

Study On Forensic Evidence in Criminal Justice System

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Abstract

The number of crimes that are committed in today's society, which is increasingly characterised by its high levels of technology, is on the rise. The worrying increase in crime rates is causing ongoing extension and reform of current laws in an effort to tackle the problem. This is being done in an attempt to make the justice system more effective. The criminal element is always evolving, and in order to keep up with the most recent developments, it is necessary to improve the investigation methods that are currently in place. These improvements might wind up being of great aid in the legal proceedings. The filing of a First Information Report (FIR), the conduct of an investigation by the police, court hearings, and the pronouncing of a judgement are all components of the several stages that make up the proceedings of a criminal case. On each of these fronts, several types of evidence, including scientific data, can come together to point to the existence of a significant factor that plays a role. This study is an attempt to examine the research works that have been carried out regarding forensic evidence and various criminal investigation procedures in order to bring forth the information regarding the reliability of such evidences. The purpose of this study is to examine the research works that have been carried out regarding forensic evidence and various criminal investigation procedures .

Keywords: Criminal justice System, Evidence.

INTRODUCTION

It is generally agreed that the origin of forensic science may be traced back to the practise of legal medicine in China, which dates back to the sixth century. This historical period is considered to be the beginning of forensic science. As a consequence of advancements in scientific knowledge and medical knowledge during the course of the next 10 centuries, it is anticipated that the percentage of cases in which medical evidence is used as supporting evidence would increase. Other types of scientific proof were not produced

until the 18th and 19th centuries; this time period was also during which the majority of our current understanding of chemistry was just beginning to be accepted. In recent years, substantial scientific improvements have been made in the field of forensic science, which has been in the front of these efforts. In recent decades, in the midst of significant developments in science and technology, the domain of forensic science has emerged as a discipline committed to the investigation and settlement of legal disputes. As a result of the aid that was provided during

the early phases of the scientific study, a vast number of choices for the resolution of any legal conflict have been available. Megha Shankar (May 2020)

FORENSIC EVIDENCE

The term "evidence" is defined under Section 3 of the Indian Evidence Act of 1872, and it specifies that the term includes and encompasses both oral and recorded evidence. This definition is applicable to all different kinds of proof. There are several distinct categories of evidence that are recognised by the law; nonetheless, "material evidence" is often seen as being the most crucial of them. It is generally gathered at the scene of the crime or from a location where either the suspect or the victim was present before, during, or after the conduct of the crime. It plays a part in the commission of the crime and is often collected at the scene of the crime. Genuine evidence could be found in the form of blood, hair, sperm, fingerprints, shoeprints, or any number of other things. In a criminal proceeding, several pieces of evidence from a number of sources will be considered. The sort of evidence that falls under this category includes things like scientific and forensic evidence. These pieces of evidence play an important part in the process of building a case since they are predicated on the information that has been gathered via the application of the scientific method. The word "scientific evidence" can be used to refer to a wide range of distinct types of evidence, such as DNA fingerprinting, fingerprint identification, hair analysis and a great many other types of evidence. When we talk about "forensic evidence," we're actually referring to two different things at the same time. The term "forensic" refers to the laboratory and observational methods that are used in the

forensic science that is being discussed, and it is through these processes that necessary facts are formed. In other words, the term "forensic" refers to the methods that are used in the forensic science that is being discussed. Extraction of DNA, testing of that DNA, and then using the results of those tests to studies of populations are all excellent examples of this principle in work. In the context of a legal proceeding, the term "evidence" refers to a method that is intended to be objective and that objectively collects information that leads and directs a judge to make a certain decision in relation to a fact that is in question. In other words, evidence is a method that is designed to be objective and that collects information in an objective manner.

However, the information gathered from scientific sources needs to be relevant to at least one of the issues that are involved in the case in order for the use of forensic science to be effective in nearly any kind of case. In the context of judicial processes involving criminal offences, the utilisation of forensic science often means doing some form of scientific inquiry in order to establish the facts surrounding the case. This is done in order to provide evidence for the prosecution or defence. Each and every piece of evidence, including forensic evidence, is taken into consideration in order to reconstruct and draw links to every event that was a part of the crime that was committed. Forensic evidence is merely a term that is used to differentiate the information that is produced by the forensic sciences, such as fingerprints and blood samples, from the information that is produced by other means, such as witness testimonies in relation to the crime that was committed. This distinction is made

using the term "forensic evidence," which is simply a term that is used.

