
CRITICAL ANALYSIS OF THE USE OF MEDICAL AND FORENSIC EVIDENCE IN THE RAPE AND SEXUAL ASSAULT CASES

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ABSTRACT

Rape is one of the most grievous crimes in India, not only violating individual dignity but also undermining societal values. Despite legal advancements, such as Section 375 of the IPC (now Section 63 of the BNS) and the POCSO Act, the conviction rate for rape cases remains alarmingly low at 17.9%, as per the NCRB's 2023 report. One of the primary reasons for this is the inadequacy of forensic and medical evidence collection, compounded by systemic inefficiencies and infrastructural gaps. Locard's Principle of Exchange highlights the importance of forensic evidence, yet in India, nearly 12,000 DNA samples related to sexual offenses remain unprocessed due to a lack of resources. This paper underscores the significance of forensic and medical evidence in securing convictions in rape cases and evaluates the shortcomings of India's current investigative framework. It proposes the establishment of a **centralized forensic agency** under the central government, solely dedicated to handling rape investigations, reducing local interference, and improving efficiency. Additionally, the paper explores global best practices in forensic examination and recommends reforms to strengthen the Indian criminal justice system's approach to sexual offense cases.

Keywords: Rape laws, forensic evidence, medical examination, conviction rate, sexual offenses.

Introduction

Rape is one of the most heinous crimes specified in the Indian penal provisions. It is not only a crime against the victim but a crime against the entire society, reflecting the societal values of the people living therein.¹ S. 375, IPC, 1860 (S. 63, BNS)² defines the term “Rape” as sexual intercourse committed by a man against a woman without her consent, whereas the POCSO Act, 2012 deals with sexual offenses against children (irrespective of with or without consent) committed by an adult. According to the World Health Organization (WHO) Report 2023, it is estimated that about 1 in 3 (30%) women worldwide have been subjected to physical and/or sexual violence committed by their partner or non-partner during their lifetime.³

India is regarded as one of the most dangerous and unsafe country for women where the number of rape cases increases by 25-35 % every year.⁴ According to the recent Annual Report of the National Crime Records Bureau (NCRB) titled “*Crimes in India–2023*,” the total reported rape cases were 31,878 (approximately 87 cases per day) with an extremely low conviction rate and many cases going unreported. Of these 31,878 rape cases, 1,030 cases involved victims in the age group of 12–15 years, 1,772 cases involved victims in the age group of 16–17 years, 20,065 cases involved victims in the age group of 18–29 years, 7,627 cases involved victims in the age group of 30–44 years.⁵ The conviction rate for this offence is reportedly to be just 17.9%.⁶

The central government has enacted various rape law reforms after the Nirbhaya rape case in 2012 for providing speedy justice to the victim and preventing these crimes but such reforms of Indian Criminal Justice system are of no help when it comes to proving a rape case in the court. This is because the Indian Courts declare the judgement based on the evidence and arguments of the prosecution that proves the guilt of the accused beyond a reasonable doubt.⁷

¹ Ramu Rawat, *Explosion Of Rape Cases In India: A Study Of Last One Decade*, International Journal of Current Research, Vol. 7, Iss 7, June 2015.

² Bhartiya Nyay Sanhita, 2023, §63. No. 45, Parliament of India, 2023

³ Violence against women, World health Organisation, 25th March, 2024, Available at: <https://www.who.int/news-room/fact-sheets/detail/violence-against-women> (Last accessed – 26th July, 2024)

⁴ Saieraje Patil, *Flaws in India's Medico-Legal Examination*, JCLJ, Pg 22- 41, 2022.

⁵ National Crime Records Bureau. Crime in India –2023, Violent Crimes (Crime Head-wise & State/UT-wise), New Delhi Government of India 2023. Available from: https://ncrb.gov.in/sites/default/files/CII-2023/CII_2021Volume%201.pdf [Last accessed on 2024 July 25].

⁶ Ramanatha Jha, Crime in India: A Critical Review of Data Collection and Analysis, Observer research Foundation, *ORF Issue Brief No. 710*, May 2024.

