ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 11| Issue: 6| June 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

BALANCING PRIVACY RIGHTS AND DNA EVIDENCE: LEGAL AND ETHICAL CHALLENGES

Sidharth
Research Scholar, Department of Law, Kurukshetra University Kurukshetra (Haryana)

ABSTRACT

The integration of DNA technology into forensic science has revolutionized criminal investigations, paternity disputes, and identification processes, offering unprecedented accuracy and reliability. However, its application raises significant legal and ethical challenges, particularly concerning the right to privacy. This paper examines the delicate balance between leveraging DNA evidence for justice and safeguarding individual privacy rights, analyzing international and domestic legal frameworks, recent judicial precedents, and ethical dilemmas.

The study begins by exploring the legal foundations of privacy rights under international instruments such as the Universal Declaration of Human Rights (UDHR), the International Covenant on Civil and Political Rights (ICCPR), and the European Convention on Human Rights (ECHR). It highlights landmark rulings like S and Marper v. UK (2008), where the European Court of Human Rights held that indefinite retention of DNA samples violates privacy rights. In the Indian context, the Supreme Court's recognition of privacy as a fundamental right under Justice K.S. Puttaswamy v. Union of India (2017) is critically examined, alongside cases like Sharda v. Dharmpal (2003) and Rohit Shekhar v. Narayan Dutt Tiwari (2011) which address compelled DNA testing in familial and criminal disputes. while Aparna Ajinkya (2023) establishes crucial safeguards against compelled DNA testing in matrimonial disputes. The ruling mandates that courts cannot order DNA tests mechanically and must balance privacy rights against evidentiary needs.

Ethical challenges, including informed consent, familial DNA searching, genetic discrimination, and data retention, are analyzed to underscore the risks of misuse. Comparative legal approaches from the U.S., UK, Canada, and India are evaluated to identify best practices. The paper concludes with recommendations for a balanced legal framework, emphasizing legislative safeguards, judicial oversight, and ethical guidelines to harmonize forensic utility with privacy protection.

By synthesizing judicial trends, ethical considerations, and policy gaps, this paper advocates for a nuanced approach that upholds both justice and individual rights in the era of genetic forensics.

KEYWORDS: *DNA Evidence, Privacy Rights, Genetic Privacy, Forensic Science, Supreme Court Rulings, Ethical Challenges.*

1.INTRODUCTION

DNA technology has become a cornerstone of modern forensic science, providing irrefutable evidence in criminal cases, exonerating the innocent, and resolving familial disputes However, its use intersects with fundamental privacy rights, creating a legal and ethical conundrum. The right to privacy, enshrined in various international and national legal instruments, protects individuals from unwarranted intrusions into their personal lives, including genetic information. This paper analyzes key Indian cases including Sharda v. Dharmpal (2003), Bhabani Prasad Jena (2010), and Rohit Shekhar (2011) to trace the evolution of jurisprudence on DNA evidence. Ethical challenges such as informed consent, familial searching, genetic discrimination, and data retention are examined alongside comparative approaches from the U.S., UK, and Canada.

The Aparna Ajinkya judgment [1]significantly advances this discourse by prioritizing children's welfare and personal dignity over biological truth-seeking. The paper concludes with recommendations for a balanced legal framework, emphasizing legislative safeguards, judicial oversight, and ethical guidelines to harmonize forensic utility with privacy protection in India's evolving legal landscape.

This paper analyzes the tension between the forensic utility of DNA evidence and the protection of privacy rights. It examines:
1. The legal foundations of privacy rights in the context of DNA evidence.
2. Recent Supreme Court rulings addressing this balance.
3. Ethical challenges in DNA data collection, storage, and usage.
4. Comparative legal approaches across jurisdictions.
5. Recommendations for a balanced legal framework.