The collection of forensic evidence calls for the use of scientific theory in combination with laboratory protocols. Some of these laboratory procedures include "natural sciences, such as anthropology, DNA analysis, pathology, serology, geology, toxicology, etc.; some laboratory procedures do not. Footwear imprints, fingerprint analysis, and hair analysis, all of which require the use of a comparison microscope are just a few examples of the non-academic specialties that are included in the field of forensics. Footwear imprints are another one of the non-academic specialties that is included. All of this material, which has been painstakingly gathered from scientific and nonscientific sources, is fabricated in order to fulfil the aim of demonstrating a major truth or facts during or prior to the trial.

ROLE OF FORENSIC EVIDENCE IN CRIMINAL JUSTICE SYSTEM

Within the framework of the legal system, the objective of forensic science is to establish a connection between a suspect and a crime scene by employing physical evidence obtained from the suspect and a sample retrieved from the scene of the crime that is nearly identical to one another. This is accomplished by comparing the two samples. Both the authorities who are investigating the crime and the courts place a large lot of reliance on forensic evidence and testimony. This is due to the fact that forensic evidence and testimony help provide information about the crime to those who are investigating it.

Forensic evidences are classified in two basic forms:

1. proof of a class trait, which does not point to a specific suspect in

the investigation. For instance, a cartridge that belonged to a specific type of firearm was discovered at the site of the crime.

2. individual characteristic evidence is evidence that links a specific person to a criminal act. For instance, the hair that was discovered "on the body of the victim or the fibres that were discovered on the victim clothes match the fibres that were discovered on the suspect garments .

In the event that a serious crime has been committed, the personnel of the police department will spend a significant amount of time collecting and analysing forensic evidence at the scene of the crime as well as other locations, and they will continue to do so until the investigation is complete. If the crime was committed with a firearm, the staff of the police department will spend a significant amount of time collecting and analysing forensic evidence at the scene of the crime. Both the use of forensic science in criminal investigations and the collection of forensic evidence have developed into key aspects of the investigation process in India. In addition, forensic evidence has grown increasingly important. During the course of criminal investigations, forensic evidence is utilised in a number of different capacities. It -

- establishes whether or if a criminal act was carried out;
- emphasises the connection between the suspect and the victim, as well as the location of the crime scene;
- determines the identities of the individuals who were responsible for the commission of the aforementioned crime;

- vindicates the individual who is not guilty;
- corroborates a victim's testimony;
- contributes to the establishment of the facts that are associated with the criminal offence.

Within the framework of the criminal justice system, forensic evidence serves three crucial functions. It -

- It establishes the element of a crime, which means that it aids in demonstrating that the crime was actually committed ;
- associates or dissociates the accused with the crime; and helps in reconstruction of scene of crime .

It would appear that the prosecutors are doing their analyses of the forensic evidence using a variety of criteria. One group maintains that forensic evidence can be relied upon in every circumstance, whilst the other group considers forensic science to be a supplement that bolsters the reliability of other forms of evidence. Having said that, their points of view are certainly open to scrutiny.

ADMISSIBILITY OF FORENSIC EVIDENCE IN COURT

In cases involving sexual assault, scientific evidence has the potential to provide the police, prosecutors, and courts with crucial pieces of information that they can use in their investigations. These investigators may also use this information to determine whether or not the victim consented to the sexual assault. The phrase "scientific evidence" is used in the context of legal proceedings to refer to objects that have been collected or information that has been acquired through scientific processes. When trying to solve a crime, detectives have access to a wide variety of forensic

evidence types, all of which can provide them with important clues and information. When choosing a significant number of disputed issues, it is important to have evidences that are supported by scientific study in order to arrive at a result that is consistent with logic. When scientific evidence is given in a courtroom, one of the most crucial things for the judge to examine is whether or not it is reliable to put one's faith in the evidence that was presented by the scientists. When a fresh scientific idea is likely to be utilised as evidence in a court of law, the topic takes on a far larger importance than it had previously possessed. The same may be said about Deb Parkinson and Fileborn (2019) In a court of law, evidence that is admissible is evidence that a party is allowed to offer in order to strengthen their claim in a legal procedure. In order for evidence to be considered admissible, it must first be able to demonstrate that it satisfies a predetermined set of requirements, in addition to having some bearing on the matter at hand, and then it must be able to have a clear chain of custody established. People who are able to establish that the evidence is authentic and that it has been secured to guarantee that its integrity has been preserved are required to be a part of this chain of custody in order for it to be considered valid.

