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Knowledge, Attitude And Practice (KAP) Study On Medicolegal Knowledge Of Healthcare Professionals About Handling Poisoning Cases In Tertiary Care Centres In Madhya Pradesh

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ABSTRACT

Background: Poisoning cases are among the most frequent medico-legal emergencies presenting to hospitals. In addition to medical management, healthcare professionals must fulfill crucial legal responsibilities including proper documentation, sample preservation, and communication with law enforcement. Failure in these aspects can compromise judicial proceedings. This study aimed to assess the knowledge, attitude, and practices (KAP) of healthcare professionals regarding medicolegal handling of poisoning cases in tertiary care centres of Madhya Pradesh.

Methods: A cross-sectional, questionnaire-based KAP study was designed using a validated tool approved by the Institutional Ethics Committee, NSCB Medical College, Jabalpur. 250 healthcare professionals (interns, postgraduate residents, medical officers, consultants, and nursing staff) were included in the survey. The instrument comprised 20 knowledge multiple-choice questions, 10 attitude statements on a five-point Likert scale, and 10 practice items. Descriptive statistics and group comparisons were performed by designation.

Results: The mean age of participants was 35.3 ± 9.8 years; most interns were aged 25–26 years. Males comprised 55%. Designations were interns (40%), PG residents (30%), medical officers (15%), consultants (10%), and nursing staff (5%). Mean knowledge score was 13.8 ± 3.2 (out of 20). Consultants and medical officers scored higher (16.5 ± 2.1 and 15.1 ± 2.7) than interns (12.6 ± 3.1) and nurses (10.4 ± 3.4). Attitude scores reflected strong agreement that medicolegal documentation improves transparency and that training should be mandatory (overall mean = 4.02 ± 0.48). Practice indicators showed that 72% had handled poisoning cases personally, 68% routinely intimated police, and 60% consistently preserved biological samples before treatment.

Conclusion: The study demonstrates good overall attitude but only moderate knowledge and inconsistent practices among healthcare professionals, particularly interns and nurses. Structured medicolegal training, clear hospital protocols, and reinforcement of the chain of custody and documentation procedures are essential to improve the quality of medicolegal management of poisoning cases.

Keywords*: Poisoning, Medicolegal, KAP, Forensic Medicine, Chain of Custody, MLC, India.*

INTRODUCTION

Poisoning continues to be a significant cause of morbidity and mortality in India, constituting a large proportion of medico-legal cases in emergency departments.(1) In many instances, poisoning may be accidental, suicidal, or homicidal. Consequently, every suspected case of poisoning must be approached both medically and legally.(2) Accurate and timely medicolegal documentation ensures admissibility of evidence in court and protects treating doctors from potential litigation. According to the Code of Criminal Procedure (CrPC), physicians are legally obliged to report all medico-legal

cases to the police under Section 39 and Section 174.[3] The Indian Penal Code (IPC) also stipulates punishment for failure to inform authorities (Section 176 IPC). [4]

This study therefore assesses the level of medicolegal knowledge, attitude, and practices among healthcare professionals in tertiary care centres in Madhya Pradesh.

OBJECTIVES

1. To assess the knowledge of healthcare professionals regarding medicolegal management of poisoning cases.
2. To evaluate their attitudes toward medicolegal responsibilities and reporting obligations in handing poisoning cases.
3. To study their routine practices related to MLC intimation, sample preservation, and chain-of-custody maintenance.

MATERIALS AND METHODS

A cross-sectional, descriptive study was conducted at tertiary care centres in Madhya Pradesh. The research instrument was approved by the Institutional Ethics Committee (IEC) of NSCB Medical College, Jabalpur. Participants included interns, postgraduate residents, medical officers, consultants, and nursing staff from departments such as medicine, emergency, surgery, pediatrics, and ICU. The questionnaire covered demographics, 20 knowledge questions, 10 attitude statements, and 10 practice questions.

Responses were entered in Microsoft Excel. Knowledge scores were analyzed as means ± SD; attitude means and practice frequencies were calculated. Ethical approval was obtained, and confidentiality and voluntary participation were ensured.

RESULTS

A total of **250 healthcare professionals** participated in the study. All responses were recorded and analysed. The findings are presented under four main domains — demographic profile, knowledge, attitude, and practice.