Available at: <https://www.orfonline.org/research/crime-in-india-a-critical-review-of-data-collection-and-analysis#:~:text=According%20to%20the%202023%20report,the%20national%20crime%20rate%20average.>

⁷ J. Lakshmi Charan, *Role of Forensic Science in Rape and Murder Cases: Measures for Viable Results*, International Journal of Law Management & Humanities, ISSN 2581-5369, Vol.6, 2023.

Rape victims are already traumatized by the assault and are likely to experience Acute Stress Disorder, including symptoms like those of post-traumatic stress disorder, such as intense and unpredictable emotions, so they find it hard to deal with the memories of the incident because of shock and shame.⁸ In such type of cases, there is usually no eye-witness of the crime as well, it is mainly the accused and the victim who are involved in the crime. It is the medical and forensic evidence that corroborates or contradicts the guilt of the accused in the given rape case.

According to Locard's Principle of Exchange "Every contact leaves a trace" and the wrongdoer leaves such trace in the form of DNA at the crime scene.⁹ Such evidences get contaminated or degraded over a short period. In India, the low conviction rate is due to the lack of efficient investigation of the rape cases. Investigating officers often fail to collect evidence promptly, and the infrastructure system in India also has significant shortcomings in this field. There are around 12,000 DNA samples related to sexual assault cases which are pending in the respective Forensic Science Laboratories due to lack of infrastructure and insufficient staff.¹⁰ The administration has been making efforts to improve the situation by various amendments and protocols like releasing a Standard Operating procedure (SOP) for all FSLs but the condition has not improved much.¹¹

Research Objective:

The objective of this paper is to emphasize upon the importance of medical and forensic evidence in proving rape and other cases related to sexual offenses and to evaluate the sufficiency of the current system. The author aims to highlight various shortcomings in the current system of investigating rape and other related cases in India. This research article proposes the establishment of a dedicated agency under the central government, whose sole purpose would be to conduct medical examinations and forensic analysis in rape cases across the country. This initiative seeks to eliminate the interference of local authorities, thereby

⁸ Shivangi Vyas, Shubham Kejriwal, *Critical Analysis of The Relevancy Of The Medical And Forensic Evidences In The Rape Cases*, Bharti Law Review, Pg 222- 239, 2016. Available at: <https://docs.manupatra.in/newslines/articles/Upload/7C915974-C7F3-4D20-80AC-E6D84FA0344F.pdf>

⁹ Edmond Locard, THE FORENSICS LIBRARY, Available at: <http://aboutforensics.co.uk/edmond-locard/>.

¹⁰ Charan, J Lakshmi; Manikyam, K Sita, *Forensic Science and its Limitations in Rape and Murder Cases in India*, Journal of Forensic Science and Medicine, Pg- 91- 97, March 2023.

¹¹ Ministry of Health & Family Welfare, Department of Health & Family Welfare, GUIDELINES & PROTOCOLS Medico-legal care for survivors/victims of Sexual Violence, March 2013. Available at: <https://main.mohfw.gov.in/sites/default/files/953522324.pdf>

improving the efficiency of investigations and potentially increasing the conviction rate. Additionally, the article identifies areas that require improvement and proposes potential enhancements to ensure justice is effectively served. For this purpose, inspiration can be drawn from successful foreign projects, which have demonstrated positive outcomes in other countries.

Research Questions:

1. What role do medical and forensic examinations play in corroborating or contradicting the guilt of the accused in rape cases?
2. How effective are the current laws and protocols in handling rape and sexual offense investigations and ensuring justice for victims?
3. What reforms in the Indian Criminal Justice System are necessary to enhance the handling and prosecution of rape cases?

Role of Forensic Evidence in Investigation

The main components of forensic evidence include investigating and gathering physical evidence from the scene of the alleged incident, analyzing the results of the victim's medical examination (whether the victim is alive or deceased), and examining any other items connected to the crime. All of the samples must be thoroughly examined. It involves the use of fingerprinting techniques, blood sample investigation, DNA analysis, and analysis of the victim's injuries, whether they are deceased or alive. The application of basic science concepts and procedures to legal problems is known as forensic science.¹²

The use of forensic science was recommended by the Malimath committee while investigating the rape cases. The committee also recommended adding DNA experts within the virtue of S. 293(4), CRPC which was incorporated by a later revision.¹³ In sexual offences such as rape, it is very important to gather the evidence by a medical examination of the victim and accused within 24 hours of the occurrence of the incident otherwise the evidence will be degraded and

¹² Sayedul Husan, *Role of Forensic Evidence in the Criminal Investigation: A Legal Analysis in Bangladesh Perspective*, Traditional Journal of Law and Social Sciences, Vol. 01, Issue 02, Pg. 181 – 192, 2022.

