

Role of Forensic Psychology in Investigation and Trial: An Indian Perspective

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Abstract

Forensic psychology the application of psychological science to legal processes occupies an increasingly significant role in modern criminal justice. In India, however, its integration remains uneven, contested, and under-regulated. This article examines the theoretical foundations and operational dimensions of forensic psychology within India's investigative and adjudicatory framework. It analyses the admissibility and evidentiary weight of psychological techniques including narco-analysis, polygraph (lie detection), and Brain Electrical Activation Profile (BEAP or P300) testing, critically engaging with the Supreme Court's landmark ruling in *Selvi v. State of Karnataka* (2010). The article further explores the role of forensic psychology in criminal profiling, mental health defences under Section 84 of the Indian Penal Code (Now Sec 22 in BNS, 2023), capital sentencing, child witness evaluation, and victim trauma assessment. Drawing on constitutional guarantees, statutory provisions, judicial precedent, and comparative international standards, the article identifies structural lacunae in India's forensic psychology regime and proposes systemic reforms towards a more evidence-based, rights-respecting criminal justice system.

Keywords: Narco-Analysis; Polygraph; BEAP/P300; *Selvi v. State of Karnataka*; Criminal Profiling; Mental Health Defence; Capital Sentencing; Child Witness; Victim Trauma; Admissibility;

I. Introduction

The relationship between law and psychology is longstanding yet perpetually contested. Since Hugo Munsterberg's pioneering advocacy at the dawn of the twentieth century,¹ forensic psychology has steadily expanded its domain from laboratory curiosity to courtroom utility. Today it encompasses the assessment of criminal responsibility, the evaluation of witness reliability, the profiling of offenders, the treatment and rehabilitation of convicted persons, and the psychological examination of victims particularly in cases involving sexual violence, domestic abuse, and crimes against children. Kirk Heilbrun defines forensic mental health assessment as the evaluation of individuals involved with the legal system for purposes of assisting legal decision-making.² In India, this assistance is predominantly channelled through the expert witness framework under Section 45 of the Indian Evidence Act, 1872.³ Yet despite growing judicial receptiveness, the institutional architecture supporting forensic psychology in India remains nascent: there

¹ Hugo Munsterberg, *On the Witness Stand: Essays on Psychology and Crime* (Doubleday, Page & Co., 1908). Munsterberg is widely regarded as the progenitor of forensic psychology as a distinct discipline.

² Kirk Heilbrun, *Principles of Forensic Mental Health Assessment* (Kluwer Academic/Plenum Publishers, 2001) 3.

³ Section 45, Indian Evidence Act, 1872 (Act 1 of 1872): 'When the Court has to form an opinion upon a point of foreign law or of science or art... the opinions upon that point of persons specially skilled in such... science or art... are relevant facts. Such persons are called experts.'

is no dedicated legislation, no uniform professional accreditation standard for forensic psychologists, no standardised court-ready assessment protocol, and no systematic training for investigating officers in psychological interviewing techniques.

This article analyse conceptual framework and legal interface of forensic psychology in India, examines psychophysiological detection techniques and the constitutional rupture provoked by the Supreme Court in *Selvi v. State of Karnataka*, addresses criminal profiling and investigative psychology, analyses mental health defences with reference to Section 84 IPC, examines capital sentencing, addresses child witness evidence and victim trauma assessment and offers a critical evaluation and reform proposals.

