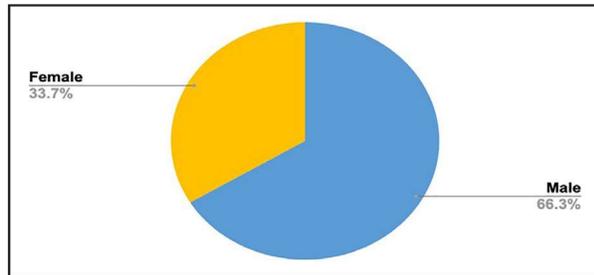


Figure 2: Distribution of Respondents of the basis of Gender

As can be seen from Table 2, the respondents included 195 (63.7%) Students of IIIrd Professional M.B.B.S. Part-2 and 111 (36.3%) Interns. (Figure 3)

Table 2: Distribution of respondents by academic year

Academic Year	No. of Respondents	Percentage
IIIrd Professional M.B.B.S. Part-2	195	63.70%
Intern	111	36.30%

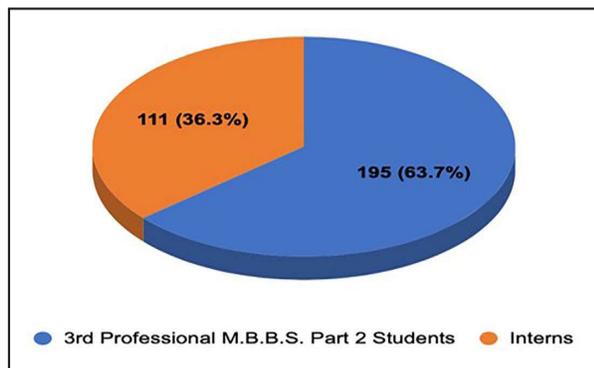


Figure 3: Distribution of respondents according to academic year

To assess whether medical students and interns were aware of different aspects of medical negligence, the percentage of their correct responses were categorized as follows:

- I. 70% and above: Adequate knowledge
- II. 30-69%: Partial knowledge
- III. 0-29%: Poor knowledge

Out of 306 total respondents, 27.80% (n=85) had adequate knowledge, while 60.50%

(n=185) had partial knowledge, and 11.80% (n=36) had poor knowledge.

When compared based on the academic year, it was found that adequate knowledge was present in 36.41% (n=71) of IIIrd Professional M.B.B.S. Part-2 students, and 12.61% (n=14) of Interns. This has been depicted in Table 3 as well as Figure 4.

P-value calculated using the chi-square test found to be 0.000007 & less than 0.05 is statistically significant. This suggests that the relationship between the level of knowledge and academic year is statistically significant.

Table 3: Comparison of Level of Knowledge According to Academic Year of Respondents

Level of Knowledge	Academic Year			P Value
	3rd Professional M.B.B.S. Part-2 Students N = 195	Internship N = 111	Total N = 306	
Adequate Knowledge	71 (36.41%)	14 (12.61%)	85 (27.80%)	0.000007
Partial Knowledge	109 (55.89%)	76 (68.46%)	185 (60.40%)	
Poor Knowledge	15 (7.69%)	21 (18.91%)	36 (11.80%)	
Total	195	111	306	

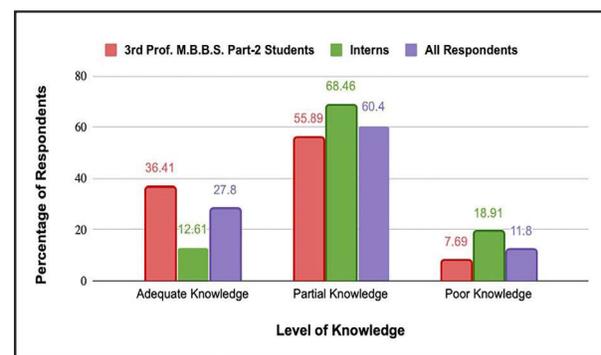


Figure 4: Comparison of Level of Knowledge of Respondents

Table 4 shows the question-wise distribution of correct and incorrect responses given by all 306 respondents.

Of all the questions, only questions 1, 2, 8, and 9 had more than 50% correct responses.

This comparison of correct and incorrect responses for each question from the questionnaire has also been illustrated in Figure 5.

