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## Role of Forensic Evidence in the Criminal Trials; A Legal Analysis in Pakistan Perspective

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### **Abstract**

*This research analyze how Forensic evidence impacts the criminal justice setup in Pakistan. It delves into the types of forensic evidence used, in the way that DNA profiling, fingerprint study, ballistics, and digital forensics, and explores their request in high-profile cases like the Zainab Ansari case and the Benazir Bhutto assassination. The study too highlights the function of forensic specialists in trials and the important impact of forensic evidence on trial effects, containing embellishing veracity and barring illegal confidences. The paper recognizes various challenges faced in the productive use of forensic evidence in Pakistan, containing old-fashioned supplies, lack of patterned processes, source restraints, and lacking preparation for permissible pros. It again discusses the legal and uniform structure commanding forensic evidence, noticing that while organizations like the Punjab Forensic Science Agency have created important tramps, there are still gaps that need to be addressed. Key pieces of advice for reconstructing the use of forensic evidence contain renovating the permissible foundation, investing in up-to-date technology, extending forensic assistances, and improving preparation for forensic specialists and legal experts. The research underlines the need for public knowledge campaigns to build count on forensic skill and desires that future studies should devote effort to something approximate analyses with additional nations, the impact of concerning details progresses, and public understanding of forensic evidence. By addressing these issues, the unification of forensic evidence into Pakistan's criminal justice setup maybe considerably enhanced, superior to more trustworthy and just consequences in criminal trials.*

**Keywords:** *Forensic Evidence, Criminal Trials, Criminal Justice*

### **Introduction**

The adjective forensic is came from Latin word “forensis” which means that Forum. The early Romans used forum for variety of purposes like retail, public conversation, trade and marketing businesses. These forums performed their duty of interpretation, investigation and formed civil law (Conner, 2007). It widely contains the evidence paid the court of law to persevere a suspect of misconduct. Forensic skill helps in resolving crime by including witnesses, fatalities and the masters in the court of law. Forensic skill, 189 years age-old helps to integrate criminal investigators and scientists to impartially resolve the evidence establish the crime scene (Wright and Miller, 2005)

Forensic science and forensic evidence are holding key positions in the criminal lord justice setup, specifically in criminal investigation, everywhere the globe (Ajmal and Rasool 2022) The evidence holds a fundamental function in opposing criminal jurisdictions. Forensic science has long presented a vital role engaged of criminal justice worldwide. In Pakistan, the progress of forensic learning is rather current, but it has immediately produce meaning on account of its capability to supply actual and objective evidence in criminal studies and troubles. Forensic evidence, to a degree DNA analysis, fingerprinting, and mathematical forensics, can offer irresistible evidence that sexually transmitted disease in the correct conclusion of blame or harmlessness, accordingly donating to the childbirth of fairness.

The significance of forensic evidence display or take public its controlled support, that minimizes human mistake and bias, frequently guide witness proofs and indirect evidence. As misdemeanor rates and the complicatedness of criminal ventures increase, the confidence on forensic evidence becomes more important. This backdrop sets the entertainment industry for investigating how forensic evidence is handled in Pakistan's criminal lord justice setup, emphasize allure potential and the challenges confronted.

### **Problem Statement**

Despite the acknowledged significance of forensic evidence, Pakistan faces particular challenges in efficiently merging it into criminal trials. The country's Forensic infrastructure is still expanding, and skilled are issues related to the kind and dependability of Forensic aids. Furthermore, the permissible and legal systems frequently fight with the correct management and understanding of forensic evidence, superior to concerns about allure appropriateness and affect trial consequences. (Pokhariyal et al., 2024)

The break between the potential of Forensic evidence and allure actual exercise in criminal tests raises fault-finding questions about the adeptness of Pakistan's criminal lord justice setup. Addressing these challenges is essential for guaranteeing that forensic evidence can fulfill allure duty in transferring justice.