THEORETICAL SIGNIFICANCE OF FORENSIC EVIDENCE

The degree of engagement that the offender had with the victim and/or the environment around the crime scene is what ultimately determines the quantity of physical evidence that is produced as a result of the incident in the first place. The application of scientific laboratory processes has the potential to create

information from the physical clues that were left at the site of the crime. This information may be helpful in determining what took place at the location as well as who was engaged in it (and who was not involved).

FUNDAMENTAL PRINCIPLES OF FORENSIC SCIENCE

When it comes to the investigation and settlement of criminal cases, one of the most important steps is the collection and examination of forensic evidence. In spite of this, scientific evidence is crucial and may be accepted as evidence in judicial processes since it is based on a wide variety of sound conceptual underpinnings. The use of scientific evidence is essential to the functioning of the criminal justice system. In point of fact, they are:

Individuality: Each and every thing that exists naturally have its own unique identity. Neither nature nor man can create an exact replica of it. Take, for instance, fingerprints.

Locard's Principal: When two identities interact with one another, there is always a passing back and forth of traces between them. This is what is known as the exchange principle of Locard.

Law of Progressive change: The passage of time brings about transformation in every aspect of existence. As more time goes by, changes can be observed at the crime site, in the physical evidence, and in the criminal who was involved.

Principles of Comparison: Comparison is only possible between items that share fundamental characteristics with one another. This concept emphasises the need of providing samples or specimens that are comparable for the purpose of analysis and comparison .

Principles of Analysis: In order to make optimal use of scientific findings in trials, priority should be given to following the right sample and packing technique.

Law of Probability: It evaluates the likelihood of a specific event occurring in a particular manner out of a number of ways in which the event may take place or not take place with equal facility . This particular event might take place in a number of different ways.

Facts do not lie: The value of material evidence is higher than the value of spoken evidence because material evidence is more concretely founded. As a result, the importance of evidence that is circumstantial or scientific is on par with the value of evidence that is oral or direct. When scientific evidence is gathered and analysed, the likelihood that a case will be cleared by the police officer (the officer who is investigating the case) improves by a factor of around three, on average. This is because scientific evidence is more reliable than other types of evidence. It is possible that the prosecution will opt not to consent to participate in negotiations with the defence attorney if the forensic evidence strongly supports the connection of the accused individual in the commission of the crime . Because of this, we are in a position to determine the relevance of forensic evidence in our judicial system by making use of it in all of the many stages of an investigation and trial. Dr. Verma S. K. (2020)

ADMISSIBILITY OF FORENSIC EVIDENCE IN THE COURTS

In sections 45 through 51 of the Indian Evidence Act of 1872, the question of whether or not the opinion of an expert is relevant to a case is addressed. It is only permissible for a witness to testify to matters with which they have direct

personal knowledge in compliance with the Act. Despite this, these regulations are an exception to the norm in general because of the nature of the situation they govern. It is based on the principle that the court cannot form an opinion or come to a conclusion on a matter which is technically complicated and sophisticated, without the help and assistance of a person who possesses special skill and knowledge on that matter. In other words, it is impossible for the court to form an opinion or come to a conclusion on a matter which is technically complicated and sophisticated without the help of a person who To put it another way, it is difficult for the court to make an opinion or come to a resolution on an issue that is technically complicated and sophisticated without the support and assistance of a technical expert. A person who is widely acknowledged to possess remarkable levels of knowledge and expertise in a certain topic is said to be considered a "expert" in that discipline. There are various subspecialties within the field of forensic science; some examples are fingerprint analysts, medical analysts, chemical analysts, explosive analysts, and ballistic analysts.

However, following conditions are there for admitting an expert opinion by the courts -

1. that the concerned dispute cannot be resolved without expert opinion, and
2. the person expressing opinion is fit to be called an expert .

Every single nation's judicial system in the whole globe faces a variety of challenging problems when it comes to the topic of whether or not to accept the evidence of experts. It is unreasonable to anticipate that judges will be able to form an

independent opinion on issues pertaining to the natural and social sciences, particularly those that involve complex quantitative and qualitative analyses, because in the majority of cases, the judges lack specialised scientific knowledge. As a result of this, it is unreasonable to expect that judges will be able to hear cases involving scientific issues. For this reason, the courts usually make use of experts who are able to offer explanations that can be relied upon in the process of decision making as a consequence of their broad knowledge or training. As a result of this, the courts frequently make use of experts. As a result of the fact that the question of whether or not to admit expert testimony has been discussed on a local, regional, national, and even worldwide level for such a significant amount of time, it has been referred to as the "talk of the town" in the context of this discussion. The expert testimony and the challenges that it poses to the judicial system in terms of making decisions is the primary topic of discussion in this context .

