

Role of scientific evidence in the judiciary system: A Systematic Review

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Abstract

Background: Scientific evidence plays a crucial role in modern legal systems, enabling fact-finders to arrive at logical conclusions in a variety of cases. However, the credibility of scientific evidence can be a major challenge for judges and juries. Evidence laws provide limitations on the admissibility and presentation of evidence in criminal proceedings, protecting a defendant's right to a fair trial and enabling the efficient conduct of criminal trials. Forensic science has become an essential component of criminal justice, aiding in the identification of the guilty and the prevention of wrongful convictions. As such, the use of scientific evidence in criminal proceedings must continue to be prioritized and protected.

Aim-The goal is to examine how forensic science plays a part in the judicial system, particularly how it may be used to establish facts, establish guilt, and provide justice.

Methods-A review of the literature on a few of the older studies from various journals and databases was conducted. They searched a computerized database. Studies that were deemed relevant to the current objective were picked at random.

Result- Forensic evidence plays a crucial role in the criminal justice system in India. It provides an objective and scientific basis for establishing the guilt or innocence of a suspect, identifying perpetrators of crime, and establishing the facts of a case. The use of forensic evidence in criminal trials promotes transparency and accountability in the criminal justice system and helps to ensure that justice is served.

Keywords:Court system Forensic Evidence, Justice, Legal proceedings, Scientific evidence, etc.

Introduction

The forensic sciences, which have historically been involved in the prosecution of crimes, such as fiber comparisons, allow for such extensive methodological assessments and are thus required

of criminal courts to varied degrees.^[1] Although the legal issues are the same, the evidence portion of the concept of forensic evidence refers to a unique set of procedures specific to the litigation process, separate and distinct from the process of any particular

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forensic science that serves as the basis for the choice of whether or not to admit the evidence. [2] Most criminal cases do not involve the use of any physical evidence and such evidence, even when available, is seldom seen by police detectives as having any intrinsic value. [3] Police detectives use physical evidence primarily to strengthen their position vis-a-vis the suspect's position to clear cases by confession. [4] Nonetheless, some research shows that physical evidence improves clearances and convictions in burglary and robbery cases which traditionally have low case resolution rates. [5] Enhancement of the use of physical evidence by investigators, crime laboratory specialists, and others involved in criminal processing requires improved communication and collaborative efforts. [6] Training of police and prosecutors should be particularly emphasized because they have the most to say about whether and how physical evidence is used in criminal case investigations. Recognition of physical evidence is a vital step in the process. [7] If potential physical evidence is not recognized, collected or properly preserved, and tested, the forensic value of the evidence may be greatly reduced or even lost forever. [8] Numerous routine and high-profile cases have demonstrated the harsh reality that despite the availability of current crime scene technologies, specialized equipment, and sophisticated forensic laboratory analysis, the effective utilization of physical evidence in crime solving is only as good as the knowledge and integrity of the crime scene personnel and the objective legal system that supports those functions. [9, 10] In some cases, evidence has been falsified or results tainted, misleading the justice system. [11]

The relationship between forensic science and the criminal justice system

Forensic evidence is crucial in establishing the guilt or innocence of a suspect, identifying crime perpetrators, and establishing a case's facts in the Indian criminal justice system. [12] The use of forensic evidence has increased due to the establishment of specialized forensic laboratories and awareness of its importance. [13] Forensic evidence is objective, and scientific, and provides a level of accuracy that other forms of evidence cannot match. [14] It promotes transparency, and accountability, and ensures justice and fairness for all parties involved in criminal trials. [15]

Aggravated Assaults -The majority of the assault occurrences in the five jurisdictions involved young, minority men who knew each other. [16] Domestic violence was also a significant factor. Eyewitnesses were rare, and victims received medical attention in most cases. [17] Physical evidence was collected in 30% of cases, with firearms/ weapons being the most common type. [18] However, only 12% of the evidence was sent to the crime lab, and only one hit was returned from the NIBIN database. [19]