### **Research Objectives**

This research aims to realize several goals:

- 1) To determine the current state of Forensic evidence in Pakistan.
- 2) To judge the impact of Forensic evidence on the consequences of criminal trials.
- 3) To classify the major challenges in the effectual use of forensic evidence in Pakistan.
- 4) To propose recommendations for improving the unification and utilization of forensic evidence in the criminal lord justice setup.

### **Research Questions**

The research will address the following questions:

1. What is the current Legal setup commanding forensic evidence in Pakistan?
2. How impect and use of forensic evidence in criminal trials in Pakistan?
3. What are the main challenges in the effectual use of forensic evidence in Pakistan?
4. How can the unification and utilization of forensic evidence in Pakistan's criminal lord Justice Setup be improved?

### **Methodology**

This research will engage a religious approach, directing on the study of existent history, containing books, items, journals, and case regulations. The study will precariously review permissible texts and statutory supplyings having to do with forensic evidence in Pakistan. Additionally, an observation of related case regulations will be administered to think legal translations and requests of forensic evidence. This approach will support a inclusive understanding of the current state and challenges of forensic evidence in Pakistan's criminal trials.

## **Literature Review**

### **Existing Research on Forensic Evidence**

Forensic evidence has existed a case of important interest in the worldwide criminal lawfulness society. Numerous studies have surveyed allure impact, dependability, and the challenges guide allure use. (Sarkar & Shukla 2023). In Pakistan, still, research expressly directed on forensic evidence is comparably restricted but increasing. Books and items on forensic skill frequently climax the fault-finding function of DNA evidence in resolving crimes. Works in the way that "Forensic Science: An Introduction to Scientific and Investigative Techniques" determine a inclusive survey of differing forensic methods and their uses. Similarly, "Forensic DNA Typing" delves into the article of DNA reasoning and its judicial significance.

In Pakistan, philosopher have started to survey the unification of forensic skill into the legal scheme. Articles in journals like the Pakistan Journal of Criminology explain the incident and impact of forensic skill organizations to a degree the Punjab Forensic Science Agency (PFSA). These studies climax the progress created and the existent break in forensic duties.

### **Theoretical Framework**

The hypothetical foundation for this research is set in the law of criminal and forensic skill. Key believes involve the "Locard's Exchange Principle," that supposes that all contact leaves a trace, and the "Chain of Custody," that guarantees the completeness of evidence from group to performance in court. These believes emphasize the significance of detailed management and study of forensic evidence to assert allure dependability and appropriateness in court.

### **Gaps in Current Literature**

While there is solid biography on forensic skill usually, distinguishing studies putting on the use and challenges of forensic evidence in Pakistan are scanty. Most existent research addresses fuller issues of criminal lord justice or forensic learning outside inquiring intensely into the particular framework of Pakistan. This break underlines the need for fixated studies that investigate the singular challenges and space inside the Pakistani permissible and forensic methods.

Furthermore, there is a lack of inclusive studies that judge the impact of forensic evidence on trial effects in Pakistan. Most research goes expected explanatory, outlining the life of forensic abilities and duties outside precariously resolving their influence in physical-globe sketches.

### **Relevance to Pakistan**

The pertinence of forensic evidence in Pakistan cannot be exaggerate. The country faces abundant challenges, containing extreme violation rates and complex criminal projects, that make necessary the use of trustworthy and controlled patterns for misdeed discovery and government. Forensic evidence offers a habit to reinforce the impartiality and veracity of criminal reviews, lowering the confidence on conceivably capricious witness proofs and acknowledgments got under time pressure.

Studies attracting on Pakistan climax the progress created by organizations like the PFSA,

that has set a yardstick for legal aids in the country. However, these studies too specify important issues to a degree underfunding, lack of prepared staff, and delays in judicial study, that prevent the productive use of forensic evidence.

By calling these break, this research aims to support a particularized test of the act of forensic evidence in Pakistan's criminal troubles, contribution understandings and pieces of advice that can help upgrade the unification and exercise of forensic skill in the country's judicial setup.