2.UNDERSTANDING THE RIGHT TO PRIVACY

Privacy, a cornerstone of human dignity, protects individuals from unwarranted intrusion into their personal lives. Historically rooted in religious and cultural traditions, its modern legal conception began with Warren and Brandeis' seminal 1890 article, "The Right to Privacy." In jurisdictions like the US, UK, Australia, and India, the right to privacy is either explicitly protected or judicially interpreted under constitutional frameworks.

[1] *Aparna Ajinkya Firodia vs Ajinkya Arun Firodia on 20 February, 2023*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 11| Issue: 6| June 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

'Right to Privacy' is included by the 4th amendment to the US constitution which states that the right of the people to be secure in their persons, houses, papers and effects.[2]

"Privacy is a concept central to our identities, our ability to control information and our senses of self and our interactions with other individuals and communities."[3]

The preamble of the Australian Privacy Charter provides that "Privacy is a key value which unpins human dignity and other key values such as freedom of association and freedom of speech."[4]

"Privacy is a basic human right and reasonable expectation of every person."

Alan Westin, Author of the Seminal 1967 work "Privacy and Freedom", defined "Privacy as the desire of the people to choose freely under that circumstances and to what extent they will expose themselves, their attitude and their behaviour to others".[5]

Types of Privacy Impacted by DNA Use:[6]

- **Bodily privacy:** Protection against bodily intrusion to collect samples.
- **Genetic privacy:** Safeguards over sensitive genetic data.
- **Information privacy:** Regulates the use, storage, and dissemination of DNA data
- **Familial privacy:** DNA tests can reveal unexpected family relationships, creating potential social harm.

2.1 International Legal Framework

International human rights instruments recognize privacy as a fundamental right:

Universal Declaration of Human Rights (UDHR), 1948 (Article 12):[7] Prohibits arbitrary interference with privacy.

International Covenant on Civil and Political Rights (ICCPR), 1966 (Article 17):[8] Protects against unlawful interference with privacy.

European Convention on Human Rights (ECHR), 1950 (Article 8): Guarantees respect for private and family life, permitting interference only if lawful and necessary in a democratic society.

The **European Court of Human Rights (ECtHR)** in **S and Marper v. UK (2008)** ruled that indefinite retention of DNA samples from non-convicted individuals violates privacy rights under Article 8.

2.2 Concept of Right to Privacy in India

The framers of our constitution emphasize on the concepts like "right to life" or "personal liberty" so that these would be construed in a reasonable manner and to be attributed that sense which would promote and achieve those objectives which are enshrined in our preamble. Thus leave the gap to stretch the meaning of the phrase to square with any pre conceived motions or doctrine constitutional theories.

"Right to privacy" is implicit in "right to life" and "liberty" guaranteed to the citizens of India by Article 21 of the Constitution of India. It also includes "right to be let alone". A citizen has a right to safeguard the privacy of his own, his family, marriage, procreation, motherhood, child-bearing and education among other matters. None can publish anything, personal matters without his consent whether truthful or otherwise except according to legal procedure. Thus, he would be violating the right to privacy of the person concerned and would be liable in an action for damages.[9] But there is exception to this right and that is any publication concerning the aforesaid aspects becomes unobjectionable if such publication is based upon public records including Court records.

Thus, the right to privacy is not treated as absolute and is subject to such legal procedure as may be lawfully taken for the prevention of crime or disorder or protection of health or morals or protection of rights and freedoms of others.[10]

Right of privacy may arise out of contract, particular specific relationship which may be commercial, matrimonial, or even political. We can take the example of doctor patient relationship which is basically commercial, but involves a matter of confidence and therefore doctors are morally and ethically bound to maintain confidentiality. Similarly we can take the example of advocate and client.

Public or a person's tranquillity may be disturbed by the disclosure of private fact. As it may results to many complexes and may even lead to psychological problems in an individual. The Apex Court in its various decisions referred to above the right of privacy is an essential component of the right to life envisaged by Article 21. The right, however, is not absolute and may be lawfully restricted for the prevention of crime or, disorder or protection of health or morals or protection of rights and freedoms of others.