Establishing an Element of the Crime - Laboratory identification of materials can help prove a crime was committed, such as identifying prohibited substances in drug possession cases. Autopsies are used to determine the cause of death at homicide sites. [20]

Identification of a Suspect or Victim - Forensic evidence that may identify an unidentified culprit beyond a doubt includes fingerprints and DNA tests. This procedure is substantially facilitated by the existence of digital databases. [21]

Associative Evidence- This kind of scientific discovery can aid in establishing a connection or correlation between the perpetrator and the crime scene or victim. When the perpetrator is disqualified as the source of vital evidence, evidence may also decouple the criminal. [22]

Testing Statements and Alibis- Evidence may also test, verify or refute the statements of victims, suspects, and witnesses. [23]

Reconstruction- Physical evidence can provide information about the movements of criminals, victims, or objects involved in a crime, such as powder patterns on a victim's clothes indicating the distance of a shooter. [24, 25]

Corroboration- Physical evidence may also support (or contradict) the testimony that witnesses, suspects, and victims provide to investigators. Several of the previous actions in this list might also be used. [26]

Evidence and Procedural Law

Procedural law in India regulates the handling of criminal and civil lawsuits through pillars such as the Indian Evidence Act of 1872, the Code of Criminal

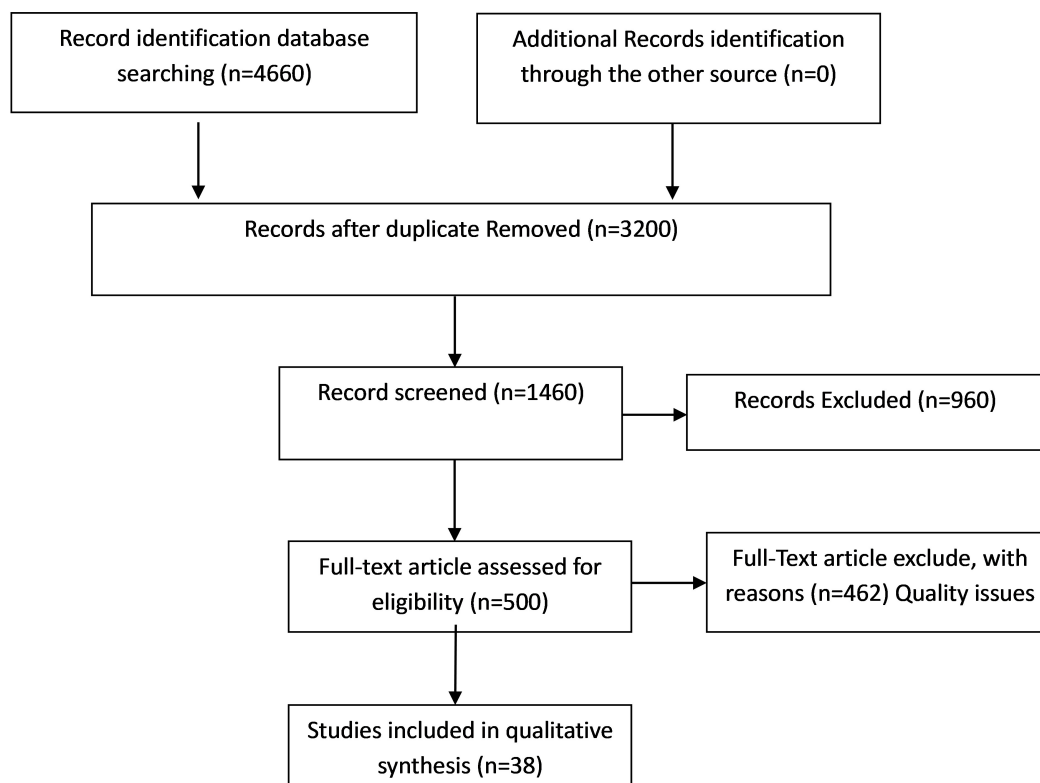
Procedure 1973, the Code of Civil Procedure 1908, and the Indian Penal Code of 1960.^[27] Evidence in court is classified into oral, documentary, and actual types, with witness testimony, papers, and court-produced items being used as examples.^[28] ^[29]Digital evidence such as emails, texts, and mobile phone recordings may also be considered by courts when deciding complex cases.^[30] Evidence helps determine the essence of a case and resolve disputes in substantive law after the trial has concluded.^[31] To press charges, a court requires substantial proof, and a suspect is presumed innocent until proven guilty.^[32] The gathering and presentation of evidence play a crucial role in ensuring impartial and fair trials in the Indian criminal justice system. An accused person may only be arrested before or during a search for