## **Data Analysis**

### **Legal Setup Commanding Forensic Evidence in Pakistan**

#### **Overview of Relevant Laws and Regulations**

In Pakistan, the permissible foundation commanding legal evidence is generally based on the Pakistan Penal Code (PPC) and the Code of Criminal Procedure (Crpc). These regulations determine the groundwork for criminal inquiries and the appropriateness of evidence in courts.

The Pakistan Penal Code, settled in 1860, is the main criminal law of Pakistan. It outlines various offenses and prescribes penalties for ruling class. While it doesn't expressly mention forensic evidence, allure supplyings maybe used to incorporate experimental patterns in studies.

The Code of Criminal Procedure, accomplished in 1898, outlines the procedural facets of criminal regulation. It involves directions on the collection, protection, and performance of evidence in criminal troubles. Forensic evidence, to a degree DNA and fingerprints, maybe received under these directions to support the prosecutor or defense.

Additionally, the Qanoon-e-Shahadat Order, 1984 (Law of Evidence) plays an important function in deciding the appropriateness of forensic evidence. The Article 164 of Qanoon-e-Shahadat Order deals with Forensic Evidence as becoming available because of Modern devices. This society determines the rules for giving evidence in court and includes supplyings for expert proof, that is essential for forensic evidence. Under this regulation, judicial masters can announce about their judgments, helping judges and juries think complex experimental facts.

#### **Institutional setup**

The bland foundation for forensic evidence in Pakistan is situated various key organizations. The Punjab Forensic Science Agency (PFSA), settled in 2009, is a superior organization providing inclusive forensic duties. The PFSA offers a range of forensic investigations, including DNA profiling, toxicology, and ballistics, and has set a extreme standard for forensic practices in the country.

Other provinces have too begun expanding their judicial abilities, though they are not as state-of-the-art as the PFSA. These institutions face challenges to a degree restricted possessions, lack of prepared crew, and old-fashioned supplies, that can affect the kind and dependability of forensic evidence.

Regulatory parties, to a degree the National Police Bureau and the Ministry of Interior, supervise the exercise of judicial practices and ensure that they perform legitimate guidelines. These materials work to better the judicial facilities of law enforcement agencies and advance the use of experimental orders in criminal hearings.

### **International Standards and Comparisons**

When equating Pakistan's allowable foundation for forensic evidence accompanying international flags, various dissimilarities and correspondences arise. In grown nations like the United States and the United Kingdom, legal science is intensely joined into the criminal fairness scheme. These nations have traditional legal organizations, rigorous authorization processes, and inclusive preparation programs for judicial artists.

In contrast, Pakistan is still while expanding allure forensic foundation. While meaningful progress has happened created, specifically accompanying bureaucratic rules of the PFSA, skilled is still a need for further improvements to meet worldwide principles. This contains embellishing the status and dependability of legal studies, ensuring correct authorization of legal workshops, and providing unending preparation for legal experts and law enforcement personnel. (Blackwell 2024)

Adopting best practices from nations accompanying progressive judicial structures can help Pakistan raise allure legal capabilities. For example, establishing nationwide authorization physique, executing regulated obligations, and advancing collaboration between legal organizations and law enforcement organizations can enhance the influence of forensic evidence in criminal trials. (Cleveringa 2024)

### **Types and Use of Forensic Evidence in Criminal Trials**

#### **Types of Forensic Evidence**

Forensic evidence enters place differing forms, each providing critical judgments into criminal cases. In Pakistan, the following types of forensic evidence are usually employed:

#### **DNA Evidence**

DNA profiling is one of ultimate strong forms in forensic science. It includes resolving organic samples in the way that ancestry, wig, or slaver to establish a DNA profile unique to an individual. In Pakistan, DNA evidence has happened involved in resolving cases of rape, murder, and additional extreme breaches. The Punjab Forensic Science Agency (PFSA) has state-of-the-art facilities for DNA study, making it a keystone of up-to-date forensic inquiries. (Role et al. 2024)

#### **Fingerprint Analysis**

Fingerprints are another fault-finding piece of forensic evidence. The differentness of each individual's fingerprints create bureaucracy a trustworthy plan for labeling guesses and connecting ruling class to misdeed scenes. Fingerprint reasoning includes equating prints raise at a violation setting accompanying those in a table or captured from guesses. (Thompson et al., 2020) The PFSA and additional forensic systems in Pakistan utilize Automated Fingerprint Identification Systems (AFIS) to organize this process.



