



Original Article

Routine Potency Evaluation in Accused of Sexual Assault in India After the Criminal Law (Amendment) Act, 2013: A PRISMA-Guided Qualitative Systematic Review with Narrative Judicial Synthesis

Kallol Roy¹, Bhaskar Jyoti Debnath², Joydeep Khan³

¹ Assistant Professor, Department of FMT, Barasat Govt. Medical College & Hospital, WB

² Assistant Professor, Department of FMT, Raiganj Govt. Medical College & Hospital, WB

³ Assistant Professor, Department of FMT, Burdwan Medical College & Hospital, WB

 OPEN ACCESS

Corresponding Author:

Dr. Kallol Roy

Assistant Professor, Department
of FMT, Barasat Govt. Medical
College & Hospital, WB.

Received: 24-04-2026

Accepted: 27-05-2026

Available online: 11-06-2026

Copyright © International Journal of
Medical and Pharmaceutical Research

ABSTRACT

Background: Potency evaluation has traditionally constituted an integral component of the medico-legal examination of accused persons in sexual assault cases in India. Historically, such examinations were considered relevant because penile-vaginal penetration formed the essential ingredient of rape under the pre-amendment legal framework. Following the Criminal Law (Amendment) Act, 2013, the statutory definition of rape expanded considerably, thereby raising concerns regarding the continuing relevance and utility of routine potency testing.[3]

Objectives: To systematically review the available scientific evidence regarding the relevance, utility, limitations, and medico-legal implications of routine potency evaluation in accused persons undergoing examination in sexual assault cases in India, and to narratively synthesize landmark judicial decisions influencing evidentiary practices.

Methods: APRISMA-guided qualitative systematic review was conducted. Scientific publications addressing potency evaluation, medico-legal examination under Section 53A of the Code of Criminal Procedure, and forensic implications of potency testing were included. National protocols, practice guidelines, and relevant judicial precedents were additionally reviewed through structured narrative synthesis. Data extraction focused on study characteristics, diagnostic yield, complications, evidentiary relevance, and recommendations concerning potency assessment.

Results: The available evidence suggests limited diagnostic utility of routine potency testing in sexual assault accused. Original studies demonstrated a low prevalence of clinically significant erectile dysfunction among accused persons, whereas invasive investigations such as penile colour Doppler assessment were associated with procedure-related complications.[4] Contemporary reviews, national protocols, and professional guidance increasingly discourage indiscriminate potency evaluation and advocate selective testing based on specific clinical or legal indications.[5, 7, 8] Judicial precedents consistently emphasize that conviction in sexual assault cases does not invariably depend upon corroborative medical evidence.

Conclusions: Routine potency evaluation of accused persons in sexual assault cases appears to have limited evidentiary value in the post-2013 legal context. A selective, indication-based approach grounded in scientific evidence, statutory provisions, and judicial guidance is likely to improve resource utilization and enhance the quality of medico-legal practice in India.

Keywords: Potency testing; Sexual assault; Rape accused; Section 53A CrPC; Medico-legal examination; Erectile dysfunction; Forensic medicine.

INTRODUCTION

Sexual violence represents one of the most serious violations of bodily autonomy and human dignity. The medico-legal examination of both survivors and accused persons constitutes an important component of the criminal justice response to

sexual offences. The examination of the accused serves multiple purposes, including documentation of injuries, collection of biological evidence, age estimation where necessary, and evaluation of physical findings relevant to the allegations.

Historically, the assessment of sexual potency occupied a central place in the examination of accused persons. Under the pre-amendment framework of Section 375 of the Indian Penal Code, rape was primarily understood as penile-vaginal intercourse without consent. Consequently, the ability of the accused to achieve penile erection and complete sexual intercourse assumed evidentiary significance. Allegations of impotence were occasionally raised as a defence, and routine potency testing gradually became institutionalized within medico-legal practice.

