Page: 2917-2937 *URL: www.lijdlr.com*

LAWFOYER INTERNATIONAL JOURNAL OF DOCTRINAL LEGAL RESEARCH

ISSN: 2583-7753

LawFoyer International Journal of Doctrinal Legal Research

[ISSN: 2583-7753]

Volume 4 | Issue 1

2026

DOI: https://doi.org/10.70183/lijdlr.2026.v04.129

ARTIFICIAL INTELLIGENCE IN THE CRIMINAL JUSTICE SYSTEM: A CRITICAL ANALYSIS OF ITS ROLE IN ADDRESSING ACID ATTACKS AGAINST WOMEN IN INDIA

Dr. Prasanna S[1]

I. ABSTRACT

Acid attacks against women in India continue to expose serious deficiencies within the criminal justice system, particularly in the areas of prevention, investigation, prosecution, and victim rehabilitation. Despite stringent legal provisions, the persistence of such offences indicates structural and procedural gaps. This study critically examines the role of Artificial Intelligence (AI) in addressing these challenges by enhancing the efficiency, accuracy, and responsiveness of criminal justice mechanisms. It analyses the application of AI across various stages of the criminal justice process, including prevention, investigation, prosecution, adjudication, and victim support, while also evaluating its effectiveness and the associated legal, ethical, and constitutional implications in the Indian context. Adopting a doctrinal research methodology based on statutory analysis, judicial precedents, policy frameworks, and secondary literature, the study explores AI-based tools such as predictive policing, forensic analytics, legal research systems, and judicial decision-support mechanisms. The findings indicate that AI holds significant potential to strengthen criminal justice responses by enabling proactive policing, improving evidentiary accuracy, reducing delays, and promoting victim-centric justice. However, concerns relating to data privacy, algorithmic bias, and the absence of a comprehensive regulatory framework necessitate cautious and regulated implementation. The study concludes that AI should function as an assistive tool supported by robust legal safeguards and human oversight to ensure fairness, accountability, and constitutional compliance.

[1] Assistant Professor, Government Law College, Tirunelveli (India). Email: prasannalaw005@gmail.com

 (ISSN: 2583-7753)

II. KEYWORDS

Artificial Intelligence, Acid Attacks, Criminal Justice System, Bharatiya Nyaya Sanhita, Predictive Policing.

III. INTRODUCTION

Acid attacks represent one of the most heinous forms of gender-based violence, marked by extreme brutality, permanent physical disfigurement, and long-term psychological trauma. In India, such attacks are often rooted in patriarchal norms, rejection of romantic advances, dowry disputes, and other manifestations of gender inequality. Despite the criminalisation of acid attacks under Sections 326A and 326B of the Indian Penal Code (now substantially incorporated under the Bharatiya Nyaya Sanhita, 2023)[2], and judicial activism mandating stricter regulation of acid sale, the persistence of such crimes highlights serious deficiencies in prevention, investigation, prosecution, and victim rehabilitation.

The emergence of Artificial Intelligence (AI) has introduced transformative possibilities within the criminal justice system. AI, broadly understood as the simulation of human intelligence in machines capable of learning, reasoning, and decision-making, offers tools that can significantly enhance the efficiency, accuracy, and responsiveness of criminal justice institutions. In the Indian context, initiatives such as the Crime and Criminal Tracking Network and Systems (CCTNS), the Inter-Operable Criminal Justice System (ICJS), and AI-enabled judicial tools such as SUPACE reflect an increasing reliance on data-driven governance. This paper critically examines the role of AI in addressing acid attacks against women in India across the stages of prevention, investigation, prosecution, adjudication, and victim support. It also evaluates the legal, ethical, and socio constitutional challenges associated with AI deployment, with particular emphasis on the need for a victim-centric and rights-based approach

[2] The Indian Penal Code, 1860, ss. 326A–326B (now incorporated under the Bharatiya Nyaya Sanhita, 2023 (Act 45 of 2023), s. 124, sub-sections 124(1) and 124(2) respectively).

A. Research Objectives

The study aims to analyse the application of AI across various stages of the criminal justice process in acid attack cases; to evaluate its effectiveness in improving prevention, investigation, prosecution, adjudication, and victim support; and to assess the legal, ethical, and constitutional implications of AI deployment in India.

B. Research Questions

1. The research seeks to address the following questions:
2. How can AI contribute to the prevention and early detection of acid attacks?
3. In what ways can AI strengthen investigation and evidentiary processes?
4. What role can AI play in improving prosecutorial efficiency and judicial decision-making?
5. To what extent can AI enhance victim support and rehabilitation?
6. What challenges arise in terms of privacy, bias, and accountability?

