

Ethical Dilemma of Forensic Science in India: A Human Rights Outlook

J. Jencybai Carolina

Assistant Professor of Law, Government Law College Tirunelveli

Abstract:

Ethical dilemma of human rights in forensic science is covered in this paper. The significance of forensic scientists in the criminal justice system and the weight of their responsibility to conduct tests correctly are introduced at the outset. The main ethical precepts, such as accountability, honesty, and dependability, are then described. We look at a number of reasons why people act unethically, including not knowing the rules, wanting attention, or caving in to peer pressure. The quality criterion to be followed in validating a forensic technique, the necessity of crime laboratory accreditation, the gaps in the current law, and the various ethical issues and challenges faced by an expert when dealing with forensic evidence in criminal cases are all highlighted in this paper. It also highlights the importance of the ethical and legal standards that an expert must adhere to. The significance of regularly educating ethics to forensic scientists and methods for making ethical decisions are also covered in the document. Solving crimes and enforcing justice depend heavily on forensic science, which is frequently praised as the criminal justice system's lighthouse of truth. However, there is a complicated web of human rights ethical issues hidden beneath the surface of this admirable endeavour. Where do we draw the line between investigating crimes and safeguarding people's privacy in a time when technology is developing so quickly?

Keywords: Human Rights, Crime, Forensic Science, Criminal Justice System, Legal Standards

Introduction:

Particularly in a nation like India, where the justice system encounters many obstacles, forensic science is essential to the investigation and prosecution of crimes. The use of scientific methods and concepts to investigate crimes and legal matters is known as forensic science. It includes a number of fields, including physics, chemistry, biology, and digital forensics, all of which collaborate to provide evidence that can be used in court. Forensic science is an essential instrument in contemporary law enforcement because of its capacity to impartially evaluate evidence and offer clarity in intricate cases, which makes it significant in criminal investigations. Over time, the function of forensic evidence in the Indian legal system has changed dramatically. Reconstructing crime scenes, identifying the offender, and connecting suspects to illegal activity are all made easier with the use of forensic evidence. Particularly in intricate instances involving violent crimes, fraud, and cybercrimes, the Indian judiciary and law enforcement agencies have depended more and more on forensic evidence to prove guilt or innocence.¹

†. J. Jencybai Carolina, Working as an Assistant Professor of Law, Government Law College – Tirunelveli, Affiliated To The Tamil Nadu Dr. Ambedkar Law University, Chennai, Tamil Nadu.

Although the Indian judicial system recognises forensic evidence, there are various restrictions on how it can be used. For example, under Section 39(1) of the Bharatiya Sakshya Adhiniyam, 2023, expert testimony is admissible in court, and forensic experts can provide critical insights in areas like DNA analysis, fingerprint identification, and toxicology. But integrating forensic science into the legal system consistently and successfully is a hurdle. Although the value of forensic evidence has increased recently, there are still large disparities in the nation's forensic practices' quality, accessibility, and uniformity.²

Role of Forensic Science In Criminal Investigations:

Forensic analysis is essential to solving crimes because it provides unbiased, scientifically supported evidence that can withstand scrutiny in court. By bridging the gap between science and law, forensic subjects enhance the accuracy and reliability of criminal investigations, improving justice. In India, the use of forensic skills in criminal investigations has proven essential for managing complex cases and ensuring that bias does not distort the evidence.³ The various techniques of identification and investigation are:

Narco Analysis Test: Narcoanalysis, commonly referred to as the "truth serum" test, is a contentious investigative method utilized in certain nations. It entails the utilization of specific drugs like sodium pentothal or sodium amytal to induce a state of reduced inhibition and heightened susceptibility to suggestion in an individual's consciousness. The method is to use the memory of the witness. The basic principle says that the person can tell a lie where he can use his imagination and by these drugs, the person is in a half-conscious state where the imagination is blocked and the person is not able to tell a lie.⁴

Lie detection: The lie detector detects the raised heart rate, blood pressure, and the rush of flight or fight hormone that is adrenaline when accuse lies on an answer to a crime-related question.⁵

Brain Mapping Test: Brain mapping is a technical study of functions of the brain by the sensors attached to the brain when he is asked about information related to the crime. During this test, the accused is asked for the relevant information, and the electric waves are recorded throughout the interview. The suspect is shown and made to hear certain images and voices. In the 2010 case *Smt. Selvi v. State of Karnataka*,⁶ the Supreme Court ruled that brain mapping and lie detector tests violated Article 20(3) of Fundamental Rights and were thus unlawful.⁷

DNA Profiling: DNA profiling is a very accurate method of forensic inquiry. DNA stands for Deoxyribo Nucleic Acid, an organic compound present in all cells that serve as a blueprint for each person's unique genetic makeup. Blood, sperm, bone, saliva, and other bodily fluids and tissues may all be mined for DNA.⁸

1. Praveen Singh Chauhan and Vaishali Patel, 'A Comprehensive Study of Forensic Science in the Indian Legal Context: Challenges, Opportunities, and Implications for Criminal Investigations and Trials', *International Journal of Law, Justice and Jurisprudence*, 4.2 (2024), pp. 306–13, doi:10.22271/2790-0673.2024.v4.i2d.152..