## **Ballistics**

Ballistics is the study of firearms and armament. Forensic ballistics masters analyze slug courses, ammunition residues, and the singular designations abandoned on projectiles and casings by firearms. This type of evidence is important in cases involving shootings, allowance to decide the type of arm secondhand and conceivably connecting it to a suspect. (white, P.C. 2016)

## **Digital Forensics:**

In the mathematical age, cybercrimes are more and more prevalent. Digital forensics includes the improvement and reasoning of dossier from electronic tools in the way that calculatings, smartphones, and depository television. This type of evidence is essential in cases of hack, deception, and different computerized-accompanying corruptions. Although still cultivating, Pakistan's volume for digital forensics is increasing, accompanying specific parts being settled to handle specific cases.

## **Case Studies**

Examining distinguishing cases helps portray the experienced request and impact of forensic evidence in Pakistan's criminal troubles:

### **Zainab Ansari Case**

In 2018, the abduction, rape, and murder of seven-old age-traditional Zainab Ansari in Kasur started governmental outrage. DNA evidence gambled a important part in this place case. The PFSA transported DNA reasoning on samples calm from the misdeed setting, which doubled those from former uncertain cases, displaying a sequential perpetrator. The DNA characterization surpassed to the arrest and confidence of Imran Ali, the one was afterward performed. This case emphasize the importance of forensic evidence in answering monstrous violations and guaranteeing fairness.

### **Benazir Bhutto Assassination**

The murder of old Prime Minister Benazir Bhutto in 2007 remnants a important case in Pakistan's record. Forensic evidence, containing ballistics and explosive residue study, was critical in the hearing. Experts resolved the arms and gunpowders secondhand in the attack to reorganize the occurrences and label the perpetrators. Although the case remnants complex and contentious, the part of forensic evidence in revealing key analyses was proven.

### **Model Town Incident**

In 2014, a potent clash between law enforcement and Pakistan Awami Tehreek activists in Model Town, Lahore, developed in diversified deaths and harms. Forensic evidence, containing ballistics and broadcast study, was used to investigate the occurrence. The reasoning aided decide the type of firearms secondhand and the beginning of the shot, providing critical news for the legal asking and after legal proceedings.

### **Role of Forensic Experts**

Forensic specialists play a essential duty in the criminal lord justice plan by providing controlled reasoning and proof. Their knowledge helps help along between complex

experimental evidence and its understanding by judges, juries, and permissible experts (de Lint 2021). In Pakistan, judicial specialists from organizations like the PFSA are frequently named upon to swear in court, clarifying their judgments and the systems used to acquire bureaucracy.

The credibility of legal specialists is principal. Their requirements, happening, and devotion to righteous guidelines guarantee that their proof is trustworthy and sanctioned in court. Cross-examination of forensic specialists by justification attorneys is a average practice, designing to test the genuineness of the evidence and the knowledge of the witnesses.

### **Impact on Trial Outcomes**

Forensic evidence considerably impacts the consequences of criminal troubles. Its controlled evidence specifies objective authentication that can corroborate or discredit different forms of evidence. (de Lint 2021). In many cases, forensic evidence has happened definite in acquiring assurances or exonerating the blameless.

### **Enhancing Accuracy and Fairness**

Forensic evidence donates to the veracity and justice of criminal troubles by providing hardened and unbiased news. It helps guarantee that conclusions are established real and experimental dossier alternatively emotional clarifications. (De Jonge 2020).

### **Preventing Wrongful Convictions**

The use of forensic evidence can counter wrongful beliefs by providing trustworthy evidence that can challenge or support witness proofs and different evidence. DNA evidence, exceptionally, has happened important in exonerating things the one were unfairly sentenced established flawed evidence or dishonest proofs.