C. Research Methodology

The study adopts a doctrinal research methodology, relying on statutory analysis, judicial precedents, policy frameworks, and secondary literature. It examines AI-based tools such as predictive policing, forensic analytics, legal research systems, and judicial decision-support mechanisms within the Indian legal framework.

The study finds that AI has significant potential to strengthen criminal justice responses by enabling proactive policing, improving evidentiary accuracy, reducing delays, and promoting victim-centric justice. However, concerns relating to data privacy, algorithmic bias, and lack of regulatory frameworks necessitate cautious and regulated implementation. It concludes that AI must function as an assistive tool, supported by robust legal safeguards and human oversight.

IV. CONCEPTUAL FRAMEWORK: ARTIFICIAL INTELLIGENCE (AI) AND CRIMINAL JUSTICE

Artificial Intelligence in the criminal justice system refers to the use of computational algorithms to assist in crime detection, prediction, investigation, and adjudication. AI systems operate through machine learning, natural language processing, computer

vision, and predictive analytics, enabling the processing of vast amounts of data beyond human capability.

In the Indian criminal justice framework, AI is not intended to replace human decision-making but to augment institutional capacity. In India, the integration of AI into the criminal justice system must be understood within the broader framework of rule of law, constitutionalism, and procedural fairness. The criminal justice system is traditionally structured around human discretion exercised by police officers, prosecutors, and judges. AI does not replace this discretion but functions as an augmentative tool, assisting in decision-making processes by providing data-driven recommendations. This distinction is crucial, as it ensures that the ultimate authority remains with human actors who are accountable under law.

The Supreme Court of India has recognised the utility of Artificial Intelligence in judicial administration, particularly through initiatives such as the Supreme Court Portal for Assistance in Court Efficiency (SUPACE), while emphasising that such tools are intended only to assist and not replace judicial decision-making or adjudicatory functions (as reflected in public statements and institutional initiatives of the Supreme Court's Artificial Intelligence Committee and the office of the Chief Justice of India)[3].

From a theoretical perspective, AI introduces a shift from a reactive to a proactive model of criminal justice. Traditional systems primarily respond to crimes after their occurrence, focusing on investigation and punishment. In contrast, AI enables predictive capabilities that allow for early identification of risks and potential criminal behaviour. This is particularly relevant in cases of acid attacks against women, where prior indicators such as harassment, threats, and stalking often precede the offence. By analysing such patterns, AI contributes to preventive policing and risk management, thereby aligning with the broader objective of safeguarding life and personal liberty under Article 21 of the Constitution.

[3] See e.g., Supreme Court of India, Artificial Intelligence Committee (SUPACE Initiative); statements by the Chief Justice of India on the use of AI in judicial processes, emphasising its assistive (non-adjudicatory) role.

Another important dimension of this conceptual framework is the role of AI in evidence generation and evaluation. The increasing digitisation of society has led to the proliferation of electronic evidence, including CCTV footage, mobile data, and online communications. AI tools facilitate the collection, analysis, and interpretation of such evidence, thereby enhancing the evidentiary base of criminal trials. However, this also raises questions regarding the admissibility, reliability, and authenticity of AI-generated outputs, particularly under the present legal system. In this context, the Digital Personal Data Protection Act, 2023 (DPDPA) assumes significance as India's primary statutory framework governing the processing of personal data. The Act, read with the Digital Personal Data Protection Rules, 2025, establishes obligations relating to lawful processing, consent, purpose limitation, and data security, which are directly relevant to AI-driven data collection and analysis within the criminal justice system. The legal system must therefore evolve to harmonise evidentiary standards with emerging data protection requirements while maintaining rigorous standards of proof.

V. ROLE OF ARTIFICIAL INTELLIGENCE IN PREVENTION OF ACID ATTACKS

The prevention of acid attacks against women in India necessitates a proactive, technologically enabled, and legally informed framework that goes beyond traditional reactive policing. Artificial Intelligence (AI), with its capacity to analyse large datasets, identify behavioural patterns, and predict potential criminal activity, has emerged as a significant tool in strengthening preventive mechanisms within the criminal justice system. In the context of acid attacks where antecedent indicators such as stalking, harassment, coercion, and interpersonal conflict are frequently present AI offers the possibility of early detection and timely intervention. The integration of AI into preventive strategies reflects a shift from post-crime response to pre-emptive governance, aligning with the broader objectives of ensuring public safety and protecting women's rights under Article 21 of the Constitution.