The enactment of the Criminal Law (Amendment) Act, 2013, however, fundamentally altered this legal landscape. The statutory definition of rape expanded beyond penile-vaginal intercourse to encompass a broader range of penetrative sexual acts. As a result, penile penetration ceased to be an indispensable prerequisite for establishing the offence. Raheel et al. questioned the continuing rationale of mandatory potency evaluation in this changed legal context and argued that routine testing had become largely irrelevant in many cases.[3]

Despite these legislative developments, routine potency examinations continue to be performed across India. The medical examination report of the accused is frequently labelled as a "potency test report," and investigating agencies often seek potency assessment as a matter of standard practice rather than on case-specific grounds. Reviews and contemporary commentaries have highlighted the persistence of this practice despite limited scientific justification and uncertain evidentiary contribution.[5, 9]

Empirical studies further challenge the utility of indiscriminate testing. Khandekar questioned the relevance of routine semen collection from accused individuals and emphasized the associated burden on healthcare resources.[1] Domkundwar et al., in their retrospective analysis of accused persons subjected to penile colour Doppler evaluation, reported that clinically significant abnormalities were infrequent, whereas complications such as priapism occurred more commonly than positive findings.[4] Similarly, emerging evidence from examinations conducted under the Protection of Children from Sexual Offences Act suggests that routine potency assessment seldom alters investigative outcomes.[6]

Judicial developments have paralleled these scientific observations. Indian courts have repeatedly held that conviction for sexual offences may rest upon credible testimony of the prosecutrix even in the absence of corroborative medical evidence. The Supreme Court in *State of Punjab v. Gurmit Singh* emphasized that undue insistence on medical corroboration may result in miscarriage of justice.[12] More recent judgments have highlighted the importance of scientific evidence where appropriate, without elevating potency assessment to a mandatory evidentiary requirement.

National efforts toward standardization have also reflected evolving perspectives. The LNJNI National Institute of Criminology and Forensic Science issued a protocol for medico-legal examination of accused persons to promote uniformity and evidence-based practice, acknowledging the need to align forensic procedures with contemporary analytical techniques and statutory requirements.[7]

In view of these developments, a comprehensive synthesis of the available evidence is warranted. Although several reviews and commentaries have addressed isolated aspects of potency testing, no systematic review has integrated empirical findings, professional guidance, national protocols, and judicial perspectives to evaluate the continuing relevance of routine potency examination in India.

Review Objectives

The present review aimed:

1. To systematically evaluate the relevance and utility of routine potency testing among accused persons in sexual assault cases in India.
2. To determine the diagnostic yield, limitations, and complications associated with potency evaluation.
3. To examine the implications of the Criminal Law (Amendment) Act, 2013, on the medico-legal relevance of potency testing.
4. To synthesize recommendations from national protocols and professional guidance.
5. To narratively review landmark judicial decisions influencing evidentiary practices related to medico-legal examination of accused persons.

METHODS

Study Design

This review was conducted as a **qualitative systematic review in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 Statement**. [17] Owing to the heterogeneous nature of the available evidence and the limited number of empirical studies, a meta-analysis was not undertaken. A structured narrative synthesis of landmark judicial decisions was performed separately.

Review Question

The review sought to answer the following question:

What is the scientific, medico-legal, and judicial relevance of routine potency evaluation in accused persons undergoing medico-legal examination in sexual assault cases in India following the Criminal Law (Amendment) Act, 2013?

Eligibility Criteria

Inclusion Criteria

Studies satisfying one or more of the following criteria were included:

- Original research involving potency evaluation among accused persons in sexual assault cases;
- Studies evaluating medico-legal examination under Section 53A of the Code of Criminal Procedure;
- Reviews addressing the rationale, utility, or limitations of potency testing;
- National protocols or professional guidelines pertaining to accused examination;
- Publications discussing evidentiary implications of potency assessment in sexual assault investigations;
- Articles published in English.

Exclusion Criteria

The following were excluded:

- Studies focusing exclusively on victims/survivors without relevance to accused examination;
- Therapeutic studies evaluating erectile dysfunction treatment without forensic context;
- Animal studies;
- Editorials lacking substantive discussion;
- Duplicate publications;
- Non-English publications.

Information Sources

Electronic and manual searches were undertaken using the following sources:

- PubMed/MEDLINE;
- Google Scholar;
- Reference list screening of eligible articles;
- National protocols and professional guidance documents;
- Landmark judicial decisions obtained from publicly available legal databases.

The final search was completed in **February 2026**.