¹³ Sujitha S and Sunil Nisi Kumar A, *Dna: The Cardinal Strand In Rape Investigations*, International Journal Of Food And Nutritional Sciences, Vol. 11, Iss 10, 2022.

cannot be testified properly.

The following needs to be considered while investigating the crime scene in a rape case:

1. Tangible items at the scene of the incident:

Forensic science is crucial when tangible items are discovered at the scene of the purported incident. Such evidence might include hairs, fibers, stains from blood, and any shattered objects from the victim's struggle for survival, in addition to other materials that might be crucial to the investigation. The accused's existence can be established by a procedural identification process using the forensic analysis of the collected objects. In *Mohd. Bashrat v. State of J&K*¹⁴, the accused was 22 years old, and the victim was a juvenile female. The accused cannot be absolved of their guilt by the falsity of the forensic and medical reports. The evidences collected from victim's body and the physical evidence of the blood-stained ground and other evidence collected at the crime scene, pointed towards the guilt of the accused and he was declared so by the court accordingly.

2. Forensic Semen Analysis:

The outcomes of the forensic examination of the spermatozoa from samples taken from the victim and the accused are crucial in identifying the accused. In the *State of Himachal Pradesh v. Anil Kumar*¹⁵ case, the perpetrator was found by analysis of the victim's semen. The spermatozoa are believed to be present even 24 hours after the event. However, the evidence becomes less reliable over time. By comparing semen samples taken from the body of the victim and those from the accused, the evidence is confirmed.

3. The accused and the victim's ages:

When assessing the seriousness of the crime and the appropriate course of action for enforcing justice, the precise ages of the accused and victim may be crucial. When there are no birth certificates or other age-related records to ascertain the victim's age, the exact age can be

¹⁴ Mohd. Bashrat v. State of J&K, 1968 AIR 765

¹⁵ State of Himachal Pradesh v. Anil Kumar, Cr. MP (M) No. 892 of 2020

ascertained by the use of scientific and medical sciences.¹⁶

4. **Analyzing the victim's attire:**

The victim's attire is a crucial additional piece of evidence. It is feasible to locate the accused and carefully examine the possibility of any stains on the accused's blood, sperm, hair, etc. in order to identify them. The semen from the accused was not found on the vaginal examination specimen in the *State of Maharashtra v. Chandraparkash Kewalchand*¹⁷ case, but its presence on the victim's clothing was clear evidence of the crime's commission. These proofs can be based on pertinent incidents and circumstances and may have to do with the prosecutor's credibility.

5. **Genital and physical harm:**

When attempting to free someone from the offender's hold, there is a possibility that someone will suffer harm. These could be scratches, marks, or bruises on the back, thighs, chest, or waist. To formally identify the offender, resistance patterns can be investigated, and samples from any suspected individual may be used in the wounds. The Supreme Court held in the case of *Rafiq v. State of Uttar Pradesh*¹⁸ held that a sexual act need not necessarily be carried out with the consent of the female if there are no damage marks present.

In order to ensure a comprehensive inquiry that produces definitive proof, the aforementioned samples ought to be obtained as soon as possible following the incident. This is because it is possible that some evidence, such as an oral swab series, will vanish within a day.¹⁹ In *SP Kohli v. High Court of Punjab & Haryana*²⁰, the Supreme Court ruled that the SMEGA test's applicability was restricted to the 24 hours that followed the alleged incident.

Evidentiary value and Relevancy of Forensic Evidence:

It has been categorically stated by the Supreme Court in the case of *Solanki Chimanbhai*

¹⁶ Upneet Kaur Sandhu, *Forensic Science- A Technology To Ease The Identification Of Sexual Offences*, JCLJ 1402, 2023.