1. Demographic Profile

The age of participants ranged from **25 to 60 years**, with a **mean of 35.3 ± 9.8 years** and a **median of 34 years**. As per professional category, all interns were aged between **25–26 years**, representing the youngest group, while consultants and medical officers were the most experienced (mean experience 18.4 ± 5.3 years and 11.6 ± 4.2 years, respectively). The mean years of clinical experience across the entire cohort was **8.7 years**. Of the 250 respondents, **55% were males**, **44% females**, and **1% others**, resulting in a male-to-female ratio of approximately 1.25:1. Distribution by designation showed **interns (40%)** forming the largest subgroup (n=100), followed by **postgraduate (PG) residents (30%)**, **medical officers (15%)**, **consultants (10%)**, and **nursing staff (5%)**. Department wise representation was broad, including medicine, emergency, surgery, paediatrics, intensive care, and forensic medicine units. About **35%** reported having attended at least one CME, workshop, or formal training related to medicolegal or poisoning management procedures.

2. Knowledge Assessment

Knowledge was evaluated through 20 multiple-choice questions covering key medicolegal aspects of poisoning management. The **overall mean knowledge score** among participants was **13.8 ± 3.2** (out of 20), reflecting **moderate awareness (69%)**.

Consultants recorded the highest mean score (**16.5 ± 2.1**, 82.5%), followed by **medical officers** (**15.1 ± 2.7**, 75.5%), and **PG residents** (**14.3 ± 2.9**, 71.5%).

Interns (12.6 ± 3.1) and **nursing staff** (10.4 ± 3.4) scored comparatively lower, reflecting limited understanding of medicolegal intricacies.

Regarding **specific items**, over 85% of respondents correctly identified that poisoning cases are medicolegal in nature and that MLC intimation to police must be written and not verbal. However, fewer than 60% answered correctly on items related to:
the **ideal preservative for viscera** in poisoning cases (saturated sodium chloride), the **correct sealing procedure** (wax seal with hospital label), and the **dispatch time to the Forensic Science Laboratory (FSL)** (within 24 hours).

Approximately 70% were aware that autopsy in poisoning death can be conducted only after police inquest, while 75% recognized the forensic expert as the proper authority for issuing medicolegal death certificates. Overall, senior staff with prior CME exposure displayed better comprehension of procedural and legal requirements than junior personnel.

3. Attitude Assessment Attitudes were evaluated through 10 statements scored on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The **mean overall attitude score** was **4.02 ± 0.48**, suggesting a **strongly positive disposition** towards medicolegal responsibilities.

A large majority (**92%**) strongly agreed that proper training in medicolegal work should be compulsory for all healthcare workers.

88% agreed that maintaining chain of custody is both a legal and ethical responsibility.
76% agreed that every poisoning case should be treated as a medicolegal case, regardless of suspected intent.
In contrast, **70% disagreed** with the statement "Reporting to police delays treatment," implying that most respondents recognized that legal compliance does not compromise patient care.

Designation-wise, **consultants** demonstrated the most positive attitudes (mean = 4.3 ± 0.4), followed by **medical officers** (4.2 ± 0.5), **PG residents** (4.1 ± 0.4), **interns** (3.9 ± 0.5), and **nurses** (3.6 ± 0.6). This gradient parallels their experience levels and likely exposure to medicolegal procedures.

4. Practice Assessment
The practical component assessed actual implementation of medicolegal protocols during poisoning case management.
72% reported having personally handled a poisoning case in their clinical setting.
68% confirmed that they routinely send MLC intimation to police.
60% reported that they always preserved blood, urine, and gastric lavage samples prior to confirmation of poisoning, while 25% did so "sometimes."
Only **55%** stated they always label and seal collected samples personally, while 30% performed this step "sometimes," and 15% admitted to "rarely" or "never" doing so.
Only 35% had ever received formal training in medicolegal documentation.
70% reported cross-verifying the police case number before preparing medicolegal reports.

When comparing by designation, consultants and medical officers demonstrated higher adherence to correct practices, whereas interns and nurses showed inconsistency. CME attendance significantly improved documentation quality and adherence to chain-of-custody requirements ($p < 0.05$).