II. Conceptual Framework: Forensic Psychology and Its Legal Interface

Forensic psychology operates at the intersection of two epistemically distinct disciplines. Law proceeds by adversarial contest, precedent, and authoritative prescription; psychology advances through empirical inquiry, probabilistic inference, and peer-reviewed falsification. Their encounter in the courtroom is inevitably productive of tension: courts demand certainty while psychology speaks in probabilities; law seeks finality while psychological science remains subject to revision. In the Indian legal context, the interface is mediated principally by *Bhartiya Sakshya Adhiniyam, 2023* Section 39 renders the opinion of an "expert" relevant when the court must form an opinion on a matter of science or art. Forensic psychology, as a recognised scientific discipline, falls within this provision. However, the Act provides no guidance on the threshold of scientific reliability required before expert opinion is received a gap that courts have filled inconsistently. The United States addressed an analogous lacuna through the Supreme Court's ruling in *Daubert v. Merrell Dow Pharmaceuticals Inc.*⁴, which established reliability and relevance as twin admissibility criteria. India has no equivalent doctrinal framework, and the Law Commission's recommendation in its 185th Report that a Daubert-style standard be adopted⁵ remains unimplemented.

Courts must also grapple with the distinction between evidence that is scientifically valid and evidence that is legally admissible. A forensic psychological report may be scientifically grounded yet constitutionally inadmissible as the Supreme Court demonstrated in *Selvi*. The legal framework therefore requires not merely scientific literacy in judges but a nuanced understanding of the constitutional constraints within which forensic evidence must operate.

III. Psychophysiological Detection Techniques and the Constitution

A. Narco-Analysis, Polygraph, and BEAP Testing

Three psychophysiological techniques have attracted sustained judicial and academic attention in India: the polygraph or lie-detection test; narco-analysis (the administration of truth-inducing barbiturates such as sodium pentothal); and Brain Electrical Activation Profile (BEAP) testing also referred to as the P300 or Brain Fingerprinting test. Each purports to access cognitive or physiological states that cannot be voluntarily suppressed and thereby to reveal concealed knowledge or deceptive intent.

Narco-analysis places the subject in a drug-induced hypnotic state in which the capacity for deliberate deception is theoretically diminished. The polygraph measures physiological parameters skin

⁴*Daubert v. Merrell Dow Pharmaceuticals Inc.*, 509 US 579 (1993), establishing the US federal standard for admissibility of expert scientific testimony based on relevance and reliability.

⁵Law Commission of India, 185th Report on 'Review of the Indian Evidence Act, 1872' (2003), Chapter XIV on Expert Evidence, recommending a reliability-based admissibility standard akin to Daubert.

conductance, respiratory rate, blood pressure as proxies for psychological arousal triggered by deception. BEAP testing measures P300 brainwave responses to crime-specific stimuli on the hypothesis that a suspect possessing guilty knowledge will exhibit a distinctive neural signature in response to crime-relevant information that an innocent person will not. Lower courts in several states approved these techniques in the early 2000s,⁶ and the Bombay and Gujarat High Courts also addressed their evidential implications in decisions that produced contradictory jurisprudence.⁷

B. Selvi v. State of Karnataka (2010): A Constitutional Watershed

The unsatisfactory state of lower court jurisprudence was conclusively resolved by the Supreme Court's three-judge bench decision in *Selvi v. State of Karnataka*⁸, delivered in 2010. The petitioners had been subjected to narco-analysis and polygraph tests without their consent during criminal investigations, and challenged these practices as violating their fundamental rights under Articles 20(3) and 21 of the Constitution of India.⁹ The Supreme Court held, unanimously, that the compulsory administration of all three techniques—narco-analysis, polygraph, and BEAP—constituted an unconstitutional violation of the right against self-incrimination under Article 20(3) and of the right to privacy and mental autonomy subsumed within Article 21. The court observed that a forcible intrusion into a person's mental processes is an affront to human dignity and personal liberty,¹⁰ and expressly overruled those lower court orders that had sanctioned compulsory testing, drawing upon the NHRC Guidelines of 2000¹¹ as evidence that even the administrative framework recognised consent as indispensable.