**Table 4:** Question - Wise distribution of correct and incorrect responses

Question & Answer	Correct Responses	Incorrect Responses
Q. 1 Professional negligence means 'the absence of reasonable care and skill, or willful negligence of a medical practitioner in the treatment of a patient'. A: Yes	92.80%	7.20%
Q. 2 To avoid charges of negligence, doctors must not guarantee 100% cure of disease by treatment. A: True	71.20%	28.80%
Q. 3 Not providing medical treatment which does not cause any damage to the patient but reflects wrong behavior of doctor, constitutes. A: Ethical malpractice	19.30%	80.70%
Q. 4 Negligent act of doctor resulting in permanent sterility to patient, is an example of - A: Criminal negligence	46.70%	53.30%
Q. 5 Issuing a Sickness certificate without seeing and treating the patient, constitutes - A: Ethical malpractice	30.70%	69.30%
Q. 6 During laparotomy, leaving cotton swab in peritoneal cavity, constitutes for - A: Res ipsa loquitur	34%	66%
Q. 7 In a corporate hospital, if a patient suffers some damage due to negligent act of an intern/resident who is training under the guidance of unit incharge, then such unit incharge is held responsible for negligence. This is called as - A: Vicarious responsibility	24.20%	75.80%
Q. 8 Consumer dispute redressal forum usually deals with the cases of - A: Civil negligence	50.70%	49.30%
Q. 9 Which of the following can be a possible defense of a doctor against a charge of negligence? A: Both a. It was a case of reasonable error of judgment & b. Doctor patient relationship was broken on valid ground	57.50%	42.50%
Q. 10 A patient suffers minor bodily damage due to a small mistake by the doctor in treatment. In this case, if the doctor has given the treatment completely free, then can such doctor be held responsible for negligence? A: No	18.30%	81.70%

## DISCUSSION

The aim & objective of this study was to evaluate the knowledge of participants regarding various aspects of medical negligence. The knowledge of 306 participants regarding various aspects of medical negligence was evaluated. Of these, 195 (63.70%) were IIIrd Professional M.B.B.S. Part-2 students, and 111 (36.30%) were Interns.

For analysis of the responses to the questionnaire, participants were given a percentage of their correct answers as their score. Respondents were categorized based on scores; a total score of 70% and above classified as having adequate knowledge, between 30% and 69% as having partial knowledge, and those with a score below 30% were said to have poor knowledge. A similar method of scoring the participants was used by Nath A *et al* in their cross-sectional study conducted in Meghalaya.<sup>3</sup>

It was found that only 27.80% (n=85) of the total respondents had adequate knowledge

about medical negligence. These findings are consistent with those found in prior studies among residents and medical practitioners of different specialties such as Obstetrics and Gynecology, Family Medicine & Emergency Medicine.<sup>4-6</sup> 60.50% (n=185) of the respondents had partial knowledge, and 11.80% (n=36) had poor knowledge.

When compared according to the academic year, it was found that 36.41% (n=71) of the IIIrd Professional M.B.B.S. Part-2 students had adequate knowledge, as opposed to only 12.61% (n=14) of the Interns. Only 7.69% (n=15) of IIIrd Professional M.B.B.S. Part-2 students were found to have poor knowledge about medical negligence, but almost 1/5th (18.91%, n= 21) of the Interns had poor knowledge. These differences have been further highlighted in Figure 3.

This difference in knowledge between IIIrd Professional M.B.B.S. Part-2 students and Interns was found statistically significant as p-value was less than 0.05. This observation corroborates the findings of Chatterjee B *et al*,

who highlighted the lack of improvement in ethics awareness corresponding to increasing exposure to medical education.<sup>7</sup> A possible explanation for this difference could be that the IIIrd Professional M.B.B.S. Part-2 students had been exposed to medico-legal education more recently than Interns since these topics are covered in the IIIrd Professional M.B.B.S. Part-1 curriculum in the subject Forensic Medicine and Toxicology.

The question wise responses by the participants were analyzed, which can help identify areas in which the respondents have good knowledge and topics they are not aware of.

It was observed that the maximum correct responses were recorded for Question 1 (92.80%, n=284). Question 1 tested the participant's knowledge about the basic meaning of the term professional negligence, which implies that most respondents know the definition of medical negligence.

The minimum correct responses were for Question 10, where only 18.30% (n=56) of respondents were able to identify whether the given clinical scenario constituted negligence.

Another similar clinical scenario was provided in Question 6, and only 34% (n=104) were able to recognize that the scenario was an example of *res ipsa loquitur*. This implies that medical students and interns are generally lacking clinical knowledge about medical negligence.