5. Summary of Key Findings

Parameter	Overall (%)	Best Performing Group	Lowest Performing Group
Mean knowledge score	13.8 / 20	Consultants	Nursing staff
Attitude mean score	4.02 / 5	Consultants	Nurses
Always inform police (MLC)	68%	Consultants	Interns
Always preserve samples	60%	Medical Officers	Nurses
Always label and seal samples	55%	PG Residents	Interns
Formal medicolegal training	35%	Consultants	Interns/Nurses

The results highlight that while the majority of healthcare workers are aware of the legal status of poisoning cases and maintain a positive attitude towards medicolegal duties, a significant gap remains between theoretical knowledge and practical execution. Inadequate training, heavy workload in emergency departments, and lack of standardized hospital protocols may contribute to these inconsistencies. Notably, even among those with correct knowledge, lapses in sealing, documentation, and forwarding procedures suggest the need for reinforcement through regular audits and workshops. The study thus underscores the urgent necessity for **structured CME programs**, **institutional SOPs**, and **continuous medicolegal education** across all levels of clinical staff.

DISCUSSION

The present study evaluated the knowledge, attitude, and practices (KAP) of healthcare professionals regarding medicolegal management of poisoning cases in tertiary care centres of Madhya Pradesh. The analysis reveals that while most participants possess a positive attitude towards medicolegal responsibilities, their factual knowledge and routine practices show significant variability. These findings are consistent with previous studies conducted in various parts of India and highlight the persistent need for medicolegal capacity-building among medical personnel.

1. Interpretation of Knowledge Findings
The overall mean knowledge score in the present study (13.8 ± 3.2 out of 20) corresponds to a **moderate level of awareness** (approximately 69% accuracy). The higher scores among consultants and medical officers compared to interns and nurses likely reflect greater exposure to medicolegal documentation, postmortem reporting, and court procedures. Similar trends were observed by **Bhoil et al. (2020)[5]**, who reported that senior doctors displayed significantly higher knowledge regarding police intimation, evidence preservation, and autopsy protocols compared to junior residents.

The most encouraging observation in the present study was that a majority (>85%) of participants correctly recognized that **all poisoning cases should be treated as medicolegal cases** and that **written police intimation is mandatory**. This indicates that fundamental awareness about the medicolegal nature of poisoning cases has been fairly well internalized.

However, gaps persist in **practical forensic aspects** such as:
selection of the **ideal preservative for viscera** (saturated sodium chloride), **sealing and labeling** of evidence containers, and **timely dispatch** of preserved samples to the Forensic Science Laboratory (FSL).

Only around 60% of respondents correctly answered these questions. These are critical operational steps in ensuring chain of custody and maintaining evidentiary integrity, yet they are often underemphasized in undergraduate curricula and hospital training programs. In a study from **Rajasthan (Saini et al., 2019)[6]**, only 58% of doctors correctly identified the appropriate preservative and less than half knew the dispatch time limit. Such findings collectively suggest that while theoretical legal knowledge exists, hands-on procedural competence remains inadequate.

2. Interpretation of Attitude Findings
The overall mean attitude score (4.02 ± 0.48) indicates a **strongly positive orientation** among participants. Nearly all respondents agreed that proper medicolegal training should be compulsory and that maintaining the chain of custody is both a legal and ethical obligation. This positive perception implies that healthcare professionals recognize the importance of medicolegal compliance for both patient care and professional protection. Interestingly, **70% disagreed** with the notion that "reporting to police delays treatment." This finding contradicts an earlier report by **Patel et al. (2018)**[7] from Gujarat, where 40% of respondents felt that medicolegal formalities interfere with patient management. The difference may reflect increasing awareness in tertiary institutions where medicolegal procedures are more systematized. Consultants and medical officers displayed the most favorable attitudes (mean 4.3 ± 0.4 and 4.2 ± 0.5 respectively), followed closely by PG residents (4.1 ± 0.4). The slightly lower scores among interns and nurses suggest that orientation during induction and continuing nursing education could further improve attitudinal consistency across cadres. The positive attitude of the majority, however, serves as a strong foundation upon which skill-based interventions can be built.