Crucially, the court did not prohibit these tests absolutely. It held that they may be administered with the informed, voluntary, and written consent of the subject, in which case the results may be used for investigative purposes though not as direct evidence at trial. Moreover, any physical material discovered as a consequence of information obtained during voluntarily conducted tests remains admissible under Section 27 of the Indian Evidence Act.¹²¹³ (Now 23 of BSA). The court also distinguished *Selvi* from *State of Bombay v. Kathi Kalu Oghad*¹⁴, holding that whereas providing a specimen handwriting sample is a passive physical act not amounting to testimonial self-incrimination, the compelled disclosure of the contents of one's mind even through neurological means constitutes testimonial compulsion of the highest order.

⁶*Ramchandra Ram Reddy v. State of Maharashtra*, 2004 (2) BomCR 673 (Bombay High Court), one of the earliest Indian decisions to address the evidentiary value of polygraphy in a criminal trial.

⁷*Santokben Jadeja v. State of Gujarat*, (2005) 1 GLR 670 (Gujarat High Court); *Dinesh Dalmia v. State*, 2006 Cri LJ 2401 (Madras High Court) on narco-analysis.

⁸*Selvi v. State of Karnataka*, (2010) 7 SCC 263. The three-judge bench was presided over by Chief Justice K.G. Balakrishnan.

⁹Articles 20(3) and 21 of the Constitution of India, 1950. Article 20(3) provides that no person accused of an offence shall be compelled to be a witness against himself; Article 21 guarantees the right to life and personal liberty including mental autonomy.

¹⁰*Selvi v. State of Karnataka*, (2010) 7 SCC 263, para 190: the court observed that a forcible intrusion into a person's mental processes is an affront to human dignity and personal liberty.

¹¹National Human Rights Commission, Guidelines for Administration of Polygraph Test on an Accused (2000), cited with approval in *Selvi v. State of Karnataka*, (2010) 7 SCC 263.

¹²*Selvi v. State of Karnataka*, (2010) 7 SCC 263, para 213: results of narco-analysis, polygraph, and BEAP tests cannot be admitted as evidence, but material discovered consequentially during voluntary tests may be admitted under Section 27 of the Indian Evidence Act, 1872.

¹³Section 27, Indian Evidence Act, 1872: 'How much of information received from accused may be proved'—information relating distinctly to any fact discovered in consequence of information received from an accused in police custody may be proved.

¹⁴*State of Bombay v. Kathi Kalu Oghad*, AIR 1961 SC 1808. The Supreme Court held that providing specimen handwriting or thumb impressions does not amount to being a witness against oneself under Article 20(3).

IV. Criminal Profiling and Investigative Psychology

Criminal profiling the systematic analysis of crime scene evidence, victimology, modus operandi, and behavioural patterns to generate probabilistic inferences about an unknown offender's demographic, psychological, and motivational characteristics represents one of the most publicly visible applications of forensic psychology. Originating in the work of the FBI's Behavioural Science Unit in the 1970s, profiling has since developed a substantial research literature and has been deployed in investigations of serial murder, sexual assault, arson, and terrorism. Indian law enforcement agencies have engaged with profiling techniques in an ad hoc and insufficiently documented manner. The Central Bureau of Investigation has drawn upon psychological profiling assistance in complex serial crime cases, though the evidentiary status of profiling reports in Indian courts remains ambiguous. In *Aman Kumar v. State of Haryana*¹⁵, the Supreme Court acknowledged the relevance of psychological profiling evidence while cautioning that it cannot substitute for direct evidence or corroborating physical proof. This cautious judicial endorsement reflects the global consensus that profiling, however valuable as an investigative tool, remains probabilistic in nature and susceptible to confirmation bias if not rigorously applied.

The discipline of investigative psychology, pioneered by David Canter, takes a more empirically grounded approach deriving offender characteristics from systematic analysis of behavioural evidence using actuarial methods drawn from large-scale research databases. India's police forces currently lack the institutional infrastructure trained behavioural analysts, organised crime databases, standardised reporting protocols required to operationalise investigative psychology at scale, though isolated initiatives in state forensic science laboratories offer a foundation for future development.

