REVIEW OF THE ROLE OF FORENSIC EVIDENCE IN CRIMINAL JUSTICE SYSTEM

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Abstract

In present high-tech world, the crimes are on growing path. Laws are persistently being expanded and revised to counter the alarming rise in crime rates. The criminals are fast changing and in order keep pace with developments, it is necessary to improve present investigative measures which may prove a great support in case proceedings. The Criminal case proceedings entail various stages like lodging FIR, police investigation, court proceedings and final verdict. Several types of evidences including scientific evidence show significant role at all these platforms. This study is an attempt to review the research works carried out relating forensic evidence and various crime investigation steps, putting forward the information on the reliability of such evidences.

Key Words: Criminal justice System, Evidence, Investigation, Scientific evidence.
I. OBJECTIVE

The objective of this study was to review the kinds of forensic evidence collected at crime scenes; track the use and attrition of forensic evidence in the criminal justice system from crime scenes through laboratory analysis, and then through subsequent criminal justice processes. This study also intended to critically evaluate the implication of forensic evidence in court of law.

II. INTRODUCTION

ADVANCEMENT OF FORENSIC SCIENCE

The origins of forensic science can be traced back to the 6th century with legal medicine being practiced, by the Chinese. Within the next ten centuries advances in both medical and scientific knowledge will increase the usage of medical evidence in courts. Other types of scientific evidence were not evolved until the 18th and 19th centuries, a period during which much of our recent knowledge on chemistry was just starting to be recognized. Over the past few years, the forensic sciences have made histrionic scientific innovations.

In the last few years, alongside the distinctive progress of science and technology, forensic science stated itself as dedicated in solving criminal cases. This has created great opportunities for solving any judicial matter by supporting incipient proceedings of scientific research. [18]

ADMISSIBILITY OF FORENSIC EVIDENCE IN COURT

Scientific evidences have the capacity to contribute important information to the police, prosecutors, and the courts in cases of sexual violence. Scientific evidence refers to items collected or information gathered using scientific methods for use in legal proceedings. There are many types of forensic evidence that can be attained to help investigators solve crimes. [1]

Scientific evidences are vital in order to arrive at the reasonable consequence in determining large number of issues. Whether scientific evidence is worth have faith in or not is a key issue which can be encountered by a judge whenever scientific evidence is placed before him. The issue gains much more significance whenever a new scientific principle is to be applied as evidence in the court of law. [18]

Admissible evidence is evidence which can be brought forward in a court of law to support a legal case. In order to be considered admissible, evidence must meet certain standards as well as when it pertains to the case and a clear chain of custody can be established, with people demonstrating that the evidence is authentic and that it has been protected to ensure that the integrity is retained.
THEORETICAL SIGNIFICANCE OF FORENSIC EVIDENCE

The level of interaction of the offender with the victim and/or crime scene environment is what produces the physical evidence in the first place.

Scientific laboratory techniques hold the potential of developing information from the physical clues left at the crime scene that can assist in determining what transpired at the scene and who was (and was not) involved.

III. EXPLORING RELIABILITY OF FORENSIC EVIDENCE IN CASE PROCEEDINGS

Remarkable growth is observed in the development of forensic science technology. There are few studies exist associated with application of forensic evidences in legal proceedings.

This article reviews such literature and isolates areas of reliability and discrepancy across such research fragments as well as explores the influence of forensic evidences at the investigation and court trial levels. Studies of such kind are found widely held in USA and UK.

Quite a few studies in the 1970s and 1980s explored the effect of physical evidence on the outcomes of police investigations and prosecutions as per National Institute of Justice (NIJ) Report, Peterson et al., The Role and Impact of Forensic Evidence in the Criminal Justice Process.

POLICE INVESTIGATIONS STUDIES

Greenwood P. et al studied detective activities and found that information provided by victims to the investigating officers at the crime scene was most influential in guessing whether a crime would be solved. A very small role is played by Traditional investigation methods and physical evidence in solving crimes. This study also found that physical evidence are available in maximum cases and latent fingerprints in over half, but the fingerprints led to the identification of the perpetrator in only 1% of cases. [13]

A study by Ramsay M. found that forensic laboratories provided “helpful information” to the police in about three-quarters of cases where suspects had been identified (suspects were absolved in about 7% of evidence submissions), but in less than 40% of cases without suspects. This line of research did not continue into the 1990s and beyond. [23]

A study by Boland B. et al showed that on average only about half of police arrests resulted in formal charging by a prosecutor. Of the cases charged, about 70–80% resulted in conviction; however, the vast majority (90%) was resolved through a plea and only 10% had actually gone to trial. [4]

Forst B. et al. surveyed the case outcomes after arrest. As per this study, more than 70% of arrests did not lead to conviction. Three factors were recognized by them which lead the arrest to
conviction: the location of witnesses, the reduction of time between crime incidence and arrest, and the presence of “tangible evidence.” But, the tangible evidence was not defined in the study nor it was known whether this evidence was really examined in any laboratory. \[11\]

Studies of burglaries by Eck J. from Stanford Research Institute and the Police Executive Research Forum successfully identified key variables including fingerprints that predicted case outcomes in 85% of cases. \[12\]\[7\]

**COURT LEVEL STUDIES**

An innovative study of adjudicators’ behavior was pursed by Kalven and Zeisel and found that most judges followed the evidence presented and reached decisions identical to those of judges. They also documented the uncommon use of scientific expert witnesses at trial during that era.\[15\]

