



EXPLORING THE IMPACT OF FORENSIC SCIENCE ON THE ADJUDICATION PROCESS IN CRIMINAL TRIALS IN INDIA

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Abstract

The application of forensic science, a branch of science, has altered criminal proceedings, particularly the preliminary hearings. There is little debate about the role that forensic science plays in supporting the legal executive in settling conflicts beyond the scope of courts. However, in recent years, forensic researchers as well as the legal community's partners have come under scrutiny from a variety of angles concerning their reliability and the capacity of the legal community to analyze it. Forensic science is a unique field of study and expertise that may be very helpful and valuable for criminal investigation.. Specialized skills are used by forensic science to identify, separate, and accuse guilty persons. Forensic science is seen as essential for successful criminal investigations by those in positions of power with improved training and preparation. The traditional thinking police are completely uninformed about the role that new innovation plays in supporting examiners. Standard viewpoints, a lack of execution, a lack of resources, a lack of prepared employees, hardware, and labs are the limits. If the police adopt a new professional culture, morality of extraordinary talent, logical procedures and gadgets, merit-based hiring and development, discourage political obstruction, improve preparation inputs, and set up the forensic research facilities, forensic science examination is feasible.

Keywords: Exploring, Forensic Science, Adjudication, Criminal Trials, India



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1. Introduction

Forensic science, a subfield of science, has changed the criminal adjudication process, notably the criminal preliminary cycle. In recent years, the criminal equity framework and wrongdoing investigative organizations have played a larger role in accurately identifying the guilty and protecting the innocent. Logical evidence may undoubtedly be utilized in criminal investigations and preliminary hearings, but the function of the legal partners and their capacity to assess the evidence is frequently a sensitive topic in India as well as throughout the world.

It is also unknown in India if the criminal investigation team has everything necessary to catch the guilty party without using third-degree methods. What is especially concerning is the portrayal of a few erroneous convictions caused by subpar forensic evidence. The study's goals are to identify some of our framework for forensic logical proof's major weaknesses and offer some suggestions for fixing them.

Forensic evidence is the most trustworthy type of evidence that courts have acknowledged and accepted. The highest grade level of forensic processes has been perceived by attendees to be DNA proof in particular. In fact, it has been found that compared to numerous non-DNA forensic evidence kinds, DNA has a stronger influence on choices that are blameworthy. People are less likely to gamble with an incidental match as a result of their confidence in DNA and their biased perceptions that DNA proof is more accurate and knowing than non-DNA forensic evidence. Research shows that listeners tend to overestimate the reliability of DNA evidence and fail to see any possible flaws in it. Nevertheless, ongoing research has also revealed that the general public views forensic evidence as typically erroneous and including significant amounts of human judgment. In general, faulty forensic investigations can lead to fabricated cycles of equitable birth, which can have fatal implications when used to support inaccurate findings or judgements. As a result, there is increased interest in learning how and whether different players in the criminal equity system, such as potential jurors, judges, protection attorneys, and examiners, evaluate forensic evidence.

One issue that arises from the use of forensic evidence in jury trials is the "CSI impact," which contends that TV programs that present forensic evidence may affect the general public's discernments, convictions, mentalities, or assumptions for forensic science proof to the extent that forensic proof may be mistakenly seen as being as exact or as quick to be dissected as displayed on television. Due to this, jurors may give forensic evidence an undue amount of weight, which may lead them to unfairly penalize respondents when any type of forensic evidence is offered or to unfairly punish examiners when there isn't any. When there are other sorts of evidence present that potentially contradict the forensic evidence that is available or when forensic evidence is hard to get, it may be especially crucial to examine if criminal equity entertainers are aware of the limitations of forensic evidence.

When examining civil or criminal matters, forensic science makes use of the natural and physical disciplines. It is used for a variety of objectives, such as examining both common situations (willful destruction of the local habitat) and criminal cases (violence, murder, and medication monitoring).