### **Supporting Law Enforcement**

Forensic evidence supports law enforcement forces by providing leads and recognizing guesses. It reinforces curious competencies and helps resolve complex cases that ability alternatively wait unresolved.

### **Impact on Criminal Justice Outcomes**

Forensic evidence considerably influences the consequences of criminal lord justice proceedings in Pakistan. By providing experimental and objective authentication, forensic evidence embellishes the veracity and fairness of trials. This division tests the differing habits at which point forensic evidence impacts the criminal lord justice method, containing its act in ensuring veracity and justice, barring illegal opinions, and supporting law enforcement works.

### **Enhancing Accuracy and Fairness**

Forensic evidence provides to the veracity and justice of criminal trials by providing objective, experimental evidence that can support or discredit different forms of evidence. Traditional evidence, in the way that witness testimonies and proclamations, maybe false due to determinants like memory decay, witness bullying, or pressure.(Bellin 2020). Forensic evidence, in another way, is established experimental analysis, that minimizes the risk of



human mistake and bias.

### **Objective Proof**

Forensic evidence, in the way that DNA evaluation and fingerprinting, offers factual proof that can story or challenge added evidence bestowed in court. This helps guarantee that resolutions are established factual evidence alternatively emotional judgments, increasing the overall fairness of the trial.

### **Corroborating Evidence**

Forensic evidence maybe used to story different forms of evidence, in the way that witness accounts or real evidence establish at the case stage. For instance, DNA evidence can prove the presence of a suspect at a misconduct setting, upholding the proof of an witness. This multi-cover with veneer approach to evidence strengthens the prosecution's case and increases the prospect of a fair conclusion.

### **Preventing Wrongful Convictions**

One of ultimate meaningful impacts of forensic evidence is its act in forestalling illegal opinions. By providing trustworthy and scientifically confirmed evidence, forensic evidence can help excuse things who have happened unfairly blamed or sentenced established faulty evidence or false proofs.

### **Exonerating the Innocent**

DNA evidence has existed specifically influential in exonerating things who were unfairly sentenced. Numerous cases general have manifested the capacity of DNA evidence to overturn illegal assurances, and Pakistan is no irregularity. (Baylor 2021). For example, in cases place things were convicted established pressed proclamations or tricky observer proofs, DNA evidence has helped confirm their blamelessness and secure their release.

### **Highlighting Systemic Issues**

The use of forensic evidence can more focal point systemic issues inside the criminal lord justice setup, to a degree confidence on unreliable evidence or procedural mismanagement. By revealing these issues, forensic evidence can prompt corrects proposed at improving the justice and loyalty of the criminal lord justice setup.

### **Supporting Law Enforcement**

Forensic evidence supports law enforcement works by providing critical leads and finding guesses. The controlled character of forensic evidence enhances analytical facilities, helping law enforcement companies solve complex cases that power alternatively wait uncertain.

### **Crime Scene Investigation**

Forensic methods, such as DNA profiling, fingerprint reasoning, and ballistics, are essential forms in violation setting analyses. These techniques help law enforcement companies recognize guesses, reorganize crime settings, and draw critical evidence that maybe secondhand in court. The Punjab Forensic Science Agency (PFSA) has played a lively part in providing these duties, helping answer numerous important cases in Pakistan.

## **Cold Cases**

Forensic evidence maybe specifically valuable in resolving cold cases that have waited uncertain for years on account of lack of evidence. Advances in forensic knowledge, in the way that upgraded DNA analysis orders, admit police officers instrumentalities to reconsider old evidence and conceivably recognize new leads. This can influence plug to sufferers and their families, in addition to hold perpetrators obliged for their misdeeds.

## **Challenges in the Practical Use of Forensic Evidence**

### **Technical and Procedural Challenges**

One of the important challenges in the use of forensic evidence in Pakistan is related to scientific and procedural aspects. The status and dependability of forensic labs are important for guaranteeing that forensic evidence can bear allowable scrutiny. However, many forensic abilities in Pakistan face meaningful issues that interfere their influence.