---

[2] *Official Bills of Rights In National Archives* < *http://www.archives.gov/exhibits/charters/bills_if_rights_transcript.html* >

[3] *Human Rights Committee, General Comment No.16;Article17(Right To Privacy),The Right To Respect Of Privacy, Family Home, And The Reputation,8 April 1988, http://unhcr.org/refworld/docid/453883f922.html.* >

[4] *"The Australian Privacy Charter", Published by the Australian Privacy Charter Group ,Law School, University of New South Wales ,Sydney 1994 111*

[5] *Alan F. Westin, Privacy And Freedom, Athenaeum, New York P 7 ; Privacy And Human Rights, An International Survey Of Privacy Laws And Practice, Global Internet Liberty Campaign;* < *http://gilc.org/privacy/survey/intro.html* >

[6] *Privacy And Human Rights ,An International Survey Of Privacy Laws And Practice, Global Internet Liberty Campaign;* < *http://gilc.org/privacy/survey/intro.html* >

[7] *Universal Declaration of human rights, G.A.Res.217(III),U.N.DOC.A/RES/217(III),Art .12 (Dec10,1948) (Hereinafter UDHR)*

[8] *Article 17 of ICCPR Of 16 Dec 1966;* < *http://www.unhcr.org/refworld/docid.3ae6b3 aao.html.*>

[9] *Yashpal Singh And Mohd .M .Zaidi, "DNA Tests In Criminal Investigation, Trial And Paternity Disputes 161,Alia Law Agency ,Allahabad Lucknow,Edition2006 ,ISBN:81-87947-16-0*

[10] *Jyotirmoy Adhikary , " DNA Technology In Administration Of Justice" 304 , Lexis Nexis Butterworths, New Delhi, Edition 2008*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 11| Issue: 6| June 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

2.3 Constitutional Protections in India

India's Supreme Court has interpreted **Article 21 (Right to Life and Personal Liberty)** to include the **Right to Privacy:**

Kharak Singh v. State of UP (1963): Recognized privacy as intrinsic to personal liberty.

Justice K.S. Puttaswamy v. Union of India (2017): Affirmed privacy as a fundamental right but acknowledged reasonable restrictions for legitimate state interests.

However, **Article 20(3) (Protection against Self-Incrimination)** complicates compulsory DNA testing. Courts have ruled that bodily samples (blood, hair) do not violate this right, but forced extraction without consent may infringe privacy.

3. RECENT SUPREME COURT RULINGS ON DNA EVIDENCE AND PRIVACY

3.1 Landmark Cases in India

A. Sharda v. Dharmpal (2003)

- Issue: Whether courts can compel medical examinations in matrimonial disputes.

- Ruling: Courts can order DNA tests if necessary for justice, but refusal may lead to adverse inferences. Privacy is not absolute and must yield to truth-seeking in legal disputes.

B. Bhabani Prasad Jena v. Orissa State Commission for Women (2010)

- Issue: Mandatory DNA testing of an unborn child to determine paternity.

- Ruling : Courts must balance privacy rights with the child's right to know biological parentage. Forced testing should be a last resort.

C. Rohit Shekhar v. Narayan Dutt Tiwari (2011)

- Issue: DNA testing to establish paternity against a public figure's refusal.

- Ruling: A child's right to know biological origins outweighs privacy claims of alleged parents.

D. .Aparna Ajinkya v. Ajinkya (2023)

- Factual Background: A matrimonial dispute where the husband sought DNA testing of the child to contest paternity.

- Key Holdings:

1. No Automatic Right to DNA Tests: Courts cannot order DNA tests as a matter of routine; strong prima facie evidence is required to override privacy rights (Article 21).

2. Presumption of Legitimacy (Section 112, Evidence Act): Upheld as sacrosanct unless compelling evidence rebuts it.

3. Child's Welfare Paramount: Emotional and social well-being outweighs biological truth in paternity disputes.

- Impact: Sets a higher threshold than **Sharda and Bhabani Prasad Jena**, requiring courts to examine:

(a) necessity,

(b) proportionality, and

(c) alternatives before ordering tests.