more evidence.^[33]

Methodology

Utilizing a literature review methodology, this study conducted a thorough search across various publications and databases using a digital database, resulting in 4660 initial results. Of these, 3200 papers were chosen based on quality and relevance, and after further inspection, 1460 samples were identified. Following the removal of 960 incorrectly downloaded samples, 500 full-text articles were assessed for eligibility. Ultimately, 38 articles were selected for the final analysis, with careful consideration given to ensuring that the chosen papers were a representative sample of the literature on the topic.

Prisma Flow chart:



Result

Forensic science plays a crucial role in the justice system, but in India, there has been a lack of dependence on scientific methodologies. Despite several commission reports suggesting that courts should consider scientific methods to bring fairness

to the judicial system, there has been a reluctance to consolidate forensic science. Amendments in the laws to make way for forensic science have not helped much due to unskilled investigating officers and a lack of forensic scientists and experts. The field of law and science is not quite popular, and there is a shortage of employers. To address this, law and

medical colleges must include forensic science as a subject and encourage students to move forward in the field. The government must also take steps to spread awareness about the importance of forensics in the criminal justice system and train police, investigating officers, detectives, and scientists on the progress of science and technology. Forensic evidence is more legitimate than any other auricular evidence, and it is a blessing to the criminal justice system. We must ensure that everyone involved in the justice system uses the privilege of forensic science to the maximum of its potential, and work through the loopholes to improve the system.

Discussion

We have looked at how crucial forensic science is to criminal justice. It entails physically and methodically inspecting the crime scene's physical and chemical traces. Identification of the culprit, the crime's timing, and its manner are all aided by this. Evidence concerning the victim, the perpetrator, and criminal behavior is provided, aiding in the investigation of the many components of the crime.^[34] The research looked at how the Indian Evidence Act (IEA) of 1872 divided evidence into many categories, including oral evidence, documentary evidence, primary evidence, and judicial evidence, all of which were important to the inquiry process. Additionally, it was determined that there are restrictions on the use of forensic science techniques for criminal investigations and evidence in India.^[35] Justice should be more effective and of higher quality if the legal system is capable of collecting and evaluating forensic evidence when it is present at the crime scene.^[36] An estimated 3,975 unsolved homicides represent 14% of all unsolved homicides, and 27,595 unresolved rape cases represent 18% of all unsolved rape cases. Recorded over five years included forensic material that had not been examined by a criminal lab.^[37] Forensic science evidence has the most impact when criminally charged individuals are more likely to serve longer jail sentences.^[38]

Conclusion

It is challenging to hold a trial and make a decision without proof. It is difficult to confirm or deny the stated occurrence, resolve the point in question, or establish the innocence or guilt of the accused.

Therefore, evidence is crucial to the decision-making process at every level of a trial. In procedural law, the evidence is utilized for things like document inspection, electronic evidence preservation, etc. In substantive law, the accusations against the suspect are made using the evidence. While a court case is being heard, evidence may be altered. To do that, the prosecution must explain it to the court, and occasionally, such evidence may also be disregarded.

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Ethical Clearance: Not Applicable

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