¹⁷ *State of Maharashtra v. Chandraparkash Kewalchand*, 1990 AIR 658.

¹⁸ *Rafiq v. State of Uttar Pradesh*, 1981 AIR 559

¹⁹ Kunal Kanwat, *The Role of Forensic Evidence In Criminal Investigations In India*, IJCRT, ISSN: 2320-2882, Vol. 12, Issue 3, March 2024.

²⁰ *SP Kohli v. High Court of Punjab & Haryana*, 1978 AIR 1753.

*Ukabhai v. State of Gujrat*²¹ that the evidentiary value of the forensic evidence is corroborative in nature. Under *S.164-A CRPC*, the police officer is required to forward the victim of rape to a registered medical practitioner for a medical examination in a government hospital. The examination must be conducted within 24 hours of receiving such information with the consent of the victim or that of a competent third party. The medical report must include all pertinent details, including materials for a DNA profiling test and injuries to the victim's body. In a similar way, under *S. 53-A, CRPC*, the police officer may ask the Registered Medical Practitioner to examine the rape suspect medically. *S. 293, CRPC allows any report from a government scientific expert to be introduced as evidence in any investigation, trial, or other procedure without the expert's examination.* The director, deputy director, or assistant director of the Central Forensic Science Laboratory or the State Forensic Science Laboratory are examples of such government scientific experts.

Section 45, IEA also considers the experts opinion when the judge has to take a decision foreign law, science, art, handwriting, or finger-prints, etc. All forensic techniques constitute scientific evidence, and the opinions of these experts are considered to be pertinent. It was held in the case of *Machindra v. Sajjan Galfa Rankhamb*²² that the experts conducting postmortem examinations are the witness of facts even when they are giving their expert opinions in the case. In another case, the court clarified that DNA profile will be considered to be valid and reliable depending upon the quality assuring procedures in the laboratory.²³ The admissibility of these evidences depends upon the techniques used, accuracy of the results obtained from repeated testing and handling of the samples during the procedure.

The relevance of medical and forensic evidence in rape cases cannot be overstated, as these types of evidence are often crucial in substantiating the charges. Perpetrators typically leave traces of themselves at the crime scene, and it is through medical and forensic analysis that these traces can be identified and linked to the accused. These techniques effectively transform physical impressions into substantial pieces of evidence, thereby playing a vital role in the investigation and prosecution of rape cases. The relevance of these evidences can be made evident by the following case studies where the accused would not have been proven guilty without the forensic and medical evidences.

²¹ Solanki Chimanbhai Ukabhai v. State of Gujrat , AIR1983SC484

²² Machindra v. Sajjan Galfa Rankhamb, AIR 2017 SC 2397

²³ Dharam Deo Yadav v. State of Uttar Pradesh, 2014 AIR SCW 2253

1. In the case of *Dhananjoy Chatterjee v. State of West Bengal*²⁴, Dhananjoy Chatterjee, a security guard, was accused of raping and murdering a young girl in her apartment. The medical and forensic evidence gathered from the crime scene helped in establishing the guilt of the accused. Dhananjoy was seen taking the elevator to the victim's apartment on the day of the crime. The victim was later found by her mother with injuries and a torn dress, indicating a violent assault. Forensic analysis revealed a cream-colored shirt button at the crime scene that matched a shirt recovered from Dhananjoy's home. Additionally, the victim's torn underwear showed signs of physical force, and the missing "Ricoh" wristwatch, along with a shirt and pants, were found at Dhananjoy's house, further corroborating his presence at the crime scene. The Supreme Court upheld the conviction, based on this forensic evidence and other circumstantial evidence, concluding that the prosecution had conclusively established Dhananjoy's guilt.
2. **Gudiya Rape case**²⁵- In this case, a young girl of 16 yrs of age was brutally raped and murdered on her way back to home from school. She was found dead in the forest after two days of the incident. The medical examination of the victim was conducted and a trace of semen was found from the vaginal discharge of the girl which involved both X and Y chromosomes. The team used a Y-STR technique for the extraction of Y- Y-chromosomes from the sample. Blood samples were taken from the people of various people from the nearby locality for conducting DNA Analysis. Even with intensive efforts at DNA testing, the culprit remained hidden. As a result, during the investigation of this case, lineage testing was used for the first time in India. One hundred men provided samples, which were analyzed to determine the accused's profile. Thousands of locals, including family members, bus drivers, laborers, instructors and students at the victim's school, and others who were residing or employed close to the crime scene at the time of the tragedy, were tracked down and questioned by. After all of these efforts, the police could zero down the suspect to be a woodcutter. All the investigations testified him to the culprit and he was accordingly sentenced to life imprisonment in the court. This would have been impossible if the forensic techniques and the evidences were not in place.²⁶