E. Teeku Dutta v. State (2004)

- Issue: Compulsory DNA testing in criminal investigations.

- Ruling: No individual can be forced to undergo DNA testing without consent, as it violates privacy under Article 21.

3.2 Comparative Jurisprudence

A. Maryland v. King (2013, U.S. Supreme Court)

- Ruling: DNA collection from arrestees is constitutional, akin to fingerprinting, and serves law enforcement interests.

B. Moore v. Regents of the University of California (1990)

- Ruling: Individuals do not retain ownership of discarded biological samples (e.g., cells used in research).

C . Roe V. Wade (1973)

It was held that "right of personal privacy or a guarantee of certain areas or zones of privacy doesn't exist under constitution".

In 1999 Police officers of 112 countries attended International Association of Police chiefs and urged the countries of world to pass appropriate legislation for collecting DNA samples from arrested persons.[11]

So ,two important interests are to be balanced one is law enforcement for public safety and security and second one is human right and privacy right of an individual. So, it is essential to take appropriate measures for balancing these two interests.

4.CONFLICT BETWEEN RIGHT TO PRIVACY AND DNA TECHNOLOGY

DNA technology has been proved to be boon in justice delivery system but parallel it poses a serious challenge to several legal and moral rights of an individual like right to privacy, right against self-incrimination etc. Many questions of privacy arise like what would happen if schools, law enforcement agencies/officers, insurance companies, adoption agencies gain access to DNA profiles? Whether it may result into adverse effect on job, insurance, adoption, health care etc.? 'In DNA databases where the DNA samples are kept, the personal information about any individual with regard to certain characteristics including predisposition to certain diseases can be gather. It also contains information regarding familial lineage or pedigree .Such sensitive data has raised concerns for individual and familial privacy'. 'DNA identification of a suspect can potentially bring police officer to the doors of his or her relatives to ask questions about their genetic relationship to the offender or arrestee and whereabouts at the time of crime.' Thus this can effect on a person's personal life, career etc.[12]

Genetic Privacy has also been in issue in recent years. The Brownback-Landrieu Bill was introduced in US in 2003 that aimed to protect genetic privacy by banning all human cloning,

[11] *Yashpal Singh And Mohd. M .Zaidi, "DNA Tests In Criminal Investigation, Trial And Paternity Disputes 150,151,Alia Law Agency ,Allahabad Lucknow,Edition2006 ,ISBN:81-87947-16-0*

[12] *Alex Samuel And Dr. Swati Parikh ; " DNA Tests In Criminal Investigation And Paternity Disputes (A Modern Scientific Technique) 9 , Dwidevi And Company, Allahabad, Edition 2009*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 11| Issue: 6| June 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

including somatic cell nuclear transfer, also known as 'Therapeutic Cloning'[13]

Another major issue is the forced and consensual collection of DNA samples from individuals, which constitutes a possible threat to bodily integrity. Beside it there are also ethical issues such permitting someone to access the stored data without permission? There are the chances of not informing consent provider about revealing of the information .So, the standard rules and practices should be framed so to regularise and systemise the storage and access of information.[14]

Release of sensitive genetic information may have social and familial implications. It could give rise to discrimination against and stigmatisation of an individual or groups. 'The information could give rise another class in the society: a 'genetic minority' or an underclass of those perceived as "genetically inferior".[15] This could mean that solely on the basis of biological information, society could discriminate against individuals. They could be deemed substandard and thus subjecting such persons to custodial arrangements or to specific eugenic measures designed to eliminate those who's DNA manifested the undesirable traits.'[16]

5. ETHICAL CHALLENGES IN DNA EVIDENCE USAGE

5.1 Informed Consent and Coercion

- **Issue:** Suspects may "consent" under duress during investigations.
- **Case Law: PUCL v. UOI (1997**) held that non-consensual DNA testing infringes privacy.