The expert witness evidence should fulfil the following requirements :

- the witness needs to be considered an expert in their field;
- the assertions made by the experts or the reports must be able to pass the basic trustworthiness requirements;
- the expert statements are relevant and of probative value ;
- the subject matter of the expert statements is consistent with the authorised scope of the expert witness knowledge and experience .

The presenting of scientific evidence, on the other hand, has been demonstrated to provide significant challenges in a number of instances. This is mostly attributable to the fact that both judges and attorneys have very limited or no prior education or experience in science and technology. When reviewing scientific evidence, the judiciary is tasked with determining the veracity of scientific explanations that are provided by expert witnesses. This may be a difficult and time-consuming task. In order to address this issue and cut down on the amount of time it takes and the amount of money it costs to get expert opinion, the legislation has made it such that certain experts are exempt from having to be examined. This should help reduce the amount of time it takes and the amount of money it costs. According to the regulations outlined in Section 293(2) of the Criminal Procedure Code, 1973 -

The Court may, if it thinks fit, summon and examine any expert as to the subject-matter of his report, namely –

- a) Anyone working for the government as a chemical examiner or assistant chemical examiner,
- b) The Chief Controller of explosives,
- c) The Director of Fingerprint Bureau,
- d) The Director of Haffkein Institute, Bombay,
- e) To Whom It May Concern: The Director, Deputy Director, or Assistant Director of the Central and State Forensic Science Laboratory 0 [To Whom It May Concern],
- f) The Serologist to the Government
- g) Any other Govt. Scientific Experts specified by notification of the Central Govt .

Any of the reports that have been mentioned previously and that have been created by any of the members of the

government's scientific community that have been mentioned previously are eligible to be utilised as evidence in any inquiry, trial, or other proceeding. However, the court has the discretion to exempt him from making a personal appearance in his capacity as an expert witness if the court does not feel that it is essential or suitable to call him for the purpose of testifying on the relevant facts. He has the option of sending any other officer in his place to appear in court as an alternative; however, that officer must be conversant with the specifics of the case and must be competent to take a deposition as an expert witness in front of the court. 9 As a direct result of the emergence of new scientific knowledge and technical advancements, there has been a dramatic shift in the administration of criminal justice all over the world. This change has occurred on a global scale. These developments in scientific knowledge had an effect on the evidence that was offered in the courts, which included the testimony of many experts. The evidence that was offered by the specialists was based on scientific evidence. However, the judges had a hard time deciding whether or not to admit the evidence from the experts because, if they did not consider the evidence admissible, it could have an effect on the result of the case. If they did admit the evidence, however, it did not have an effect on the outcome of the case. Prior to the year 1923, the courts in the United States of America did not have an adequate standard by which to decide whether or not to hear the evidence of experts. Nevertheless, in the decision that was handed down in the case of *Frye v. United States* in 1923, the Supreme Court created a framework for evaluating the evidence that was presented by experts. It

is generally acknowledged that the judgement that was handed down by Frye was the earliest and most significant ruling that was rendered by an American court regarding the topic of whether or not scientific evidence can be used in legal proceedings. This is because it addressed the question of whether or not scientific evidence can be used in legal proceedings. The information provided by victims to the investigating officers at the crime scene was shown to be the most influential element in deciding whether or not a crime would be solved, according to the research that was carried out by Greenwood P. and colleagues (2017) on the activities of detectives. When it comes to the investigation of crimes, the use of conventional investigative methods and physical evidence is just a very small portion of the process. This study also showed that there is access to physical evidence in the majority of cases and that there are latent fingerprints present in more than half of the cases; nevertheless, the use of fingerprints was only successful in identifying the offender in one percent of the cases.

According to Ramsay M.(2018), forensic laboratories were able to give "useful information" to the police in around three-quarters of instances with suspects (suspects were exonerated in about 7% of evidence submissions), but in fewer than 40% of situations with no suspects. After the 1990s, this specific line of investigation was not explored any further by researchers .