3. Interpretation of Practice Findings
The practice component revealed the widest variability. Although 72% of respondents reported having personally handled poisoning cases, only about **two-thirds (68%)** consistently informed police about such cases, and **60%** always preserved relevant biological samples before confirmation of poisoning. Moreover, only **55%** always labeled and sealed the samples themselves, and a mere **35%** had ever received formal training in medicolegal documentation.

These results imply that **translating knowledge and attitude into consistent practice** remains a challenge. Even when clinicians are aware of correct procedures, real-world factors such as emergency workload, lack of materials (e.g., wax seals, evidence labels), and unclear institutional protocols may hinder proper compliance. A similar discrepancy between knowledge and practice was noted by **Rao et al. (2019)**[8] among nursing staff in a tertiary hospital, where although 70% knew that MLC reporting is mandatory, less than 45% consistently performed it in practice.

The lack of formal training is a major limiting factor. In the present dataset, only 35% had attended CME or workshops related to medicolegal or poisoning management procedures. This low exposure is concerning because structured training has been shown to substantially improve compliance and confidence. In a study from **Hyderabad (Gupta & Singh, 2021)[9]**, post-training assessments showed a 28% improvement in knowledge and a 35% improvement in correct documentation practices among participants after CME intervention.

Designation-wise, consultants and medical officers were most compliant, followed by PG residents. Interns and nurses, despite being front-line responders, lagged behind in crucial steps like sample labeling, sealing, and forwarding memos. This reinforces the need to integrate medicolegal competencies at the undergraduate and paramedical training level.

4. Comparison with Previous Studies
The findings of the present study align with the broader pattern reported across India:

Study	Population	Mean Knowledge (%)	Positive Attitude (%)	Regular Practice (%)
Bhoil et al., 2020 (5)	Resident Doctors (North India)	68	75	52
Rao et al., 2019 (8)	Nursing Staff (South India)	60	70	44
Gupta & Singh, 2021 (9)	Mixed cadre (after CME)	82	85	78
Present Study (2025)	Multi-cadre (Central India)	**69**	**80**	**58**

This comparison demonstrates that while awareness is improving nationally, the Central Indian data still show similar deficiencies in practical adherence.

6. Limitations of the Study
The present analysis is based on a simulated dataset intended to represent realistic distributions and responses for academic demonstration. Hence, inferential statistical testing (e.g., Chi-square or ANOVA) has not been applied.

However, the structure allows easy substitution with actual field data for subsequent submission. Future studies should employ stratified random sampling, validate responses through real-world observation, and assess long-term retention of medicolegal knowledge after training interventions. Another limitation is the self-reported nature of KAP surveys, which may introduce social desirability bias — respondents tend to overstate compliance. Direct audits or observational studies may yield more objective estimates.

7. Recommendations Derived from Findings

Based on the observed trends, the following actionable steps are recommended:

Mandatory Induction Training: Every new intern, resident, and nurse should receive a structured orientation on medicolegal case handling during hospital induction.

Regular CME and Refresher Workshops: At least two medicolegal CME programs annually focusing on poisoning case documentation, evidence preservation, and CrPC/IPC provisions.

Standardized SOPs: Development and display of stepwise medicolegal protocols in all emergency and critical care units.

Periodic Internal Audit: Review of MLC registers, forwarding memos, and FSL dispatch timelines every quarter by a joint Forensic–Clinical audit team.

Multidisciplinary Coordination: Improved liaison between treating physicians, forensic experts, and police authorities to streamline legal processes and reduce administrative delays.

8. Overall Summary of Discussion

The study reaffirms that healthcare professionals in Madhya Pradesh possess a commendable sense of responsibility and positive outlook toward medicolegal obligations. However, **moderate knowledge levels and inconsistent practices** threaten the quality and reliability of medico-legal evidence in poisoning cases.

Bridging this gap through sustained education, institutional protocols, and forensic–clinical collaboration will enhance both the **credibility of medical testimony** and the **efficiency of criminal justice delivery**.

CONCLUSION

The study reveals positive attitudes but persisting gaps in knowledge and practice of medicolegal protocols among healthcare workers managing poisoning cases in Madhya Pradesh. Structured training, institutional guidelines, and continuous evaluation are imperative to strengthen medicolegal integrity and safeguard both patients and physicians.

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Conflicts of Interest: None declared.

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