2. Gupta S. Forensic Science and its Role in Modern Criminal Justice System in India. *Int J Law Policy*. 2020;10(3):55-64.

3. 'The Impact of Forensic Science on the Legal System in India', *Journal of Forensic Science and Research*, 9.1 (2025), pp. 001–06, doi:10.29328/journal.jfsr.1001072.

4. Mishra P. Narco-Analysis in Criminal Investigation and Trial: A Conspectus. *Indian JL & Just*, 2020;11:76.

5. Vrij A, Fisher RP. Which lie detection tools are ready for use in the criminal justice system? *Journal of Applied Research in Memory and Cognition*, 2016;5(3):302-7.

6. 2010 (7) SCC 263.

7. Basak S, Roychowdhury U, Gupta A. Probing in the depth of criminal mind. *Journal of Indian Academy of Forensic Medicine*, 2008;30(3):169-71.

8. Chawla A. DNA Profiling with Special Reference to Supreme Court Guidelines. *Supremo Amicus*, 2018;4:67.

Fingerprints: Crime scene investigators have long relied on fingerprints as a crucial piece of evidence. Every human person is born with a unique fingerprint, a series of ridges along each fingertip.⁹

International Conventions on Ethical Issues of Forensic Science:

There are no specific norms on the ethical issues of forensic science from an international perspective. But some convention, declaration, Act/legislation international protect the rights of the accused. These rights following:

1. Universal Declaration of Human Right, 948(UDHR)¹⁰

- Everyone has the right to life, liberty, and security of person.¹¹
- No one shall be subjected to torture or cruel, inhuman or degrading treatment or punishment.¹²
- No one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment.¹³
- Everyone charged with a penal offence has the right to be presumed innocent until proved guilty according to the law in a public trial at which he has had all the guarantees necessary for his defence.¹⁴

2. International Covenant on Civil and Political Rights, 1966 (ICCPR)¹⁵

- Every human being has the inherent right to life. This right shall be protected by law. No one shall be arbitrarily deprived of his life.¹⁶
- No one shall be subjected to torture or cruel, inhuman or degrading treatment or punishment. In particular, no one shall be subjected without his free consent to medical or scientific experimentation.¹⁷
- Not to be compelled to testify against him or to confess guilt.¹⁸

3. European Convention for the Protection of Human Rights and Fundamental Freedom, 1950¹⁹

- Right to life²⁰
- No one shall be subjected to torture or inhuman or degrading treatment or punishment.²¹
- Right to free trial.²²

4. Convention against Torture and other Cruel, Inhuman or Degrading Treatment or Punishment (CAT), 1984²³

5. United Nations Body of Principle for the Protection of all Persons under any Form of Detention or Imprisonment, 1988²⁴

9. Win KN, Li K, Chen J, Viger PF, Li K. Fingerprint classification and identification algorithms for criminal investigation: A survey. *Future Generation Computer Systems*, 2020;110:758-71.

10. Adopt by general assembly resolution A/RES/217(111) of 10 December 1948,

11. Article 3 of the Universal Declaration of Human Rights, 1948.

12. Article 4 of the Universal Declaration of Human Rights, 1948.

13. Article 5 of the Universal Declaration of Human Rights, 1948.

14. Article 11(1) of the Universal Declaration of Human Rights, 1948.

15. Adopted by the United Nations General Assembly on December 16, 1966.

16. Article 6 of the International Covenant on Civil and Political Rights, 1966.

17. Article 7 of the International Covenant on Civil and Political Rights, 1966.

18. Article 14 (3) (g) of the International Covenant on Civil and Political Rights, 1966.

19. Adopted by the Council of Europe in 1950.

20. Article 2 of The European Convention for the Protection of Human Rights and Fundamental Freedoms, 1950.

21. Article 3 of The European Convention for the Protection of Human Rights and Fundamental Freedoms, 1950.

22. Article 6 of The European Convention for the Protection of Human Rights and Fundamental Freedoms, 1950.

23 . Adopted by the UN General Assembly on December 10, 1984.

24. 'IJCRT2404629.Pdf' <<https://www.ijcrt.org/papers/IJCRT2404629.pdf>> [accessed 2 June 2025].