One of the most prominent applications of AI in prevention is predictive policing, which utilises machine learning algorithms to analyse historical crime data and

forecast potential criminal behaviour. By examining patterns derived from police records, complaints of domestic violence, stalking incidents, and prior threats, AI systems can identify individuals or groups who may pose a heightened risk of committing violent acts. In acid attack cases, perpetrators often exhibit a history of harassment, rejection-induced aggression, or coercive behaviour. AI models, when trained on such datasets, can flag high-risk individuals and enable law enforcement agencies to monitor them more closely. This allows for targeted interventions, such as issuing warnings, conducting counselling sessions, or initiating preventive detention measures under applicable laws. However, the reliability of predictive policing is contingent upon the accuracy and comprehensiveness of data, which remains problematic in India due to systemic underreporting of crimes against women.

In addition to identifying potential offenders, AI plays a crucial role in geospatial crime mapping and hotspot analysis. By integrating data from platforms such as the Crime and Criminal Tracking Network and Systems (CCTNS) and the Inter-Operable Criminal Justice System (ICJS), AI can generate real-time maps highlighting areas with a high incidence of gender-based violence. These hotspots often include poorly lit public spaces, isolated transport hubs, and densely populated urban localities with inadequate policing. Through such analysis, law enforcement agencies can optimise resource allocation, increase patrolling, and install surveillance infrastructure in vulnerable zones. This targeted deployment enhances deterrence and reduces opportunities for the commission of acid attacks. Moreover, AI-enabled mapping can be integrated with urban planning initiatives, such as the Smart Cities Mission, to design safer public spaces through improved lighting, surveillance, and emergency response systems.

Another critical preventive application of AI lies in surveillance technologies, including facial recognition systems (FRS), automated number plate recognition (ANPR), and intelligent video analytics. These technologies enable continuous monitoring of public spaces and facilitate the identification of suspicious behaviour. For instance, AI-powered CCTV systems can detect unusual patterns such as stalking, aggressive pursuit, or loitering near a potential victim, thereby triggering alerts for

immediate police intervention. In cases where perpetrators have previously threatened victims, facial recognition systems can be used to track their presence in sensitive locations. Similarly, ANPR systems can monitor the movement of vehicles linked to suspects, enabling swift action in case of suspicious activity. While such technologies significantly enhance preventive capacity, they also raise concerns regarding mass surveillance and the potential infringement of privacy rights, necessitating strict regulatory oversight.

AI also contributes to prevention through social media monitoring and behavioural analysis. In many instances, acid attacks are preceded by online harassment, threats, or expressions of violent intent on digital platforms. AI tools employing natural language processing (NLP) can analyse social media content to detect hate speech, threatening language, and patterns indicative of escalating aggression. By flagging such content, these systems enable law enforcement agencies to intervene before threats materialise into physical violence. Additionally, AI can identify networks of harassment or coordinated abuse targeting specific individuals, thereby providing a broader understanding of the risk environment.

However, the use of AI in monitoring online activity must be balanced against the right to freedom of speech and expression under Article 19(1)(a), as well as the right to privacy recognised in Justice K.S. Puttaswamy v. Union of India. In addition, such data processing activities are now governed by the Digital Personal Data Protection Act, 2023 (DPDPA) and the Digital Personal Data Protection Rules, 2025, which mandate lawful processing based on consent or legitimate use, purpose limitation, and safeguards against misuse. The deployment of AI for surveillance and social media monitoring must therefore comply with these statutory requirements to ensure proportionality, necessity, and accountability.[4]

A further dimension of AI in prevention is its role in regulating the sale and distribution of acid, which has been a critical concern in India. Despite judicial directions mandating strict control over acid sales, enforcement remains inconsistent. AI can be utilised to monitor supply chains, track bulk purchases, and identify

[4] (2017) 10 SCC 1.

irregular transactions through data analytics. By integrating databases of licensed vendors and purchasers, AI systems can flag suspicious buying patterns, such as repeated purchases by the same individual or transactions lacking proper identification. This enables regulatory authorities to take preventive action, including inspections and cancellation of licences. Such technological interventions can significantly reduce the accessibility of acid, thereby addressing one of the root enablers of such attacks.[5]

AI-based early warning systems also play an important role in prevention. These systems can integrate data from multiple sources, including police records, emergency helplines, hospital reports, and social services, to identify individuals at risk of violence. For example, repeated complaints of domestic abuse or stalking can trigger alerts for intervention by law enforcement or social welfare agencies. In acid attack cases, where escalation from harassment to violence is common, such early warning systems can facilitate timely preventive measures, including restraining orders or protective custody. Furthermore, AI-enabled mobile applications can provide real-time safety features for women, such as emergency alerts, location tracking, and direct communication with law enforcement agencies.In addition to institutional mechanisms, AI contributes to prevention by enhancing public awareness and community engagement. AI-powered Chatbots and virtual assistants can disseminate information regarding legal rights, safety measures, and reporting mechanisms. These tools can be integrated into mobile applications and government platforms, providing accessible and user-friendly interfaces for women to seek assistance. By empowering individuals with knowledge and resources, AI helps in creating a more informed and vigilant society, which is essential for preventing gender-based violence.