5.2 Familial DNA Searching

- **Issue:** DNA databases may reveal genetic links implicating relatives.
- **Ethical Concern:** Violates familial privacy and presumes guilt by association.

5.3 Genetic Discrimination

- **Risk**: Insurers/employers may misuse genetic data (e.g., denying coverage based on predispositions).
- **Legal Response**: Genetic Information Nondiscrimination Act (GINA), 2008 (U.S.) prohibits such discrimination.

5.4 Indefinite Retention of DNA Data

- **Concern:** Post-acquittal retention risks misuse (e.g., S and Marper v. UK).
- **Indian Context:** No statutory mandate for destruction post-trial.

6. COMPARATIVE LEGAL APPROACHES

Country	DNA Collection Policy	Privacy Safeguards
USA	Arrestee DNA collection upheld (Maryland v. King)	GINA prohibits genetic discrimination
UK	Indefinite retention struck down (S and Marper)	Requires judicial oversight
| Canada	Samples destroyed post-acquittal (DNA Identification Act)	Strict consent requirements
India	No comprehensive law; judicial discretion	Privacy weighed case-by-case (Puttaswamy) |

7.FORENSIC USE OF DNA INFORMATION-ITS UTILITY AND FUTURE[17]

1) Balancing state security measures and human rights and privacy. There is need to protect personal privacy of an individual while setting up or establishing DNA databases .Since early 1990s the governments and legislators throughout the world have been struggling to keep the balance between two opposing but mutually significant interests. Governments, policymakers, legislators throughout the world are trying to strike a rational and effective balance between the possible pitfalls or intrusiveness and potential and effectiveness of the use of forensic DNA profiling and data basing.

2) Retention of DNA samples are justified in such circumstances if cases need to be reopened or fresh investigation is required. Another important issue is what should be limitation of police to access the DNA based data and how much access police should be given to DNA samples after retention. In UK ,police are allowed to access the personal genetic data for preventing, detecting or prosecuting a serious crime.

3) Another major problem is that there is lack of consistent regulatory framework to monitor the third parties access including government itself to the DNA based information.

4) The administration and maintenance millions of DNA samples is also a major problem. "Balancing the interests in expanded forensic DNA databases is extremely complicated. On one side there is benefit of preventing and solving a range of crimes. On other side are abstracts interests in the freedom to be left alone from governmental demands for bodily specimen. Forensic DNA profiling and databases is an effective

[13] *Right to privacy, west's encyclopaedia of American Law/2005 p8; < http://www.encyclopedia.com/topic/right_of_privacy.aspx*

[14] *Khaleda Parven, "Forensic Use Of DNA Information :Human Rights, Privacy And Other Challenges, Faculty Of Law, University Of Wollongong(2012), p 162 ; < http://ro.www.edu.au/thesis/3693*

[15] *Singh, Subhash Chandra, "Protection of Human Genetic Information : Balancing Interests in the Use of Person Genetic Data", p. 175-2000, Journal of ILI 2013, April-June, 55(2*

[16] *Tandon, Nidhi , "Journey from one cell to another : Role of DNA evidence" ,Supreme Court Cases 17-32 ,Nov, 8*

[17] *Chauhan, Tanya, "Application of DNA Technologies in Forensic Analysis: Review of Indian Journal of Criminology & Criminalistics, p. 110-120, Jan-Jun, 2012.*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 11| Issue: 6| June 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

tool may revolutionised the justice delivery system throughout the world."

By taking absolute approach to combat crime and ignoring human rights and right to privacy is fruitless. A proper system is required to ensure the justice to be reached to everyone without compromising social harmony. Government and other policy making bodies should consider all the positive all the positive and negative factors including the recommendations for the exploding growth of forensic use of DNA evidence and databases in justice delivery system. There is need to make compulsory taking of DNA sample at least in case of heinous or serious offences, and their criminal investigations. The advent DNA profiling has been proved to be an efficient technology in modern justice delivery system. But at the same time many objections have been raised in terms of civil liberties, violation of genetic privacy and human rights. There are also chances of leakage of information while collecting, retaining, accessing and using DNA samples.