Indian Laws Governing Forensic Science:

Forensic science is not specifically covered by any laws in India. As a crucial component of investigations, evidence gathering, and court cases, forensic science is essential to the Indian criminal justice system. Numerous laws, rules, and guidelines that together guarantee the methodical application of scientific methods in criminal investigations form the legal framework governing forensic science in India. But the Indian Constitution, Under Article 20 (3)²⁵ Protection against self-incrimination is the syncretistic result of the Anglo-saxon Jurisprudence and India's realities, culture, and ethos, proving once against the cosmological nexus of human rights jurisprudence the world over. The main provision regarding crime investigation and trial in the Indian Constitution is Article 20(3). It deals with the privilege against self-incrimination.²⁶ It has its equivalents in the Magna Carta, the Talmud, and the law of almost every civilized country. Crime against self does not come under the category of privilege under the common law. Under criminal jurisprudence, this theory has the following characteristics:

- The accused is presumed to be innocent
- That it is for the prosecution to establish his guilt
- That the accused need not make any statement against his will ²⁷

India's Union Home Minister and Minister of Cooperation said that the Bharatiya Nyaya Sanhita (BNS), the Bharatiya Nagarik Suraksha Sanhita (BNSS), and the Bharatiya Sakshya Adhiniyam (BSA) are laws made by the Parliament in 2024 to protect the constitutional rights of the people of India. He stated that under the leadership of Honourable Prime Minister Narendra Modi, the Government of India has abolished the 160-year-old laws made by the British and has introduced new laws for a new India. Shri Amit Shah said that the new criminal laws have provided a legal basis for the use of technology in crime scene investigation and trial. He stated that in offences punishable with more than seven years of imprisonment, the visit of a forensic science team has been made mandatory. ²⁸

The Bharatiya Nagarik Suraksha Sanhita BNSS, 2024

Section 176(3) This section mandates the collection of forensic evidence at the crime scene by a 'Forensics expert' for offenses punishable by imprisonment of seven years or more. The provision prescribes a five-year period for implementation.

Section 349: Section 349 expands Magistrates' power to order forensic samples, including fingerprints and voice samples, from any person upon a written order. BNSS Section 349 and Criminal Procedure Code, 1973 (Cr.P.C) Section 311A both empower First-Class Magistrates to order sample collection for investigations, with BNSS offering a broader scope, including finger impressions and voice samples. Notably, BNSS allows sample collection without prior arrest, providing more flexibility in comparison to Cr.P.C 311A.

Section 329 (Section 293 of Cr.P.C.) : Section 329 allows the submission of a report by a government scientific expert without requiring oral testimony in court, expanding categories of exempted experts. While both BNSS and Cr.P.C include Government scientific experts, BNSS extends its applicability to "any other scientific expert" specified or certified by the State or Central Government. In contrast, Cr.P.C

25. Article 19(1), M.P. Jain, Indian Constitutional Law 8th ed. (LexisNexis, 2022)

26. Article 20 (3), The Constitution of India, 1950 (Universal Publication, New Delhi, 2024)

27. <https://github.com/citation-style-language/schema/raw/master/csl-citation.json> "IJCRT2404629.Pdf". Ibid

28. 'Press Release: Press Information Bureau' <<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2133128>> [accessed on 2 June 2025].

limits it to "any other Government scientific expert" specified only by the Central Government. The BNSS provision allows a broader range of scientific experts to be involved in legal proceedings.

Section 330 : In BNSS, when any document is filed, its particulars must be included in a list. The prosecution or accused, along with their advocates, are required to admit or deny the genuineness of each document within thirty days of supply. The Court, at its discretion, may relax the time limit, and no expert can be called unless the expert's report is disputed

Ethical Standards of Indian Judicial Pronouncement on Forensic Science:

Forensic science's usefulness in the investigation and prosecution of crimes must be protected by the rule of law. Forensic science's veracity and applicability are at the heart of the issues that arise.²⁹ Because of Article 20(3) of the Indian Constitution, forensic science is restricted when an accused person is required to testify against themselves. Also, it stops the accused from giving a forceful testimony.³⁰ In *Justice K.S. Puttaswamy vs Union of India and Ors*, (2017), the bench said in the age of information technology governed by aspects of our lives the court needs to be sensitive to the opportunities and dangers posed to liberty in a digital world. They also said that the right to privacy is closely linked to other rights and this can also act as a game changer.³¹

In *Anil @ Anthony Arikswamy Joseph vs. State of Maharashtra*, where a 10 year old boy was murdered by strangulation after carnal intercourse solved with the taking help of DNA profiling by taking samples from the semen collected from the pants and anal area of the boy and oral pieces of evidence, the accused was sentenced for death.³²