Despite its significant potential, the use of AI in prevention is not without challenges. One of the primary concerns is algorithmic bias, which arises when AI systems are trained on datasets that reflect existing social inequalities. In the Indian context, biases related to gender, caste, and socio-economic status may result in discriminatory outcomes, such as disproportionate targeting of certain communities or failure to

[5] *Laxmi v. Union of India*, (2014) 4 SCC 427.

identify genuine threats. Additionally, the absence of a comprehensive legal framework governing AI raises issues of accountability and transparency. The deployment of surveillance technologies and data analytics must therefore be accompanied by robust safeguards to protect fundamental rights and prevent misuse.

Another critical limitation is the digital divide and infrastructural constraints. The effectiveness of AI-based preventive mechanisms depends on the availability of reliable data, technological infrastructure, and trained personnel. In many rural and semi-urban areas, where acid attacks also occur, such resources are limited. This creates disparities in the level of protection available to different sections of society, undermining the principle of equality before the law under Article 14.

VI. ROLE OF ARTIFICIAL INTELLIGENCE IN INVESTIGATION OF ACID ATTACK CASES

The investigation of acid attack cases presents unique evidentiary and procedural challenges within the criminal justice system, owing to the sudden nature of the offence, the severity of bodily harm, and the frequent absence of direct eyewitnesses. In such cases, the reliance on scientific, digital, and circumstantial evidence becomes crucial. Artificial Intelligence (AI), with its capacity to analyse large datasets, enhance forensic accuracy, and integrate diverse sources of information, has emerged as a transformative tool in strengthening investigative processes. However, the increasing reliance on AI-generated and AI-assisted evidence raises critical questions regarding its legal admissibility, particularly under the Bharatiya Sakshya Adhiniyam, 2023 (BSA), which has replaced the Indian Evidence Act, 1872.

AI plays a pivotal role in evidence collection and visual analysis, especially through the enhancement of CCTV footage and digital imagery. In acid attack cases, where incidents often occur in public spaces, video evidence serves as a key investigative resource. AI-powered tools can improve the clarity of such footage, enabling the identification of suspects and reconstruction of events. Under the BSA, such digital records fall within the ambit of electronic evidence, which is expressly recognised as admissible, subject to compliance with statutory conditions. Section 62 of the BSA provides that the contents of electronic records may be proved in accordance with the

provisions relating to electronic evidence, thereby legitimising the use of AI-enhanced video recordings in court proceedings.[6] However, the evidentiary value of such material depends on its authenticity, integrity, and the manner in which it has been processed.

The admissibility of AI-generated or AI-assisted electronic evidence is further governed by provisions analogous to the earlier Section 65B of the Indian Evidence Act, now incorporated within the Section 63 of the BSA framework.[7] The law requires that any electronic record sought to be admitted must be accompanied by a certificate of authenticity, specifying the manner of its production, the device used, and the reliability of the process. In the context of AI, this raises complex issues, as the processing of data involves algorithmic transformations that may not always be transparent. Courts must therefore ensure that AI-enhanced evidence is supported by proper certification and expert testimony, establishing that the output accurately represents the original data without distortion.

AI also contributes significantly to forensic analysis and chemical identification in acid attack investigations. By analysing the composition of corrosive substances, AI-assisted forensic tools can help trace the origin of the acid and link it to specific suppliers or transactions. Such forensic reports constitute expert evidence under the BSA. The admissibility of expert opinion is contingent upon the qualifications of the expert and the scientific reliability of the methodology employed. In cases involving AI-assisted forensic analysis, it becomes essential to establish that the underlying algorithms are scientifically validated and widely accepted within the relevant field. The courts may require expert witnesses to explain the functioning of AI tools and the basis of their conclusions, thereby ensuring transparency and reliability.