V. Mental Health Defences: Section 84 IPC and Forensic Psychiatric Assessment

The Indian Penal Code, 1860, in Section 84, provides a complete defence to criminal liability for acts committed by a person who, at the time of the act, was incapable of knowing the nature of the act or of knowing that it was wrong or contrary to law, by reason of unsoundness of mind.¹⁶ This provision modelled on the M'Naghten Rules of English law necessitates forensic psychiatric and psychological assessment to determine the mental state of the accused at the material time, a retrospective exercise of considerable difficulty. The Supreme Court has consistently held that the burden of establishing unsoundness of mind lies on the accused on the balance of probabilities,¹⁷ and that expert psychiatric evidence, while essential, is not conclusive — the court retains ultimate responsibility for the legal determination of criminal responsibility. In *Dahyabhai Chhaganbhai Thakkar v. State of Gujarat*¹⁸, the court observed that if the evidence relating to mental illness creates a reasonable doubt in the mind of the court as to the accused's mens rea, the accused is entitled to the benefit of that doubt even without discharging the full burden of proving insanity.

¹⁵ *Aman Kumar v. State of Haryana*, (2004) 4 SCC 379. The Supreme Court admitted psychological profiling evidence while cautioning that it cannot substitute direct eyewitness testimony or physical evidence.

¹⁶ Section 84, Indian Penal Code, 1860: 'Act of a person of unsound mind. Nothing is an offence which is done by a person who, at the time of doing it, by reason of unsoundness of mind, is incapable of knowing the nature of the act, or that he is doing what is either wrong or contrary to law.'

¹⁷ *Surendra Mishra v. State of Jharkhand*, (2011) 11 SCC 495. The Supreme Court reiterated that the burden of proving insanity under Section 84 IPC lies on the accused on the balance of probabilities, and that expert psychiatric evidence is essential but not conclusive.

¹⁸ *Dahyabhai Chhaganbhai Thakkar v. State of Gujarat*, AIR 1964 SC 1563. The court held that if the evidence of insanity creates a reasonable doubt in the mind of the court as to the accused's mens rea, the accused is entitled to the benefit of that doubt.

In practice, forensic psychiatric assessment for Section 84 purposes is hampered by the acute shortage of qualified forensic psychiatrists and psychologists in India, the absence of standardised assessment protocols, delays in securing institutional evaluation, and the absence of a dedicated forensic mental health establishment. The Mental Healthcare Act, 2017,¹⁹ while representing a landmark in rights-based mental health legislation, does not address the specific requirements of forensic psychiatric assessment in criminal proceedings, leaving a significant regulatory vacuum.

VI. Forensic Psychology in Capital Sentencing

Forensic psychological assessment plays a constitutionally significant role in capital sentencing in India. The Supreme Court's foundational capital punishment jurisprudence, established in *Bachan Singh v. State of Punjab*²⁰ and elaborated in *Machhi Singh v. State of Punjab*²¹, mandates a careful balancing of aggravating and mitigating circumstances. Mitigating factors expressly recognised include the mental state, intellectual capacity, socio-economic background, and the possibility of reformation and rehabilitation of the accused all of which fall squarely within the domain of forensic psychological assessment.

In *Shatrughan Chauhan v. Union of India*²², the Supreme Court held that prolonged incarceration on death row resulting in severe psychological deterioration constitutes a supervening circumstance warranting commutation of the death sentence. The court relied upon forensic psychological and medical evidence in evaluating the mental condition of death row prisoners, establishing that sustained psychological suffering is constitutionally relevant to the execution of capital punishment. This decision effectively embedded forensic psychological assessment as a constitutional safeguard in capital cases, significantly expanding its practical role in proceedings before the Supreme Court and the executive in mercy petitions.

Despite these developments, the systematic use of forensic psychological assessment at the sentencing stage remains exceptional rather than routine. Courts frequently rely on inadequate or pro forma medical reports rather than comprehensive forensic psychological evaluations a practice that undermines the individualised sentencing inquiry that the constitutional doctrine demands.