²⁴ Dhananjoy Chatterjee v. State of West Bengal, 1994 SCR (1) 37.

²⁵ Gudiya rape case: The brutal murder that shook Himachal Pradesh | India News - The Indian Express

²⁶ Hetu, V. (2020). Rape or 'NOT' Rape: Analysis of (Six) Case Studies and Narrative of Victims. Journal of Victimology and Victim Justice, 3(2), 237-261. <https://doi.org/10.1177/2516606921994033>.

Flaws in the present system

1. Lack of Medical professionals and Infrastructural facilities

According to Section 164A, a registered medical professional working in a hospital owned by the government or a local government is employed for the collection of medical evidence. One of the largest challenges in the use of forensic evidence has been the attitude of medical professionals regarding allegations of sexual assault and the dearth of resources and medical staff in remote hospitals. The court in the case of *State of Karnataka v. Rangaswamy*²⁷ declared that the lack of professionalism of the doctors and the mishandling of evidence goes in favor of the accused. It was stated that the physicians employed by public institutions are supposed to understand the gravity of the crime of rape and other sexual assaults as well as its terrible ramifications. By such negligent acts, the doctors, who swore to dedicate their lives to serving humanity, also rob the poor families and victims of their last chance of receiving justice.

The **infrastructure and staff** required for the medico-legal examination are absent from government hospitals across the nation. In the case of Hathras rape, for one example, the lack of facilities required for treatment resulted in the victim being moved from the local clinic to JNMC Hospital.²⁸ This puts at risk the forensic reports and medical examinations that the hospitals have taken. Numerous regional medical centers and clinics still examine the people despite their subpar infrastructure and staff. Many hospitals do not offer victims essential follow-up care, such as a sexually transmitted disease screening or Plan B (morning-after pill) to prevent pregnancy.²⁹ It is disgusting how inconsiderate doctors in this nation have been towards collecting evidence for such heinous crimes.

Currently, India has 31 State FSLs and 6 Central Forensic Science Laboratories (CFSLs), of which only 3 CFSLs and 16 State FSLs can test the DNA with the available technology. Due to the lack of infrastructure facilities and inadequate staff members, there are around 12,000 DNA samples from sexual assault cases which are pending in their respective FSLs, according

²⁷ State of Karnataka v. Rangaswamy, (1997) 2 SCC 267

²⁸ Hathras Gang-Rape and Murder Case: A Timeline, The wire, Available at: The Wire: The Wire News India, Latest News, News from India, Politics, External Affairs, Science, Economics, Gender and Culture

²⁹ J Lakshmi Charan, K Sita Manikyam, Forensic Science and its Limitations in Rape and Murder Cases in India, Journal of Forensic Science and Medicine, Vol.9, Iss 1, March 2023

to the Directorate of Forensic Science Services.³⁰ The Head of the Forensic Department of the AIMS, Delhi - Dr. Sudhir K. Gupta has himself accepted that, "the quality of DNA evidence collected has a direct correlation with the lack of proper facilities at hospitals."³¹ Vaginal swabs and semen samples can provide fast analysis findings that aid in identifying the offender; but, at present, 80–90% of samples do not produce valid results due to improper collection, sealing, or storage at an incorrect temperature. First-line responders must be properly trained in the collecting and management of DNA samples, and a specialized infrastructure for the care of rape survivors must also be established.³²