### **Quality and Reliability of Forensic Laboratories**

The value of legal reasoning depends massively on the infrastructure and supplies free in forensic labs. Many labs in Pakistan fight with old-fashioned and lacking supplies, that can bring about errors in forensic study. This can compromise the principle of the evidence, making it less trustworthy in court. Additionally, the lack of patterned processes and obligations can cause irregular results across different workshops.

### **Accreditation and Standardization:**

Accreditation guarantees that forensic labs meet particular guidelines of kind and dependability. In Pakistan, skilled is a lack of a robust authorization scheme for forensic labs. Without correct authorization, the believeableness of forensic evidence maybe challenged in court. Establishing standardized processes and guaranteeing that all forensic labs obey these principles is essential for reconstructing the dependability of forensic evidence.

### **Legal and Judicial Challenges**

The lawful and judicial setup in Pakistan further poses meaningful challenges to the productive use of forensic evidence. The appropriateness and understanding of forensic evidence in court are fault-finding factors that can influence the effect of criminal experiments.

### **Admissibility of Forensic Evidence**

The allowable laws for the qualification of forensic evidence in Pakistan are still developing. Judges and advocates frequently lack the necessary preparation and understanding of forensic learning, that can generate issues in the decent management and understanding of forensic evidence. This can effect the exclusion of authentic forensic evidence or the agreement of deceptive evidence, moving the justice of troubles.

### **Training and Awareness Among Legal Professionals**

There is a need for raised preparation and awareness with judges, advocates, and different lawful experts concerning forensic skill. Proper preparation can help legal specialists believe

the meaning and restraints of forensic evidence, permissive authority to create knowledgeable decisions about its qualification and clarification in court. Workshops, conferences, and ongoing lawful instruction programs concentrated on forensic science can help bridge this knowledge breach.

### **Institutional and Operational Challenges**

The productive use of forensic evidence still depends on the functional facilities and arrangement between differing institutions interested in the criminal law structure.

### **Funding and Resource Constraints:**

Many forensic labs in Pakistan face important financing and source restraints. Limited financial resources can interfere the purchase of progressive supplies and the employing of certified staff. Adequate money is essential for claiming the operational expertise of forensic labs and guaranteeing that they can supply up-to-date and correct forensic reasonings.

### **Coordination Between Law Enforcement and Forensic Institutions**

Effective arrangement and ideas between law enforcement organizations and forensic organizations are critical for the decent exercise of forensic evidence. Lack of cooperation can lead to issues to a degree abuse of evidence, delays in forensic study, and misunderstanding of forensic decisions. (Wilson 2020). Establishing clear ideas channels and protocols can help improve the arrangement between these bodies.

### **Case Backlogs and Delays**

Another important challenge is the accumulation of cases resting for forensic study. Delays in forensic study can have serious suggestions for the criminal justice process, containing extended pre-trial imprisonment and slowed lawfulness for martyrs and blamed individuals. (Stirk 2022).

### **Impact of Delays on Trial Outcomes**

Delays in forensic study can influence the consequence of criminal troubles by extending moment of truth it takes to draw crucial evidence. This can influence extended pre-trial imprisonment for blamed things and slowed lawfulness for martyrs. Moreover, deferred forensic results can impact the chance of witnesses and the maintenance of different forms of evidence, conceivably depressing the overall case.

### **Strategies to Address Backlogs**

Addressing the accumulation of cases demands a versatile approach, containing growing the capacity of forensic labs, bringing in more able people, and achieving effective case administration arrangements. Investing in automation and digitalization of forensic processes can too help organize forensic study and humble delays.

### **Resource Constraints**

Many forensic labs in Pakistan face talent restraints, including restricted capital and old-fashioned supplies. To upgrade the reliability and veracity of forensic evidence, it is owned by purchase up-to-date legal technologies and guarantee that workshops have able possessions.

### **Training and Expertise**

There is a need for constant training and volume construction for forensic specialists, law enforcement officers, and permissible experts. Proper preparation guarantees that forensic evidence is collected, resolved, and bestowed in court right, improving allure believeableness and impact.