Another critical area where AI intersects with evidentiary law is digital evidence analysis, including the examination of mobile phones, social media communications, and electronic correspondence. In acid attack cases, such evidence often reveals prior

[6] The Bharatiya Sakshya Adhiniyam, 2023, s. 62.
[7] The Bharatiya Sakshya Adhiniyam, 2023, s.63 (provisions relating to electronic evidence and certification, corresponding to s. 65B of the Indian Evidence Act, 1872).

threats, harassment, or planning, which are crucial in establishing motive and intent. AI tools can process vast amounts of digital data, identify relevant information, and recover deleted content. Under the BSA, such electronic records are admissible, provided that they meet the requirements of authenticity and integrity. The chain of custody must be meticulously maintained, and any AI-based processing must be documented to prevent allegations of tampering or manipulation.

AI-driven data integration and criminal profiling further enhance the investigative process by linking disparate pieces of evidence. By analysing patterns across multiple datasets, AI can identify connections between suspects, victims, and prior incidents. While such profiling may not constitute direct evidence, it can provide valuable leads and corroborative material. However, its admissibility in court is limited, as it may be considered opinion-based or probabilistic rather than conclusive proof. Courts must exercise caution in relying on such outputs, ensuring that they are supported by independent evidence.

A particularly sensitive issue arises in relation to facial recognition technology (FRT) and its evidentiary value. AI-based facial recognition systems are increasingly used to identify suspects from surveillance footage. While such identification can provide crucial leads, its admissibility as substantive evidence remains contentious. Courts may treat FRT outputs as corroborative evidence, requiring additional proof such as eyewitness testimony or forensic linkage. The risk of false positives and algorithmic bias necessitates a cautious approach, with emphasis on validation and expert scrutiny. The admissibility of AI-generated evidence under the BSA must also be examined in light of constitutional safeguards, particularly the right to a fair trial under Article 21.

Furthermore, the issue of presumption and burden of proof is relevant in the context of AI evidence. While the BSA provides certain presumptions regarding electronic records, these are rebuttable and subject to judicial scrutiny. AI-generated outputs, being inherently probabilistic, cannot replace the standard of proof beyond reasonable doubt required in criminal cases. Courts must therefore ensure that such evidence is used as an aid rather than a substitute for human judgment.

Another important consideration is the standardisation of procedures for the collection, processing, and presentation of AI-based evidence. The absence of clear guidelines may lead to inconsistencies and challenges in admissibility. It is imperative for the legislature and judiciary to develop comprehensive protocols governing the use of AI in investigations, including certification requirements, audit mechanisms, and expert validation.

VII. ROLE OF ARTIFICIAL INTELLIGENCE IN PROSECUTION

AI-powered legal research tools assist prosecutors in identifying relevant statutes, precedents, and evidentiary standards. By analysing large volumes of legal data, these tools can provide insights into judicial trends, sentencing patterns, and case outcomes. In acid attack cases, where the legal framework involves provisions relating to grievous hurt, intent, and compensation, AI can assist in framing appropriate charges and arguments. This enhances the quality of prosecution and reduces reliance on manual research. AI systems can analyse witness statements, identify inconsistencies, and suggest lines of cross-examination. Such capabilities are particularly valuable in cases involving multiple witnesses and complex factual scenarios. Moreover, AI can assist in assessing the strength of evidence, enabling prosecutors to develop effective trial strategies. This contributes to higher conviction rates and improved delivery of justice.

In addition to evidentiary analysis, AI contributes to charge framing and legal strategy development. By mapping the facts of a case to relevant legal provisions, AI systems can suggest appropriate charges and highlight additional offences that may be applicable. For example, in acid attack cases, AI can assist in determining whether the facts support charges relating to attempt to murder, grievous hurt, criminal intimidation, or other allied offences. This ensures comprehensive prosecution and reduces the risk of undercharging. Furthermore, AI can analyse sentencing trends and judicial reasoning to guide prosecutors in making appropriate submissions on punishment, including compensation for victims.

The role of AI extends to trial management and courtroom assistance. AI tools can provide real-time support during court proceedings by retrieving relevant

documents, highlighting key evidence, and suggesting legal arguments. This is particularly useful in complex cases involving voluminous records. Additionally, AI can assist in drafting written submissions, preparing briefs, and summarising proceedings. Such capabilities enhance the efficiency and effectiveness of prosecution, contributing to timely disposal of cases.

Another important dimension of AI in prosecution is its role in victim-centric justice. Acid attack cases require a sensitive and comprehensive approach that addresses not only the criminal liability of the accused but also the rights and needs of the victim. AI-powered platforms can assist prosecutors in ensuring compliance with victim compensation schemes, monitoring the progress of rehabilitation measures, and facilitating communication with victims. By integrating data from various agencies, AI can help ensure that victims receive timely medical, financial, and legal support. This aligns with the broader objective of making the criminal justice system more responsive and inclusive.