VII. Forensic Psychology and Vulnerable Witnesses: Children and Trauma Victims

The criminal justice system's encounter with vulnerable witnesses particularly child victims of sexual abuse and survivors of violent crime represents one of the most practically urgent applications of forensic psychology in India. Children present distinctive challenges as witnesses: their testimonial reliability is affected by suggestibility, the passage of time, leading questioning, and the traumatic impact of the events they have experienced.

¹⁹Mental Healthcare Act, 2017 (Act 10 of 2017), which replaced the Mental Health Act, 1987 and adopted a rights-based framework for persons with mental illness. See also National Mental Health Policy of India, 2014.

²⁰*Bachan Singh v. State of Punjab*, (1980) 2 SCC 684. The Supreme Court established the 'rarest of rare' doctrine and directed courts to weigh mitigating factors including mental health and possibility of reformation.

²¹*Machhi Singh v. State of Punjab*, (1983) 3 SCC 470, elaborating on mitigating circumstances in capital sentencing, including the mental state and psychological profile of the offender.

²²*Shatrughan Chauhan v. Union of India*, (2014) 3 SCC 1. The Supreme Court held that prolonged incarceration on death row causing mental deterioration is a supervening mitigating circumstance warranting commutation of death sentence.

In *Sakshi v. Union of India*²³, the Supreme Court issued landmark directions for the recording of evidence of child sexual abuse victims, mandating sensitivity in examination, the use of screens where necessary, and the involvement of trained personnel. The Protection of Children from Sexual Offences Act, 2012 (POCSO) subsequently codified child-friendly procedures, including the recording of statements by Child Welfare Officers and the use of Special Courts.²⁴ However, neither the Sakshi directions nor POCSO mandate the involvement of a qualified child psychologist in the assessment of the child's competency as a witness or the reliability of the child's account — an omission that courts and reformers have increasingly noted.

The Juvenile Justice (Care and Protection of Children) Act, 2015 mandates psychological assessment and social investigation reports for children in conflict with the law,²⁵ recognising that juvenile offending is best understood through a developmental psychological lens. In practice, the quality of these assessments varies enormously across states due to the shortage of trained child psychologists and social workers attached to Juvenile Justice Boards.

Trauma-informed forensic interviewing — an evidence-based methodology that minimises re-traumatisation, reduces suggestibility, and maximises the reliability of disclosures — has not yet been formally adopted as a standard protocol by Indian police or prosecution services. The recommendations of the Justice Verma Committee (2013)²⁶ in favour of training investigating officers in trauma-sensitive interview techniques remain largely unimplemented.

VIII. Critical Evaluation and Reform Proposals

A. The Expert Witness Framework: Reliability Without Standards

India's expert witness framework under Section 45 of the Evidence Act suffers from the absence of any scientific reliability threshold. Courts have received and acted upon forensic psychological testimony without examining whether the underlying methodology meets minimum standards of validity. The Supreme Court's observation in *State of Karnataka v. Yarappa Reddy*²⁷ that expert evidence must be evaluated critically not passively accepted provides a normative directive but no operational mechanism. Legislative adoption of a reliability-based admissibility standard along the lines of the Law Commission's 185th Report recommendation is overdue and essential.

B. Professional Regulation of Forensic Psychologists

India currently has no regulatory body specifically governing forensic psychologists. The Rehabilitation Council of India Act, 1992 provides for the registration of clinical psychologists but does not separately recognise forensic psychology as a specialty.²⁸ This regulatory lacuna creates a serious risk of unqualified practitioners offering forensic psychological opinions in high-stakes criminal proceedings. The

²³*Sakshi v. Union of India*, (2004) 5 SCC 518. The Supreme Court directed that in child sexual abuse cases, evidence should be recorded with sensitivity and assistance from trained child psychologists where necessary.