### **Recommendations for improving the Unification and Utilization**

Improving the employment and influence of forensic evidence in Pakistan's criminal lawfulness system demands a complex approach. The following recommendations give procedure and legal reforms, uniform heartening, preparation and ability construction, and public knowledge and learning.

### **Policy and Legal Reforms**

To enhance the act of forensic evidence in the criminal lawfulness arrangement, it is important to implement procedure and legal corrects that address current breach and challenges.

### **Strengthening Legal Frameworks**

The allowable foundation commanding forensic evidence needs to be renewed and encouraged to establish accuracy and flexibility. This contains:

**Codifying Forensic Standards:** Establishing clear standards for the selection, maintenance, and performance of forensic evidence. This maybe completed by amending the Code of Criminal Procedure (CrPC) and the Qanun-e-Shahadat Order to contain specific plans on forensic evidence.

**Admissibility Criteria:** Defining absolute consistency tests for forensic evidence to ensure that only respectable and accurately legalized evidence is granted in court. This would help lessen the risk of illegal opinions based on faulty forensic study.

### **Establishing Regulatory Bodies**

Creating separate supervisory materials to oversee forensic labs and guarantee agreement with universal standards. These parties can:

**Accreditation and Certification:** Implement an authorization and confirmation process for forensic labs to guarantee they meet finest standards.

**Oversight and Accountability:** Conduct consistent audits and inspections of forensic resources to control clarity and responsibility.

### **Institutional Strengthening**

Improving the infrastructure and functional competency of forensic organizations is essential for guaranteeing the dependability and effectiveness of forensic duties.

### **Investment in Modern Technology**

Upgrading forensic labs accompanying new science and equipment is important. This contains:

**Advanced Analytical Tools:** Investing in leading DNA sequencing machines, automated fingerprint identification systems (AFIS), and high-judgment microscopes for ballistic reasoning.

**Digital Forensics Capabilities:** Enhancing mathematical forensics skills to address the increasing challenge of cybercrimes. This includes acquiring specific spreadsheet and fittings for evidence restoration and study.

**Expansion of Forensic Services:** Expanding forensic services to all domains of Pakistan to guarantee stable approach. This maybe attained by:

**Establishing Regional Laboratories:** Setting up regional forensic labs in underserved regions to humiliate the burden on main abilities and enhance turnaround periods for forensic reasoning.

**Mobile Forensic Units:** Deploying mobile forensic units that can reach remote case stages and supply on-spot reasoning, guaranteeing up-to-date evidence collection.

### **Training and Capacity Building**

Continuous preparation and competency construction for forensic specialists, law enforcement officers, and lawful experts are essential for claiming extreme principles of forensic practice.

#### **Specialized Training Programs:**

Developing specialized preparation programs for various shareholders in the criminal lord justice setup. These programs undergo cover:

**Forensic Techniques:** Training forensic analysts and technicians in new forensic methods and techniques.

**Legal Aspects:** Educating judges, advocates, and law enforcement officers on the lawful facets of forensic evidence, containing its eligibility and interpretation in court.

### **Collaborations and Partnerships**

Promoting cooperations and participations with universal forensic organizations and institutions to facilitate information exchange and ability construction. This can include:

- **Exchange Programs:** Establishing exchange programs place Pakistani forensic professionals can accept preparation overseas and restore best practices.
- **Joint Research Initiatives:** Encouraging joint research actions that devote effort to something developing new forensic sciences and techniques relevant to Pakistan's circumstances.

## **Public Awareness and Education**

### **Public Awareness:**

Raising public awareness about the significance of forensic evidence can help build count on the criminal lawfulness order. Public education campaigns can advise civilians about the part of forensic skill in ensuring fairness and strengthen unity accompanying law enforcement agencies.

### **Public Education Campaigns**

Launching public instruction campaigns to instruct residents about the duty of forensic evidence in guaranteeing justice. These campaigns can:

**Media Outreach:** Utilize video, transmission, and public news to distribute facts about forensic skill and its affect criminal cases.