In Nirbhaya Gang Rape Case: On December 16, 2012, six men raped and attacked a 23-year-old physiotherapy intern in south Delhi, giving her the nickname "Nirbhaya (the fearless one)" before she was flung off the moving bus. After being transported by air ambulance to Singapore's Mount Elizabeth Hospital, she passed away on December 29 from her wounds. DNA profiling played a key role in locating and convicting the criminals. After gathering and examining biological specimens from the crime setting, the forensic team compared them to the accused's DNA profiles. A swift trial and conviction were guaranteed by the evidence's scientific and trustworthy quality, highlighting the significance of DNA analysis in serious crimes.³³

In Aarushi Talwar Murder Case: On the morning of May 16, 2008, Aarushi Talwar, a 14-year-old class 9 student at DPS Noida and the daughter of a prosperous dental couple, Drs. Rajesh and Nupur Talwar, was discovered killed in her bedroom at home with her throat cut. Her parents found the deceased in the wee hours of the morning. Forensic pathology, DNA analysis, and fingerprint examination were all used. Notwithstanding the controversy accompanying the inquiry, the case demonstrated the value of forensic procedures in clarifying timeframes and recreating crime scenes. This case demonstrated the negative effects of subpar forensic procedures, including incorrect evidence processing and insufficient analysis, which caused delays and public mistrust.³⁴

29. Sharma R. Ethical Dilemmas in Forensic Science in India. *Forensic Res J.* 2021;12(1):23-29.

30. Ajayi OA. *Crime Scene and Forensic Investigation: Basics of Tunnel Vision on Interrogation Process*: Malthouse Press, 2018.

31. Justice K.S. Puttaswamy (Retd.) and Anr. vs. Union of India and Ors. is (2019) 1 SCC 1.

32. 2014 AIR SCW 1334.

33. Mukesh & Anr. Vs. State for NCT of Delhi & Ors., AIR 2017 SC (CRIMINAL) 899.

34. Nupur Talwar vs CBI & Anr, AIR 2012 SC 1921.

In Sheena Bora Murder Case: The 24-year-old Sheena Bora was allegedly killed in April 2012 when she was strangled in a car by her mother Indrani Mukerjea, her ex-husband Sanjeev Khanna, and her driver at the time, Shyamvar Rai, who later became an approver. In the Raigad district, her body was apparently burned and dumped in a jungle. Another defendant in the lawsuit is media magnate Peter Mukerjea, Indrani's ex-husband. Forensic pathology identified the reason for death, while anthropological forensics played a crucial role in discovering the victim's skeletal remains. The case highlighted the lack of access to sophisticated techniques like skeleton inspection and isotope analysis in all forensic labs, underscoring their significance.³⁵

Conclusion:

As a vital instrument for the administration of justice in criminal investigations and trials, forensic science plays an essential role in the Indian legal system. Its incorporation into the legal system has greatly improved the precision, dependability, and effectiveness of the gathering, evaluating, and interpreting of evidence. But even with its apparent significance, forensic science in India confronts many obstacles that prevent it from being used to its full potential. This article suggests to bridge the existing gaps and align India's forensic science practices and the following recommendations are proposed:

- In order to equip forensic labs with cutting-edge technologies, such as automated fingerprint systems, sophisticated DNA sequencing, and AI-powered analysis tools, a substantial investment is required.
- The admissibility of forensic evidence in court requires explicit legal rules that are backed by uniform protocols for gathering, preserving, and documenting evidence. The importance of forensic evidence should be emphasised in law enforcement and judicial officer training programs.
- Public awareness initiatives ought to emphasise how crucial forensic science is to the administration of justice. In forensic investigations, accountability and transparency are essential for fostering public trust.
- Improving digital forensics skills with specialised training and cutting-edge equipment is essential to combating the rise in cybercrimes. There ought to be a dedicated digital forensics unit in each State.
- Knowledge sharing, collaborative research projects, and the adoption of best practices will be facilitated by cultivating global alliances with esteemed forensic institutions.

To build a strong forensic ecosystem in India, policymakers, legal authorities, and scientific communities must collaborate in light of these prospects and obstacles. Furthermore, the credibility of forensic evidence in the eyes of the public and the judiciary will be strengthened by addressing ethical issues and guaranteeing the protection of individual rights during forensic investigations.

35. Indrani Pratim Mukerjea vs. CBI, 2022 SCC Online SC 695 at <https://www.scconline.com/blog/post/2022/05/19/sheena-bora-murder-indrani-mukerjea-bail-supreme-court-india-judgments-legal-law-research-updates-news/> accessed on 02.06.2025.