A significant role in the methodology of examination is played by forensic examination techniques, which also provide practical answers to the present criminal situation. Focusing on the function of forensic evidence in the criminal equity conveyance framework, it is utilized as a powerful instrument to look into crimes and suspects so that decisions are made based on solid evidence and no one who is honest is disbelieved. The evidence and verifications that are assembled, evaluated, and generated utilizing forensic procedures can be accepted in official courtrooms more rapidly. Using forensic evidence, which is acquired by professionals, as evidence in criminal procedures is more acceptable and valid. Managing the function of forensic evidence within the criminal equity conveyance system in India is the responsibility of the Indian Forensic Association (IFO), which performs criminal forensic testing. As a result of the challenges associated with admitting forensic evidence, the use of forensic examinations is restricted in India. The present provides pertinent data pertaining to the criminal equity framework and the idea of criminalistics/forensic science. Additionally, the emphasis on crucial details about the function, significance, and legal frameworks that support the criminal investigation.

2. Literature Review

The article "The effect of forensic science on the adjudication cycle in criminal trials in India: An orderly survey" by Sharma and Singh (2022) was published in the Indian Diary of Criminal science and Criminalistics. To assess the impact of forensic science on the adjudication cycle in criminal trials in India, the authors conducted a rigorous review of previous literature. The audit highlights the various ways that forensic science evidence, such as DNA analysis, unique mark analysis, and ballistics, has affected the assurance of guilt or innocence. In order to ensure that forensic evidence is accepted and reliable in court and to enable fair and impartial adjudication in criminal prosecutions, the article emphasizes the importance of proper collection, preservation, and inspection of the evidence.

The article "Exploring the Job of Forensic Science in Further Developing the Adjudication Cycle in Criminal Trials: A Contextual Investigation of India" by Verma and Agarwal (2021) is published in the Diary of Forensic Exploration. The authors offer a contextual study that specifically examines the contribution that forensic science has made to the advancement of the adjudication cycle in criminal cases in India. They look at the impact of forensic evidence on case outcomes, the judicial system's acceptance of forensic science, and the challenges associated with the applicability and comprehension of forensic evidence. The study highlights how forensic science strengthens the adjudication cycle and emphasizes the necessity of

training legal officials, examiners, and defense attorneys to successfully deal with forensic evidence in court.

The article "Forensic science and its effect on the adjudication cycle in criminal trials in India: A subjective examination" by Patel and Trivedi (2020) is published in the *International Journal of Regulation, Wrongdoing, and Equity*. The authors commission a subjective analysis to look into how forensic science has affected India's criminal court system's adjudication process. They examine the limitations, challenges, and potential advancements associated with employing forensic evidence in court through interviews with reliable specialists. The paper discusses the significance of forensic evidence in outlining facts, confirming witness testimony, and answering inquiries. The findings highlight the need for increased awareness, limit setting, and persuasive communication between judges, legal experts, and forensic specialists in order to maximize the impact of forensic science on the adjudication cycle.

The article "The job of forensic science in the adjudication cycle: Points of view from the Indian criminal equity framework" by Kumar and Agnihotri (2019) was published in *Forensic Science Worldwide: Reports*. The authors discuss the role of forensic science in the adjudication cycle from the perspectives of the Indian criminal equity framework. The importance of forensic evidence, such as DNA analysis, finger imprint analysis, and forensic pathology, is discussed in the article. These methods can help establish facts, link suspects to crimes, and provide objective logical support for legal proceedings. It highlights the need for legal specialists to be properly trained before using forensic science in the adjudication cycle and discusses the challenges associated with the suitability and interpretation of forensic evidence.

The article by Gupta and Sharma (2018) titled "Surveying the Effect of Forensic Science on the Adjudication Cycle in Criminal Trials: An Investigation of Indian Courts" was published in the *Journal of Criminal Law and Criminal science*. The review's focus was on assessing how forensic science has affected the adjudication process in Indian courts. They examine what forensic evidence means for the dynamic cycle and case outcomes by dissecting contextual analysis and court rulings. The review discusses the significance of forensic evidence in demonstrating or testing witness testimony, outlining the credibility of the arrest or protection, and enhancing the legal executive's overall evaluation of the evidence. The findings highlight the need for quality assurance in forensic science training, legal documentation of forensic evidence, and increased awareness among legal professionals regarding the value and limitations of forensic science.