Despite its numerous advantages, the use of AI in prosecution raises several legal and ethical concerns. One of the primary issues is the admissibility and reliability of AI-assisted evidence. As discussed earlier, the Bharatiya Sakshya Adhiniyam, 2023, governs the admissibility of electronic and expert evidence, requiring proof of authenticity, integrity, and reliability. Prosecutors must ensure that any AI-generated or AI-enhanced evidence is properly certified and supported by expert testimony. Failure to comply with these requirements may result in the exclusion of evidence and weaken the case.

VIII. ROLE OF ARTIFICIAL INTELLIGENCE IN JUDICIAL PROCESSES

The judicial process represents the culmination of the criminal justice system, where evidence is evaluated, legal principles are applied, and final determinations of guilt or innocence are made. In cases involving acid attacks against women characterised by severe bodily harm, complex evidentiary requirements, and the need for victim-sensitive adjudication the efficiency and effectiveness of judicial processes are of paramount importance. However, the Indian judiciary continues to face significant

challenges, including case backlogs, procedural delays, and limited access to justice. In this context, Artificial Intelligence (AI) has emerged as a powerful tool capable of enhancing judicial efficiency, improving access, and supporting informed decision-making, while still preserving the primacy of human judicial reasoning.

One of the most significant contributions of AI in judicial processes lies in case management and reduction of delays. The Indian judicial system is burdened with a large number of pending cases, which often results in prolonged trials and delayed justice. In acid attack cases, such delays can exacerbate the suffering of victims, who require timely adjudication for both punitive and compensatory relief. AI-powered case management systems can streamline court operations by automating scheduling, prioritising urgent cases, and tracking case progress. These systems can identify cases requiring expedited hearing such as those involving grievous bodily harm and allocate judicial resources accordingly. By reducing administrative inefficiencies, AI contributes to the timely disposal of cases and strengthens the credibility of the justice delivery system.

AI also plays a crucial role in judicial research and decision support systems. Judges are required to analyse extensive legal materials, including statutes, precedents, and evidentiary records, in order to arrive at well-reasoned decisions. AI-based tools can assist in this process by rapidly retrieving relevant case law, summarising judicial precedents, and identifying key legal principles. SUPACE has been introduced as a pilot research aid for judges, it remains in an experimental stage of development and is yet to be fully deployed across the judiciary, pending necessary infrastructure. These tools do not replace judicial decision-making but enhance the efficiency and depth of legal analysis. In acid attack cases, where issues such as intent, degree of injury, and compensation require careful consideration, AI-assisted research can help ensure consistency and accuracy in judicial reasoning.

Another important application of AI is in document management and analysis. Judicial proceedings involve the examination of large volumes of documents, including charge sheets, witness statements, medical reports, and forensic evidence. AI systems can organise and categorise these documents, highlight relevant portions,

and generate summaries for quick reference. This enables judges to focus on substantive issues rather than administrative tasks. Additionally, AI can assist in identifying inconsistencies or gaps in the evidence, thereby facilitating a more thorough evaluation of the case. Such capabilities are particularly valuable in acid attack cases, where medical and forensic evidence plays a central role in determining the nature and extent of injuries.

AI further enhances judicial processes through language translation and accessibility. India's linguistic diversity often poses challenges in the administration of justice, as legal proceedings are conducted in specific languages that may not be understood by all parties. AI-powered translation tools can convert legal documents, court orders, and witness testimonies into regional languages, thereby improving accessibility for victims, witnesses, and accused persons. In acid attack cases, where victims may come from marginalised backgrounds, such tools are essential in ensuring meaningful participation in the judicial process. This aligns with the broader objective of access to justice, which is an integral component of Article 21 of the Constitution.

The use of AI in virtual courts and digital hearings represents another significant development. The adoption of technology in judicial proceedings, particularly in the wake of the COVID-19 pandemic, has facilitated remote hearings and electronic filing of cases. AI tools can support virtual courts by managing digital records, enabling real-time transcription, and assisting in the presentation of evidence. In acid attack cases, where victims may face physical and psychological challenges in attending court, virtual hearings can provide a more accessible and less intimidating environment. However, the implementation of such systems must ensure the protection of procedural fairness and the rights of all parties.