2. Mishandling of evidences:

Numerous studies have demonstrated that ineffective investigations brought about by improper treatment of forensic evidence may result in the reduction of sentences or even the acquittal of those found guilty. One particular study examined the relationship between forensic evidence and court decisions in high-profile murder and rape cases by analyzing 20 significant Supreme Court rulings. The results of the study revealed that the sentences were affirmed in 11 cases, while the punishment was commuted in 7 cases, and acquittal occurred in 2 cases. This indicates a positive correlation between the presence of reliable forensic evidence and the judicial outcomes of the judgments. However, the study also found that in 45% of the cases, the sentences were commuted or the accused were acquitted due to inconsistent or mishandled forensic reports.³³

Project 39-A of National Law University, New Delhi (NLU-D) carried out a comparable study from 2016 to 2023 called "Death Penalty in India: Annual Statistics," which examined Supreme Court rulings in murder cases involving sexual offenses.³⁴ Based on data from 2016 to 2023, the SCI upheld the death penalty in 15 cases, reduced the sentence in 12, cleared two cases, remitted four cases, and partially cleared two cases. The nongovernmental organization CEHAT (Center for Enquiry into Health and Allied Themes) conducted another investigation.

³⁰Charan, J Lakshmi; Manikyam, K Sita, *Forensic Science and its Limitations in Rape and Murder Cases in India*, Journal of Forensic Science and Medicine, Pg- 91- 97, March 2023.

³¹ Supra 30

³² Radha Sharma, Rupali Pardasni, Sharda Nandram, *The Problem of Rape in India: A Multi-dimensional Analysis*, International Journal of Managing Projects in Business, Vol. 7, Iss 3, April 2018.

³³ Jeevika, Radhe Shyam. *A Retrospective Analytical Study of Forensic Evidence in Rape and Murder Cases and its Implications on Judicial Outcomes in India*, Journal of Forensic Science and Medicine 9(2), pg. 167-176, 2023.

³⁴ Project 39-A. Death Penalty in India: Annual Statistics. National Law University, New Delhi (NLU-D) 2016-2023 <https://www.project39a.com/annual-statistics-2020> [Last accessed on 2024 July 26].

Of the 96 verdicts on sexual violence, 46 samples were examined by the CEHAT.³⁵ Forensic samples were declared to be useless in 50 of the 96 cases because of the inordinate delay of the administration. There were around 30 such case samples that were examined but the reports of the Chemical Analysis were not produced before the court without any justification of such absence.³⁶

3. Guidelines of collecting evidence:

In the aftermath of the Nirbhaya case, the Ministry of Health and Family Welfare issued additional protocols and guidelines in 2014, supplementing the procedures outlined in Section 164A.³⁷ These guidelines cover a wide range of evidence collection topics, including documenting the history of the incident, taking basic information and consent, looking closely at injuries and genital parts, and gathering samples, including blood and urine tests. The Ministry advocated strict adherence to Standard Operating Procedures (SOPs) during sample collection, preservation, and storage to ensure accurate results. Specific attention was given to guidelines related to the controversial two-finger test, which has been declared to be unscientific by the court in the case of *Lilu@ Rajesh v. State of Haryana*³⁸. This test was considered to be against the woman's right to privacy and in breach of her mental and physical dignity and integrity.

In 2020, the Directorate of Forensic Science Services (DFSS) under the Union Ministry of Home Affairs issued guidelines for the collection, preservation, and transportation of forensic evidence in sexual offenses. These guidelines are directed at Medical Officers and Investigation Officers, with the mandatory use of Sexual Assault Evidence Collection Kits provided to every State and Union Territory.³⁹ Additionally, the Bureau of Police Research and Development and the National Institute of Criminology and Forensic Sciences conduct regular Training of

³⁵Centre for Enquiry into Health and Allied Themes (CEHAT), Role of Medicolegal Evidence in Rape Trials: A Review of Judgements at the Sessions Court in Mumbai, Mumbai India, 2020.

³⁶ Singh A. Medical Evidence in Rape Cases and Poor Court Outcomes. The Leaflet 2023. Available at: <https://theleaflet.in/medical-evidence-in-rape-cases-and-poor-court-outcomes/#:~:text=In%2018%20of%20the%2041,totally%20ignored%20as%20medical%20evidence> [Last accessed on 2024 July 26].