**Eisenstein and Jacob** attempted to evaluate the effect of evidence on actual case outcomes at the court level and found that strength of evidence was associated with likelihood of conviction and verdict charged. Though, their procedures were rudimentary, grouping of various types of evidence was missing which exclude analysis of the influence of any type of evidence. \[8\]

**McDonald et al.** equally found evidence and witnesses utmost critical in judgements to plea bargain or to take a case to trial. Thus, there is little agreement about the importance of evidence and little knowledge about the importance that various kinds of evidence play role in verdicts as well as in accepting a plea. \[17\]

**Feeney et al.** studied cases related to robbery and burglary arrests and found evidence as the most important factor in predicting conviction but the role of evidence in plea bargains is controversial. Neubauer described plea-bargaining as a “mini-trial” where the prosecutors examine the evidence as much as judges would. \[9\]\[19\]

**Lassers** carried out study of court files of capital cases appraised by the Illinois Supreme Court and found a substantial dependence on confessions and witness testimony to secure convictions in contrast to the rare use of scientific evidences (approx. in 25% cases).\[16\]

Research regarding the role played by evidence at court level is better documented up to a certain extent compared to police investigation levels.

**COMPREHENSIVE CASE-PROCEEDINGS STUDIES**

Studies by **Peterson et al.** are the top comprehensive studies of the use of scientific evidence in the investigation and adjudication of cases which were funded by NIJ, USA in the 1980s. They examined about 2700 randomly selected cases drawn from four jurisdictions nationwide. Research was carried out on about 1600 cases with evaluated physical evidence and about 1100 similar cases where no physical evidence was collected. Various types of crimes were studied like homicide, rape, robbery, aggravated assault, and burglary. Case files were gathered from police agency, crime laboratory, prosecutor, and court files. They discovered that forensic evidences were collected and examined in only 20–30% of all serious crimes. Besides, as per the type of crime,
this rate varied significantly. For instance, the police collected physical evidence in almost 100% of murder and drug cases and 75% of rape cases, but in only, 33% of burglaries, 20% of robberies and 10–20% in attempted murders. Most frequently collected and analyzed evidences were Blood, hair, firearms, and fingerprints. Crimes, with forensic evidences, had three times greater clearance rate in court of law than in cases where such evidences were not used.\[20\]

A subsequent alike study by Peterson et al revealed the uses and influence of scientific evidence in the charging, plea negotiation, trial, and sentencing stages of the criminal justice process. At the point of charging, the scientific evidence had negligible effect in most of crime cases, excluding drug, rape, and arson cases. Cases from five different jurisdictions were traced and Guilty pleas were the standard found in more than 90% of cases. In cases where the scientific evidence strongly connected with the crime, prosecutors were less prone to offer a plea bargain. Another study explored that scientific evidence had a very restricted role in verdicts to convict a perpetrator, in comparison with the effects of other evidence. Though, forensic evidence had its crucial influence during the stage of sentencing.\[21\]

Lastly, a third inclusive case proceedings study was recently commenced by Peterson et al. The study was conducted on 4250 criminal cases of was included a probability-based sample of 4205 criminal cases randomly selected from Los Angeles County, Indianapolis (IN), and three rural Indiana locations of the year 2003. Entire case proceedings, from initial police reports to court disposition, were taken into consideration. It is important to note that use of DNA typing and the CODIS database were not as advanced or prevalent as they are today. 400 homicides, 602 rapes, 859 aggravated assaults, 1081 robberies, and 1263 burglaries cases were included. These types of offences characterize the complete array of serious offense types where physical evidence is typically collected and examined. The data were compiled from police incident and investigation reports, crime laboratory reports, and prosecutor case files. This study tracked the headway of physical evidence as the case proceeded from investigation to arrest, charging, and verdict. Each type of crime was analyzed individually. For burglary, assault, robbery, and rape cases, it was stated that collection of crime scene evidence was predictive of arrest. Among homicide cases, those with crime scene evidence were more likely to be charged. For Rape and assault cases, forensic reports predicted charging decisions. In addition to forensic evidence variables, several other case characteristics predicted decision outcomes, especially witness, and victim reports to the police.

Baskin and Sommers, co-authors of the Peterson et al. study, recently re-examined the study data in two separate articles and reported contrary conclusions.\[22\][2][3]

IV. CONCLUSION

Most of the research examining the role of forensic evidence on case-processing outcomes has been haphazard, concentrating on just one or two decision stages, and only a few comprehensive studies exist that examine cases from arrest through sentencing. This is because of the challenges associated with tracing and gathering a huge data as cases pass through the various stages of investigation like arrest, laboratory analysis, adjudication, and sentencing. Studies which have been conducted, discover diversified conclusions for different verdict stages, with some indication of inconsequential role played by forensic evidence.
The important task which scientific evidence can perform during investigation is the evidence can convincingly link the perpetrator with the victim or crime scene. Such hypothesis could not be supported by Peterson et al’s study. A foremost reason for this conclusion was a very less percentage of physical evidence could be individualized. Before 1985, fingerprints and firearms were the only main types of physical evidence that could conclusively link a criminal with a crime. In bringing this literature together, it is clear that the use of forensic evidence in the criminal justice system raises complex questions about its collection, its impact on legal outcomes, and its interpretation by forensic specialists, judges, and juries.

In recent times, two scientific and technological advances have reformed the field of forensic science: (i) DNA typing which facilitated body fluids to be individualized and (ii) Computerized data base of DNA, fingerprints, and firearms which can be stored and retrieved when require. Moreover, the types of evidence available have extended and the analysis has become more sophisticated. According to some research, there is a growing expectation held by victims, legal performers and judges that forensic evidence will be available and yield the “truth” about what happened in criminal activities.[1]

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