AI also has potential applications in sentencing analysis and consistency. By analysing data from past judgments, AI systems can identify patterns in sentencing and provide insights into factors influencing judicial decisions. In acid attack cases, where sentencing involves considerations of severity, intent, and victim impact, such analysis can assist judges in ensuring consistency and proportionality. However, it is crucial to emphasise that AI cannot and should not determine sentences; it can only

provide reference points to assist judicial discretion. The ultimate decision must remain with the judge, guided by legal principles and the specific circumstances of each case.

Another emerging area is the use of AI in drafting judicial orders and judgments. AI tools can assist in structuring judgments, summarising facts, and organising legal arguments. This can significantly reduce the time required for drafting and improve the clarity and coherence of judicial orders. In acid attack cases, where detailed reasoning is required to address issues of liability, compensation, and rehabilitation, such assistance can enhance the quality of judgments. However, the use of AI in drafting must be carefully regulated to ensure that it does not compromise the originality and independence of judicial reasoning.

Despite these advantages, the integration of AI into judicial processes raises several legal and ethical concerns. One of the primary issues is the risk of over-reliance on technology, which may undermine the human element of decision-making. Judicial processes require not only legal analysis but also empathy, moral reasoning, and an understanding of social context equalities that AI cannot replicate. In acid attack cases, where victims have suffered profound physical and psychological harm, the need for a humane and sensitive approach is particularly important. The effective implementation of AI in judicial processes requires institutional capacity building. Judges, court staff, and legal practitioners must be trained in the use of AI tools, and adequate infrastructure must be developed to support their deployment. Without such measures, the benefits of AI may not be fully realised, and disparities may arise between different courts.

IX. ROLE OF AI IN VICTIM SUPPORT AND REHABILITATION

AI-powered platforms can provide victims with information regarding their legal rights, available remedies, and procedural requirements. Chatbots and virtual assistants can guide victims through the process of filing complaints and accessing compensation schemes. In acid attack cases, where victims require immediate medical and legal assistance, such tools can significantly reduce barriers to justice. AI can assist in the administration of victim compensation schemes by automating application

processes, verifying eligibility, and ensuring timely disbursement of funds. This is particularly relevant in light of judicial directions mandating compensation for acid attack victims.[8] AI-based mental health applications can provide preliminary psychological support to victims, helping them cope with trauma and stress. While such tools cannot replace professional counselling, they can serve as an accessible support mechanism.

X. SUGGESTIONS AND RECOMMENDATIONS

The study highlights that while Artificial Intelligence (AI) holds transformative potential in addressing acid attacks against women in India, its effective integration into the criminal justice system requires a structured, rights-based, and accountable framework. The following recommendations are proposed:

India must develop a dedicated legal and regulatory framework governing the use of AI in the criminal justice system. This framework should clearly define standards for accountability, transparency, admissibility of AI-generated evidence, and liability for errors. It must align with constitutional safeguards, particularly the right to privacy and fair trial.

AI-enabled monitoring systems should be implemented to regulate the sale and distribution of acid. Linking vendor databases with real-time analytics can help detect suspicious transactions, ensure compliance with licensing norms, and prevent unauthorized access to corrosive substances.

To address risks of algorithmic bias and discrimination, mandatory ethical guidelines should be introduced. Independent audit mechanisms must regularly evaluate AI systems used in policing, investigation, and judicial processes to ensure fairness, accuracy, and non-discrimination.

Specialized training programs should be introduced to Police officers, prosecutors, and judicial officers in the use and limitations of AI tools. It must ensure effective and responsible use of technologies such as predictive policing, facial recognition, and forensic analytics.

[8] *Laxmi v. Union of India,* (2014) 4 SCC 427.

The effectiveness of AI depends on reliable and comprehensive data. Strengthening platforms like CCTNS and ICJS through better data standardization, real-time updates, and inter-agency coordination will significantly enhance AI-driven decision-making. Judicial guidelines must be developed to govern the admissibility, reliability, and evidentiary value of AI-generated outputs under the Bharatiya Sakshya Adhiniyam, 2023. Proper certification, documentation, and expert validation should be made mandatory.

AI tools should be designed to support victims by simplifying access to compensation schemes, legal aid, and rehabilitation services. AI-based platforms can also provide psychological support and real-time assistance, ensuring a more inclusive justice system. The deployment of AI must be accompanied by strict data protection measures to prevent misuse, unauthorized surveillance, and data breaches. Personal data collected through AI systems must be processed lawfully, with informed consent and minimal intrusion.

Efforts must be made to extend AI-based solutions to rural and under-resourced areas. Investment in digital infrastructure, connectivity, and technological accessibility is essential to ensure equitable protection across all regions.