**Community Engagement:** Organize society occurrences and studios to educate the public about how forensic evidence can help answer cases and care for innocent things.

**School and University Programs:** Integrating forensic skill instruction into school and university educational programs to impress the next generation of forensic specialists. This can contain:

**Science Fairs and Competitions:** Hosting skill fairs and competitions attracted on forensic science to strengthen students to survey this field.

**Educational Partnerships:** Partnering with universities to offer specific courses and standard programs in forensic skill.

## **Conclusion**

### **Summary of Findings**

The research on the function of forensic evidence in criminal trials in Pakistan climaxes various indispensable content:

### **Current State of Forensic Evidence**

Forensic evidence plays a critical part in the criminal lord justice setup of Pakistan, contribution objective, controlled authentication that sexually transmitted disease in the correct decision of blame or harmlessness. Institutions like the Punjab Forensic Science Agency (PFSA) have set extreme principles for forensic practices, but there are still meaningful challenges that need expected called.

### **Challenges in effectual use of forensic evidence**

The effectual use of forensic evidence in Pakistan faces various challenges, containing mechanics and procedural issues, permissible and judicial hurdles, uniform and functional restraints, and case backlogs and delays. These challenges obstruct the optimum use of forensic evidence and influence the overall effectiveness of the criminal lord justice setup.



### **Impact on Criminal trial Outcomes**

Forensic evidence has a deep affect on criminal trail outcomes by improving veracity and justice, countering evil beliefs, and upholding law enforcement works. However, the entire potential of forensic evidence is not still earned due to the existent challenges.

### **Recommendations for Improvement**

Addressing these challenges demands comprehensive tactics and allowable corrects, uniform encouraging, constant preparation and ability construction, and public knowledge and instruction. Implementing these approvals can considerably reinforce the part of forensic evidence in Pakistan's criminal lord justice setup.

### **Implications for Criminal Justice in Pakistan**

The judgments concerning this research have various main suggestions for the criminal lord justice setup in Pakistan:

#### **Policy and Legal Reforms**

Strengthening the permissible foundation commanding forensic evidence is critical for guaranteeing allure correct exercise in criminal trials. Clear principles and directions for the appropriateness and management of forensic evidence can improve its believeableness and dependability in court.

#### **Institutional Development**

Investing in up-to-date forensic sciences and extending forensic duties to all domains of Pakistan can boost the characteristic and approachability of forensic study. This, in turn, can help decrease case backlogs and guarantee proper justice.

#### **Training and Capacity Building**

Continuous preparation and competency construction for forensic experts, law enforcement executives, and allowable experts are essential for asserting extreme flags of forensic practice. Proper preparation guarantees that forensic evidence is composed, resolved, and bestowed right, reinforcing allure affect criminal troubles.

#### **Public Engagement**

Raising public knowledge about the significance of forensic evidence can build count on the criminal lord justice setup . Public instruction campaigns and society date drives can update nationals about the duty of forensic skill in resolving misdeeds and assuring harmless things.

#### **Future Research Directions**

While this research supplies valuable understandings into the part of forensic evidence in Pakistan's criminal lord justice setup , skilled are various extents that demand further investigation:

#### **Comparative Studies:**

Conducting approximate studies with different nations can support valuable communication and best practices that maybe used to the Pakistani framework. This can help recognize profitable models of forensic practice and advise tactics and bland corrects.

### **Impact of Technological Advancements**

Exploring the impact of arising sciences, in the way that leading DNA evaluation methods and digital forensics, on the criminal lord justice setup can specify intuitions into how these sciences maybe efficiently joined into forensic practice in Pakistan.

### **Evaluation of Training Programs**

Assessing the influence of preparation programs for forensic artists, law enforcement officials, and allowable experts can help recognize districts for bettering and guarantee that these programs meet the developing needs of the criminal lord justice setup.

### **Public Perception and Trust**

Investigating public idea and count on forensic evidence and the criminal lord justice setup can supply valuable observations into the influence of public instruction campaigns and label extents place further date is wanted.

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