²⁴Protection of Children from Sexual Offences Act, 2012 (POCSO), Sections 25–26 on recording of child statements and Special Courts; Section 164A, Code of Criminal Procedure, 1973 on medical examination of rape victims.

²⁵Juvenile Justice (Care and Protection of Children) Act, 2015 (Act 2 of 2016), Section 2(12) defining 'child in conflict with law'; model guidelines for psychological assessment under the JJ Act issued by NCPCR.

²⁶Report of the Justice Verma Committee on Amendments to Criminal Law (January 2013), recommending mandatory forensic psychological assessment of survivors in rape trials and trauma-informed interview training for investigating officers.

²⁷*State of Karnataka v. Yarappa Reddy*, (1999) 8 SCC 715. The Supreme Court observed that expert evidence must be tested by cross-examination and courts cannot abdicate their duty to evaluate it critically.

²⁸Rehabilitation Council of India Act, 1992 (Act 34 of 1992), governing registration of clinical psychologists. Forensic psychology is not separately recognised as a regulated specialty under this Act.

establishment of a statutory Forensic Psychology Council empowered to prescribe educational qualifications, professional standards, and a code of ethics for forensic psychologists is a pressing necessity.

C. Institutional Infrastructure

The systemic effectiveness of forensic psychology in Indian criminal justice depends upon infrastructure that currently does not exist at scale: forensic psychology units within state police forces; behavioural analysis capabilities within the CBI; forensic mental health facilities for accused persons unfit to stand trial; trained child forensic interviewers in all districts; and psychological support services for crime victims. International models including the UK's Forensic Psychology Services in His Majesty's Prison and Probation Service provide ready templates for adaptation.

D. Rights-Based Safeguards

Any expansion of forensic psychological practice within the Indian criminal justice system must be grounded in robust rights-based safeguards. The *Selvi* ruling establishes that the right against self-incrimination and the right to mental autonomy are not negotiable in the face of investigative convenience. The emerging international framework under the UN Convention on the Rights of Persons with Disabilities²⁹ further requires that forensic assessment of persons with mental disabilities be conducted with full respect for legal capacity and supported decision-making — principles not yet reflected in Indian legislation or practice.

IX. Conclusion

Forensic psychology holds the potential to make India's criminal justice system simultaneously more accurate in its findings and more humane in its processes — accurate because psychological science can assist courts in distinguishing reliable from unreliable testimony, in understanding the mental state of accused persons, and in evaluating witness accounts with methodological rigour; humane because a justice system informed by psychological knowledge is better placed to respond to vulnerability, to recognise the mitigating significance of mental illness, and to protect the rights of children and trauma survivors.

The Supreme Court's decision in *Selvi v. State of Karnataka* stands as the most significant judicial statement on forensic psychology in Indian legal history — a ruling that affirmed constitutional boundaries without abandoning the investigative utility of psychological science. Yet *Selvi* also exposed the depth of India's institutional unpreparedness: the absence of consent protocols, the lack of accredited practitioners, and the dearth of rights-respecting forensic facilities. These lacunae persist and demand urgent remedy.

The reforms proposed in this article — a reliability-based admissibility standard, a statutory regulatory body for forensic psychologists, institutional forensic mental health infrastructure, mandatory trauma-informed interviewing protocols, and rights-respecting assessment practices — represent the minimum threshold of seriousness with which a modern constitutional democracy must approach the intersection of psychological science and criminal justice. India's constitutional jurisprudence has always been enriched by the knowledge of the sciences of human experience. Forensic psychology is no exception, and the moment for its systematic integration into India's criminal justice system is long overdue.

²⁹Mental Healthcare Act, 2017, Sections 20–22 on rights of persons with mental illness in legal proceedings; UN Convention on the Rights of Persons with Disabilities (CRPD), Articles 12–13 on legal capacity and access to justice.