The Journal of Forensic Science and Regulation published a paper by Agarwal and Verma titled "The Effect of Forensic Science on the Adjudication Cycle in Criminal Trials in India: A Quantitative Examination" in 2023. In order to evaluate how forensic science has changed the adjudication procedure in criminal cases in India, the authors directed a quantitative analysis. Using a large number of instances, they examined the relationship between the presence of forensic evidence and the results of the trials. The study's measurable results demonstrate a strong correlation between the likelihood of conviction in criminal trials and the admissibility of forensic evidence. It contains the essential elements of the forensic science claim that it may offer unbiased, defensible proof that influences the constantly shifting path of the legal system. In the Indian Diary of Forensic Sciences, Singh and Sharma's article from 2022 titled "Exploring the Viability of Forensic Science in the Adjudication Cycle: A Contextual Analysis of Criminal Trials in India" is available. The authors offer a contextual analysis that specifically examines the applicability of forensic science in India's criminal trial adjudication cycle. They evaluate what forensic proof means for case outcomes, the legal executive's acceptance of forensic science, and the challenges encountered in actually applying forensic proof through a thorough review of a few selected instances. The essay explains the significance of forensic evidence by outlining the plausibility of witness testimony, endorsing or refuting theories, and providing logical support for the arrest or guard. It emphasizes the necessity of legal preparation and awareness among legal professionals to ensure the exact comprehension and use of forensic evidence during the adjudication cycle.

3. Material and Methods

One of its most noteworthy calculated attempts to link the important work of forensic science in uncovering infractions is this study. One hundred (100) Hyderabad police officers served as the study's case study. The respondents ranged in position from Constable to Overseer. The subjects were picked using an unconventional examination approach. The analysis includes both necessary and supplementary information.

3.1. Case study

Forensic science has consequently grown increasingly common in the Indian criminal court system as more judges see them as trustworthy evidence. The State of Maharashtra v. Ramchandra Reddy and Others involved forensic evidence that included narcoanalysis, lie detector tests, and brain fingerprinting that was recognised and accepted. At a special hearing held in connection with the case, the Court authorized SIT to do scientific testing on the main defendant, Abdul Karim Telgi, in response to claims of a fake stamp paper fraud. However,

the validity of the forensic evidence was disputed because of a violation of Article 20(3) of the Indian Constitution, which forbids forcing the offender to testify.

4. Results and Discussion

4.1. Forensic science and Investigation:

Table 1: Investigation and forensic science

To some Extent	20%
Yes	35%
No	45%

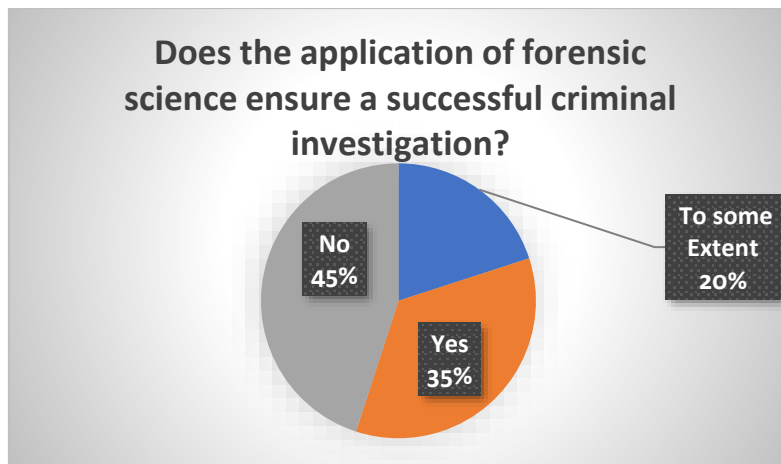


Figure 1: Investigation and forensic science

The answers to the questions posed by the subjects are shown in figure (a) above. The results of criminal investigations were related to the application of forensic science. The conclusions reflect the individuals' sophisticated reasoning and evolving level of receptivity to forensic science. There are police officers with average training, moderate education, and some who are better at preparing openings and opening doors. The determinism of criminal investigations and the applied work of forensic science was believed to be true by 35% of respondents. The majority of the opinions in this way show how Sindh Police are beginning to recognize the value of forensic science. The 45% of respondents thought that there was no achievement-related reliance on forensics in criminal investigations. These were inadequately prepared viewpoints on the conventional police outlook, with weak educational underpinnings. The remaining 20% of people pitifully agreed with the notion that forensics may help the investigators.