³⁷ Ministry of Health & Family Welfare, Department of Health & Family Welfare, GUIDELINES & PROTOCOLS Medico-legal care for survivors/victims of Sexual Violence, March 2013. Available at: <https://main.mohfw.gov.in/sites/default/files/953522324.pdf>.

³⁸ *Lilu@ Rajesh v. State of Haryana*, AIR 2013 SC 180.

³⁹ Women Safety Division, Ministry of Home Affairs, Mandatory Action by Police in cases of crime against women, 2020. Available at : [Womensafety_10102020.pdf \(mha.gov.in\)](#)

Trainers (ToT) programs to ensure proper handling of forensic evidence by medical officers, police, and prosecutors.⁴⁰

Despite these established guidelines and protocols, only nine Indian states have adopted them. Consequently, some medical experts continue to employ unscientific and unnecessary practices such as the two-finger test and the potency test, which violate the dignity of both the victim and the accused.⁴¹ This lack of adherence to the prescribed guidelines undermines the integrity of forensic evidence and the justice system.

Proposed solutions

India is still struggling to perform unbiased, prompt, and sincere medico-legal examinations of victims even after coming up with various reforms, protocols, guidelines, etc. The only way the victims can seek justice against the heinous crimes is the court who declares the judgement, solely based upon the evidences. Since these evidences are not being handled efficiently according to the present system, the author believes that an agency needs to be formed under the Ministry of Women and Child Development, of Central government. The proposed body would basically be handling two main issues:

- 1) Efficient medico-legal assessment of the victims,
- 2) Report formulation and Forensic examination.

In this proposed body, 50% of the advisory committee shall consist of women experts from different fields like law, psychology and medicine, etc. The remaining 50% of the members shall be given to other genders. This reservation is to ensure the best interests of the survivors of sexual assault. The body will be thoughtfully designed and positioned throughout each state such that the victims from any remote locations may easily and quickly receive assistance. The center will itself offer a 24-7 service through toll number if in case the victim cannot reach them. It will be the responsibility of this body to recruit the registered medical practitioner in each government hospital and make the required infrastructure and manpower available to these professionals. To ensure a sense of comfort and the best interests of the victims and their families, the majority of the medical professionals, nurses, and workers on the site will be

⁴⁰ Supra 39.

⁴¹ Navodita Pandey, *Two Finger Test in India: A Black Stain On Justice*, Journal of Legal Research and Juridical Sciences, Vol. 3, Iss 3, 2023.

female and will undergo extensive training before joining the team. The evidence handling process will be closely watched and meticulously documented.

Before beginning, the samples will be examined for a closed seal and then be forwarded to the agency's forensic analysis team. The report of the forensic team will be sent directly to the court where the case will be heard after the forensic team consults with the on-site physician. This is to prevent manipulating the examination report. The victim's statement is a crucial component of the trial process in rape cases. Only when a member of the agency concerned in the case is present should the police take the victim's statement. If the victim gives permission, the same should be captured on video. It is intended to be used in court to obtain all relevant information, including the victim's exact statements, and to make sure that no wrongdoing or coercion occurs.

The idea of this agency provides for **accountability** to be given to a certain organ that will be answerable to all the inefficiencies taking place in this regard. The formation of this body operates under the assumption that its members are sincere and honest, just like any other institution. As a result, all agency employees are required to have a certain degree of honesty and sincerity.

One more critical issue that Indian society face is the **lack of awareness about the importance of reporting rape cases** immediately after the incident. Many people are unaware that medical and forensic evidence can be gathered and tested most effectively when collected as soon as possible after the crime. This evidence can become contaminated or degraded over a short period of time. When a rape case is reported days after the incident, the chances of collecting substantial evidence through medical examination of the victim decrease significantly, and physical evidence at the crime scene may have been lost or tampered with. Delays in reporting can severely undermine the investigation and prosecution of rape cases, making it more difficult to achieve justice for the victims. Therefore, it is crucial to raise public awareness about the necessity of prompt reporting and the role that timely collection of evidence plays in securing convictions and ensuring the integrity of the judicial process. For this purpose, inspiration can be drawn from JusteU Project of EU which was started in 2017 for 2 years. The project aims to strengthen the legal position of victims of sexual assault through the use of efficient forensic examination methods which enables the detailed injury documentation of the case. Subsequent judicial proceedings may make use of these evidentiary conclusions. The

project included numerous organizations from different EU countries, but the initiative was led by the Ludwig Boltzmann Institute for Clinical Forensic Imaging.⁴²