The overall response to Questions 3, 4, 5, and 7 were also poor. These questions tested the participant's knowledge about the different types of medical malpractice and medical negligence. This suggests that medical students and interns are not well versed in the differences between the different types of medical negligence. It is vital for medical practitioners to not only be able to differentiate between the types of medical negligence, but also be aware of their consequences, since this can strongly impact the way they carry out their duties, as suggested by Chandra MS *et al.*<sup>8</sup>

Only Questions 1, 2, 8, and 9 were correctly answered by over half of the respondents, whereas for the rest of the 6 questions on the questionnaire, less than 50% participants answered correctly.

Questions 2 and 9 tested the participant's knowledge about avoiding charges of

negligence, and possible defenses against these charges. Thus, it can be concluded that the study population is somewhat aware of ways of dealing with medical negligence claims.

Overall, the findings of the study are addition to the existing literature on medical negligence. While the previous studies had mostly focused on post-graduate students and registered medical practitioners, this study evaluated medical students and interns. The findings of the present study indicate that medical students and interns do not hold adequate knowledge about medical negligence. This could be attributed to the inadequate/ineffective medico-legal curriculum in undergraduate medical education or inadequate/ineffective ways of teaching, or just the casual approach adopted by medical students and interns while learning about medico-legal issues and medical ethics.

As mentioned in the literature review, adding more detailed medico-legal, ethics, and communication skills training to the medical curriculum could be of great importance in nurturing better future doctors. The effectiveness of adding such interventions to the curriculum has been exemplified in a study conducted in rural India by Banait S *et al.*, in which students showed an improvement in knowledge about medico-legal issues and the ability to handle ethical issues after the interventions.<sup>9</sup>

Better training of medical students during their early education would not only improve patient care and satisfaction but also help doctors in their careers. It can help strengthen ethical decision-making and clinical judgment. Extending this training into the post-graduate medical curriculum would also be beneficial to doctors since a majority of practicing doctors are also eager to learn more about these issues, as stated in previous studies.<sup>3,5</sup> This training can be continued in the workplace as well, as has been formerly mentioned in some studies.

It is evident that a doctor, at any stage of their medical practice, might make an error that can lead to them being charged with negligence. Nash L *et al* reported that experiencing a medico-legal matter can cause doctors to have a higher psychological morbidity rate.<sup>10</sup> Thus, educating healthcare workers about medico-legal matters during their pre-vocational and vocational training proves to be helpful in improving patient care quality and the level

of contentment doctors feel with their jobs. Similarly, Limentani AE stated that ethics are a central element in practicing good clinical medicine, and patient care.<sup>11</sup> Hence doctors, especially at the budding stage itself, need to be educated on the different aspects of negligence in medical practice and their consequences so that adequate measures can be taken to avoid such incidents.

Since this study highlights the lack of participants' ability to identify negligence in clinical scenarios, the undergraduate curriculum can be altered to specifically improve this by increasing the number of interactive workshops, case studies, or seminar-based learning. It is important to collect data about the baseline awareness of medical students about medical negligence to determine the areas of weakness in their knowledge so that the curriculum can be accordingly enhanced for their better education. In this way, the medico-legal training of students can be an ongoing and regularly evolving process.

Although this study has concluded that medical students are lacking in adequate medico-legal training and pointed out the areas of shortcomings in their awareness, it has only evaluated a study area of one medical college with tertiary care hospital. There may be differences in the levels of knowledge in different geographical areas and variations in the areas of knowledge deficit. This study also does not account for the changes in the level of knowledge over time, since a cross-sectional study design was used. Thus, there is still ample room for further studies on this topic to effectively identify the topics that must be focused on while teaching medical students. Regular evaluations of medical students can help update the curriculum and ensure good quality medico-legal training.

## CONCLUSION

This study set out to determine the knowledge and perceptions of medical negligence in medical students and interns. The findings of this research showed that; students of III<sup>rd</sup> Professional M.B.B.S. had better knowledge about medical negligence when compared to Interns showing labile memory of lessons taught in UG curriculum. Medical students and interns are only partially knowledgeable about how medical negligence can happen in

different clinical situations. The majority of respondents are partially knowledgeable about the possible defenses against such charges.

While most previous studies did not concentrate on undergraduate medical students, the results of this study imply that the medico-legal curriculum at the undergraduate level itself may be ineffective or insufficient. Considering the findings of this study, a reasonable approach to tackle this issue could be to ensure better medico-legal training for medical students.

Further research in this field would be of great help to compare these findings on a cross-national level, and better formulate changes in the curriculum. Introducing more workshops, seminars, and clinical scenario-based learning will improve the practice of medicine in our country.

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**Conflict of Interest:** None

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