4.2. Forensic science knowledge among police

Sindh's police specialists are required due to a lack of forensic knowledge, expertise, resources, and public data sets. For police officers to conduct good investigations, the role of forensic training and preparation is fundamentally important.

Table 2: Forensic science knowledge among police

Poor	20%
Satisfactory	80%

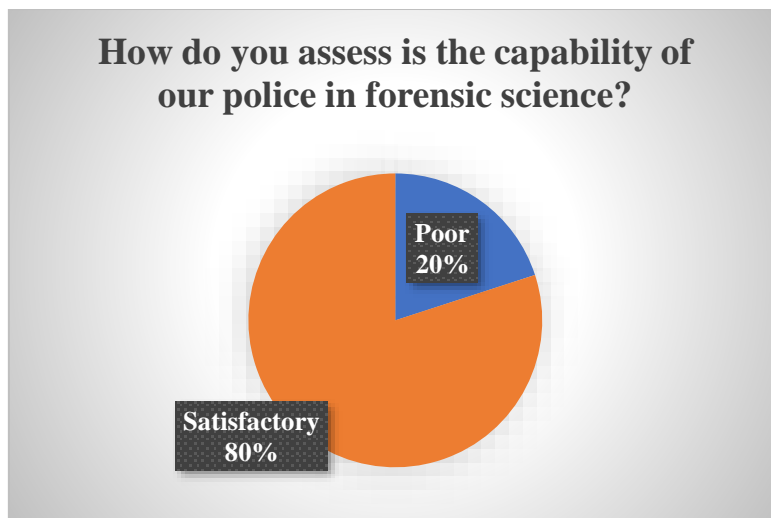


Figure 2: Forensic science knowledge among police

80% of the participants expressed satisfaction with the police's knowledge and skills. This reinforces the belief in forensic science-related investigation further. 20% of those surveyed agreed that police are not well equipped for their jobs. This is related to the subjects' prior knowledge of the subjects' experiences with the police execution in the regular examination cases.

4.3. Factors that lead to inadequate police knowledge

The infrastructure, planning, resources, and training provided by forensic labs might help police officers become more adept at handling both straightforward and complex crimes.

Table 3: Factors that lead to inadequate police knowledge

Lack of forensic Laboratories	8%
Lack of Trainers	8%
Lack of police interest	6%
The police culture	8%
Lack of Enforcement	8%
Lack of the knowledge	6%
All of the Above	56%

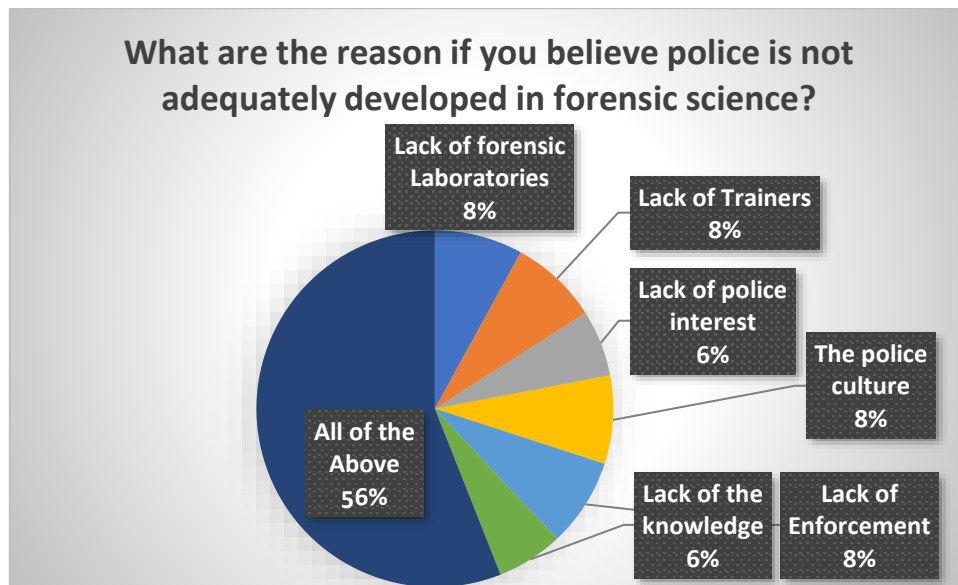


Figure 3: Factors that lead to inadequate police knowledge

The 8% of subjects point to constraints including the lack of forensic labs in Sindh, the lack of mentors (8%), the lack of interest on the part of the police (6%), the culture of the police (8%), the lack of requirements and implementation (8%), the lack of knowledge (6%), and the aforementioned issues in general (56%).