AI should function strictly as an assistive tool and not replace human judgment. Final decision-making authority must remain with human actors, particularly in sensitive cases like acid attacks, where empathy, contextual understanding, and moral reasoning are crucial. The government and academic institutions should promote interdisciplinary research and pilot projects to test AI applications in real-world scenarios. Evidence-based evaluation will help refine technologies and inform policy decisions.

Effective implementation of AI requires collaboration between government agencies, judiciary, law enforcement, technology experts, and civil society organizations. Such cooperation will ensure balanced, inclusive, and ethically sound deployment. While AI offers powerful tools to combat acid attacks, its success depends on responsible integration guided by legal safeguards, ethical standards, and a strong commitment to protecting the rights and dignity of victims.

 (ISSN: 2583-7753)

XI. CONCLUSION

While India has taken a significant step towards regulating data processing through the Digital Personal Data Protection Act, 2023, and the accompanying Digital Personal Data Protection Rules, 2025, a comprehensive and dedicated legal framework specifically governing the use of Artificial Intelligence in the criminal justice system remains absent. This partial regulatory landscape raises continuing concerns regarding accountability, transparency, and compliance with constitutional principles. The deployment of AI must be aligned with the right to privacy. Any misuse of data or surveillance technologies could result in violations of fundamental rights. AI systems are susceptible to biases inherent in the data on which they are trained. In a society marked by caste, gender, and socio-economic inequalities, such biases can lead to discriminatory outcomes. In the context of acid attacks, algorithmic bias could result in misidentification of suspects or disproportionate targeting of certain communities. This undermines the fairness and legitimacy of the criminal justice system.

The use of AI involves the collection and processing of large volumes of personal data. In the absence of robust data protection laws, there is a risk of data breaches, misuse, and unauthorised surveillance. The implementation of AI requires significant investment in infrastructure, training, and maintenance. In many parts of India, particularly rural areas, such resources are limited. Over-reliance on AI may lead to the erosion of human judgment and empathy, which are essential in handling sensitive cases such as acid attacks. The criminal justice system must therefore ensure that AI remains a tool rather than a substitute for human decision-making.

Artificial Intelligence holds significant potential to transform the criminal justice system's response to acid attacks against women in India. By enhancing prevention, investigation, prosecution, and victim support, AI can contribute to a more efficient and responsive system. However, the deployment of AI must be guided by a robust legal framework, ethical safeguards, and a commitment to protecting fundamental rights. The ultimate goal should be to create a criminal justice system that is not only technologically advanced but also humane, inclusive, and victim centric.

 (ISSN: 2583-7753)

XII. BIBLIOGRAPHY

A. Statutes and Legislative Materials

1. Bharatiya Nyaya Sanhita, No. 45 of 2023, India.
2. Bharatiya Sakshya Adhiniyam, No. 47 of 2023, India.
3. Code of Criminal Procedure, No. 2 of 1974 (India) (repealed and replaced by Bharatiya Nagarik Suraksha Sanhita, No. 46 of 2023, with effect from 1 July 2024).
4. Indian Penal Code, No. 45 of 1860 (India) (repealed and replaced by Bharatiya Nyaya Sanhita, 2023).
5. Information Technology Act, *No. 21 of 2000 (India).*
6. Criminal Law (Amendment) Act, No. 13 of 2013 (India).
7. Digital Personal Data Protection Act, No. 22 of 2023, India.

B. Cases

1. Laxmi v. Union of India, (2014) 4 SCC 427 (India).
2. Justice K.S. Puttaswamy (Retd.) v. Union of India, (2017) 10 SCC 1 (India).

C. Journal Articles, Reports and Policy Documents

1. National Crime Records Bureau, *Crime in India* (latest available edition).
2. NITI Aayog, *Responsible AI for All: Strategy for India* (2018).
3. Ministry of Home Affairs, Government of India, *Crime and Criminal Tracking Network and Systems (CCTNS) Guidelines*.
4. Ministry of Electronics and Information Technology, Government of India, *National Strategy on Artificial Intelligence*.
5. Law Commission of India, *Report on Reforms in Criminal Justice System* (relevant report).

6. Scholarly articles on AI in criminal justice and gender-based violence (relevant peer-reviewed journals).
7. Ministry of Electronics and Information Technology, Government of India, *Digital Personal Data Protection Rules, 2025*

D. Books and Scholarly Works

1. Stuart Russell & Peter Norvig, *Artificial Intelligence: A Modern Approach* (4th ed. 2021).
2. Upendra Baxi, *The Future of Human Rights* (3d ed. 2008).