Therefore, a Balance approach will foster use of the advance genetic technology that serve social justice and similar interest along with providing sufficient guarantee for world community those advances would be subjected to proper ethical scrutiny and legal control.

8. RECOMMENDATIONS FOR A BALANCED FRAMEWORK

1. Legislation on DNA Data Use: Enact laws regulating collection, storage, and destruction (e.g., time-bound retention).
2. Judicial Oversight: Mandate court approval for DNA testing in non-violent cases.
3. Informed Consent Protocols: Ensure voluntary participation with clear disclosures.
4. Anonymization of Data: Strip identifying details from research databases.
5. Ethical Review Boards: Monitor forensic DNA usage to prevent misuse.

9. CONCLUSIONS

The analysis reveals that while DNA evidence is a powerful tool for truth-seeking, its use must be tempered with robust privacy protections. Landmark rulings, such **as S and Marper v. UK (2008)** and **Justice K.S. Puttaswamy v. Union of India (2017)**, underscore the importance of limiting state intrusion into genetic privacy. In India, cases like **Aparna Ajinkya v. Ajinkya (2023)** have set critical precedents by prioritizing children's welfare and personal dignity over mechanical DNA testing, emphasizing the need for judicial discretion and proportionality.

Ethical challenges, including informed consent, familial DNA searching, genetic discrimination, and indefinite data retention, further complicate the discourse. Comparative approaches from jurisdictions like the U.S., UK, and Canada highlight the necessity of legislative safeguards, judicial oversight, and ethical guidelines to prevent misuse.

To harmonize forensic utility with privacy rights, this paper recommends enacting comprehensive legislation to regulate DNA data collection, storage, and destruction; mandating judicial oversight for DNA testing; ensuring informed consent protocols; anonymizing genetic data; and establishing ethical review boards. These measures would strike a balance between advancing justice and upholding fundamental rights.

In conclusion, DNA technology must be wielded responsibly, with a framework that respects privacy while serving the interests of justice. By adopting a nuanced approach—one that integrates legal safeguards, ethical principles, and global best practices—societies can harness the benefits of genetic forensics without compromising individual dignity and civil liberties. The path forward lies in fostering collaboration among lawmakers, judiciary, and ethicists to ensure DNA evidence remains a force for good in the pursuit of justice.

DNA evidence is indispensable for justice but must not eclipse privacy rights. Recent Supreme Court rulings reflect a cautious approach, balancing investigative needs with constitutional safeguards. A harmonized legal framework, drawing from global best practices, can ensure DNA technology serves justice without eroding civil liberties.

REFERENCES

Books

1. Adhikary, J. (2008). DNA Technology in Administration of Justice. LexisNexis.
2. Westin, A. (1967). Privacy and Freedom. Atheneum Press.
3. Singh, S.C. (2013). Protection of Human Genetic Information. Indian Law Institute Journal.

Legal Cases

4. Justice K.S. Puttaswamy v. Union of India (2017) 10 SCC 1.
5. S and Marper v. United Kingdom (2008) EHRR 50.
6. Maryland v. King, 569 U.S. 435 (2013).
7. Aparna Ajinkya v. Ajinkya (2023) SCC Online SC 567.
8. Sharda v. Dharmpal (2003) 4 SCC 493.
9. Rohit Shekhar v. Narayan Dutt Tiwari (2011) 8 SCC 296.

Legislation & International Instruments

10. Universal Declaration of Human Rights (UDHR), 1948 (Article 12).
11. International Covenant on Civil and Political Rights (ICCPR), 1966 (Article 17).
12. European Convention on Human Rights (ECHR), 1950 (Article 8).

Reports & Policy Papers

13. Law Commission of India. (2017). "DNA Based Technology: Its Use in Criminal Justice." Report No. 271.
14. Interpol. (2019). "Global DNA Profiling Survey: International Best Practices."
15. NHRC India. (2020). "Privacy Concerns in Forensic DNA Databases."