4.4. Enhancing Police Capability

The DNA data set, the integrity of the organic evidence, and the management of political tensions may improve result-arranged analysis. Police officers' skills in dealing with a wide range of simple and sophisticated wrongdoings should be improved by better training, preparation, resources, and forensic research facility foundations.

Table 4: Improvement of Police Capability

Training	5%
Enforcement	7%
Changing Police Attitudes	4%
Established Forensic Laboratories	11%
Developing Professional Ethics	3%
Merit selection & Promotion	4%
All of the above	66%

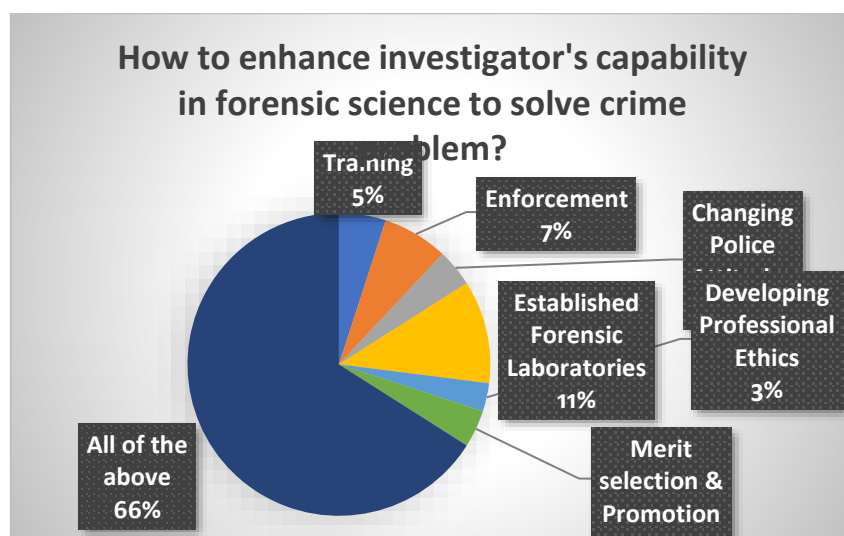


Figure 4: Improvement of Police Capability

If all of the following conditions are met—stages of preparation (5%), execution (7%), shifting police viewpoints (4%), forensic research facilities (11%), competent morality (3%), merit-based police choice and development, and the reasons listed above (66%)—forensic science can effectively address infractions.

5. Conclusion

A flexible and incredibly outstanding tool in the investigation of a wrongdoing is forensic science.' The knowledge, experience, natural analysts, police, and other specialists' jobs should help forensic gadgets and methods. In order to answer questions about the wrongdoing, forensic science connects all evidence that has been obtained at the scene of the crime. The shoeprints and tire tracks provide clues about the criminal's personality, type of vehicle, height, and gait. Agents can better investigate crimes, assaults, and accident-related events with the aid of forensic science. The investigation of unidentified remains, missing persons, extortion, and fabrication cases is also conducted. The importance of these improvements in criminal investigation and trials has received more attention in the Indian context. The imbue ment of innovation in the site of wrongdoing will operate with the framework to effectively function, according to the Commissions designated on improvements to criminal equity. The relevant laws are occasionally amended to create a method for forensic innovations to be used in wrongdoing investigation and preliminary. Due to their rigid standards for how evidence is presented in court, the courts are likewise hesitant to rely on logical evidence, which discourages them from doing so at all. The fundamental element of the criminal equity notion is to create real equity. Visual proof cannot compare to forensic verification for reliability. The conceptual underpinning of forensic science may be advantageous to the criminal equity paradigm.

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