A primary component of the initiative involved *disseminating information and conducting awareness-raising campaigns* to increase knowledge about the value of access to clinical forensic examinations for victim support among professionals and the general public. As a result, national symposia were held in each of the project partner nations, and a project website was created. Additionally, in early June 2018 in Graz, the Pro Ludwig Boltzmann Institute for Clinical Forensic Imaging hosted a 2-day workshop for professionals in the field of clinical forensic medicine.⁴³ Every project partner brought a forensic expert with them, and they all attended that JUSTeU! course. Thus, forensic expertise from eleven European nations—Austria, Croatia, Czech Republic, Germany, Ireland, Italy, Luxembourg, Portugal, Romania, Slovakia, and Slovenia—could be gathered. The JUSTeU! workshop sought to look at a minimal standard for clinical forensic investigations throughout Europe as well as a potential future Clinical Forensic Network for Europe (CFN Europe).⁴⁴

In a similar manner, Indian states can collaboratively organize events to identify and bring together the most efficient medical practitioners from across the country. Together, they will establish standards for best practices. Simultaneously, workshops will be held at various locations to disseminate information about the importance of medical and forensic evidence in rape and sexual offense cases. This approach mirrors the successful implementation of the JUSTe project by EU countries.

Conclusion

Forensic evidence plays an indispensable role in the investigation and prosecution of rape and sexual offense cases. To establish the facts and identify the perpetrators, it is imperative to conduct meticulous medical examinations in addition to the rigorous gathering, preservation,

⁴² Sophie Kerbahr, Anita Mihic, *Overview of clinical forensic services in various countries of the European Union*, Forensic Science Research, Vol 5, Iss. 1, Pg 74-84, 2020. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7241523/#CIT0009>

⁴³ Ludwig Boltzmann Institute for Clinical Forensic Imaging: JUSTeU! workshop. Graz (AT): Ludwig Boltzmann Institute for Clinical Forensic Imaging; c2017. Available from: [https://www.justeu.org/events/detail/?tx_news_pi1\[news\]=14&tx_news_pi1\[controller\]=News&tx_news_pi1\[action\]=detail&cHash=a2ff951a52c49a0037d2e51eeb10e542](https://www.justeu.org/events/detail/?tx_news_pi1[news]=14&tx_news_pi1[controller]=News&tx_news_pi1[action]=detail&cHash=a2ff951a52c49a0037d2e51eeb10e542)

⁴⁴ Michael Pfeifer, Bridgette Webb, Reingard Riener-Hofer, *Clinical Forensic Imaging and Fundamental Rights in Austria*, Forensic Sciences Research, Vol. 2, Iss. 2, Pg. 65- 74, June 2017. Available at : <https://doi.org/10.1080/20961790.2017.1328808>

and analysis of physical evidence. Despite the established protocols and guidelines, the current system in India faces significant challenges, including a lack of medical professionals, inadequate infrastructure, mishandling of evidence, and inconsistent adherence to guidelines. These flaws compromise the validity of forensic evidence and may result in injustices.

A diversified strategy is needed to address these problems. The objective of the proposed agency within the Ministry of Women and Child Development is to guarantee impartial forensic examination, appropriate evidence handling, and effective medico-legal assessments. With a network of skilled professionals and a sizable representation of female experts, this body would offer a better organized and trustworthy framework for addressing situations involving sexual offenses. In addition, public education campaigns and workshops—akin to the EU's JUSTeU Project—are crucial for informing professionals and the general public about the significance of prompt reporting and forensic evidence's role in obtaining convictions.

India can improve the fairness of its legal system and guarantee that those who have been sexually assaulted get the justice they are entitled to by putting these suggestions into practice. Enhancing the forensic and medical evidence framework helps prevent future offenders and assist in prosecuting offenders. India is capable of creating a stronger system that protects the rights and dignity of victims of sexual assault if it makes a concentrated effort and is dedicated to advancing forensic science procedures.

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