According to the findings of a study that was carried out by Boland B et al.(2019), on average, only around half of police arrests resulted in formal charges being brought by a prosecutor. These findings were derived from an investigation that

was carried out in the United Kingdom. About seventy to eighty percent of the persons who were prosecuted were found guilty; however, the vast majority of the cases (90 percent) were resolved by the entry of a guilty plea, and only ten percent had actually gone to trial.

Forst B. et al.(2020) carried out a survey with the purpose of investigating the results of cases after an arrest had been made. According to the conclusions of this investigation, a conviction was not handed down in more than 70 percent of the cases that were investigated. They determined that the arrest and subsequent conviction were the result of three factors, which are as follows: the close proximity of witnesses to the location where the crime was committed, a shorter period of time passing between the act of the crime and the arrest, as well as the presence of "physical evidence." However, the study did not identify the physical evidence, nor was it clear whether or not this evidence had really been analysed in any laboratory. Moreover, the study did not investigate whether or not this evidence had been examined. In addition to this, it was unknown whether or not the study had actually been carried out. Studies of burglaries carried out by Eck J. from the Stanford Research Institute and the Police Executive Research Forum were successful in finding critical criteria including fingerprints that properly predicted the outcomes of 85 percent of the cases.

COURT LEVEL STUDIES

Kalven and Zeisel were the ones who carried out the first investigation on the activities of adjudicators. They found that the majority of judges followed the evidence that was supplied and came at findings that were identical to those of

judges. In addition to this, they made notice of the extraordinary utilisation of scientific expert witnesses in the legal procedures that took place during that time period.

Eisenstein and Jacob (2017) conducted an investigation to determine how the quality of the evidence affected the likelihood of a conviction as well as the outcome of the case. They found that there was a connection between the quality of the evidence and both the charged result and the likelihood of a conviction. In spite of the fact that their methods were quite fundamental, there was no grouping of the numerous kinds of evidence, which eliminates the possibility of conducting an analysis of the influence of any kind of data.

When determining whether or not to negotiate a plea bargain or to take a case to trial, McDonald et al. (2018) found that evidence and witnesses are equally relevant factors to consider. As a result, there is a lack of agreement on the value of the evidence, and there is also a lack of understanding regarding the significance that various sorts of evidence play a part in both the process of coming to a verdict and the acceptance of plea agreements.

Evidence is the single most important factor in determining whether or not a person will be convicted, as discovered by the research carried out by Feeney et al. (2019), who looked at cases involving arrests for robbery and burglary; however, the role of evidence in plea bargains is a controversial topic to discuss. Neubauer referred to the process of entering into a plea deal as a "mini-trial," in which the prosecutors study the evidence to the same amount as the judges would if the case were being tried in court. In contrast to the very seldom use of scientific evidences

(roughly in 25% of instances), Lassers undertook a research of the court files of capital cases that were assessed by the Illinois Supreme Court. These cases were all considered for the death penalty. The researcher came to the conclusion that obtaining convictions required a significant amount of reliance on the admissions of the defendant and the testimonies of witnesses. When compared to the levels of police investigation, the study that is done addressing the function that evidence plays at the court level is better documented to a certain extent. This is true up to a certain degree.

CONCLUSION

Most research on the role of forensic evidence on case processing has been haphazard, focusing on only one or two decision phases, and there are very few studies that study cases from arrest to sentencing. This is owing to the challenges that come with tracking and gathering a huge quantity of data as cases progress through the various steps of investigation, such as arrest, laboratory analysis, adjudication, and punishment. As a result of these challenges, this situation has arisen. Studies that have been conducted indicate a variety of findings for the various phases of the verdict, with some studies indicating that forensic evidence plays a role that is extremely minor and others saying that it does not play a part at all. In the majority of instances, the courts will rule in favour of admitting forensic evidence. On the other hand, in the course of reaching their conclusion, they do not in any way see it as an incontrovertible reality. Evidence that comes from experts is evidence that is based on opinion, and as a result, it cannot serve as a replacement for evidence that is based on facts. The testimony of an expert is required to be

supported by either direct evidence that is unequivocal or circumstantial evidence that is persuasive, since this is a rule of process that must be followed. Because the courts do not consider it to be conclusive, it would be imprudent to rely on it without first seeking for independent and reliable corroboration of what it says. It is not a good idea to place your confidence in this type of evidence without first seeking for other evidence that is reliable and independent of the first piece of evidence.

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