Search Strategy

Search terms included combinations of the following keywords:

- "Potency test"
- "Potency evaluation"
- "Impotence"
- "Sexual potency"
- "Rape accused"
- "Sexual assault accused"
- "Medical examination"
- "Section 53A CrPC"
- "Forensic examination"
- "Sexual offences"
- "India"

An example search strategy was:

("potency" OR "potency test" OR "impotence evaluation")

AND

("rape accused" OR "sexual assault accused")

AND

("forensic" OR "medical examination")

AND

("India")

Reference lists of relevant articles were additionally screened to identify potentially eligible publications.

Study Selection

Two-stage screening was performed.

Stage I: Title and Abstract Screening

Titles and abstracts were evaluated against predefined eligibility criteria.

Stage II: Full-text Review

Potentially relevant articles underwent full-text assessment to determine final inclusion. Disagreements during study selection were resolved through consensus discussion.

Data Extraction

The following variables were extracted:

- Author(s);
- Year of publication;
- Study design;
- Study setting;
- Sample size;
- Nature of potency evaluation;
- Main findings;
- Recommendations;
- Relevance to routine potency testing.

Data extraction was performed using a predesigned extraction form.

Quality Assessment

Given the heterogeneity of included studies, methodological appraisal was performed using study-specific approaches:

- Original observational studies: Joanna Briggs Institute (JBI) critical appraisal principles;
- Review articles: narrative assessment of methodological rigor and relevance;
- Protocols and guidelines: descriptive evaluation of authority and applicability.

Formal risk-of-bias synthesis was therefore qualitative.

Narrative Judicial Synthesis

Landmark Supreme Court judgments concerning evidentiary aspects of sexual offences were reviewed separately.

Judgments were selected based on:

- Precedential value;
- Discussion of medical evidence;
- Relevance to potency evaluation or corroborative requirements.

The judicial synthesis was not included within the PRISMA flow process.

RESULTS

Study Selection

A total of **11 scientific publications and practice documents** were identified through electronic searching and manual retrieval. No duplicate records were identified.

Following screening and exclusion of papers lacking direct relevance to potency evaluation among accused persons, eight records were included in the final scientific synthesis. Amongst which **6 are scientific publications and 2 are guidelines/protocols**.

An additional **5 landmark Supreme Court judgments** were included for narrative judicial synthesis.

Preliminary PRISMA Flow

PRISMA Stage	Number
Records identified	11
Records screened	11
Records excluded	3
Full-text articles assessed	8
Studies included in scientific synthesis	8
Judicial precedents narratively synthesized	5

Characteristics of Included Studies

Table 1. Characteristics of Included Scientific Evidence

	Author (Year)	Design	Sample	Major Findings
	Khandekar (2013)	Original research	Not specified	Questioned relevance of routine semen collection from accused; highlighted wastage of resources.

	Author (Year)	Design	Sample	Major Findings
Scientific Studies	Shinge & Shrigiriwar (2013)	Prospective study	41 accused	Most accused were young males; none demonstrated struggle injuries.
	Raheel et al. (2016)	Review	NA	Potency testing became largely irrelevant after the 2013 amendment.
	Domkundwar et al. (2020)	Retrospective study	166 accused	Arterial insufficiency in 1.8%; priapism in 3.6%; routine Doppler unjustified.
	Akhade et al. (2023)	Review	NA	Recommended objective and indication-based potency assessment.
	Nishanth et al. (2025)	Hospital records study	122 accused	Routine potency testing had limited practical impact in POCSO accused.
Protocols and Guidelines	NICFS Protocol (2019)	National protocol	NA	Advocated standardized accused examination and selective application of procedures.
	IPS Clinical Guideline	Guideline	NA	Emphasized scientific and legal clarity in psychosexual assessments.

Evidence Synthesis

Five major themes emerged from the included evidence.

1. Declining Relevance of Routine Potency Testing

Multiple reviews concluded that the expansion of the legal definition of rape under the Criminal Law (Amendment) Act, 2013 substantially reduced the necessity of routine potency evaluation.[3, 5]

2. Low Diagnostic Yield

Domkundwar et al. demonstrated that only **3 of 166 accused (1.8%)** had arterial insufficiency on penile Doppler assessment.[4]

Similarly, prospective studies revealed limited objective abnormalities among accused persons.

3. Procedure-Related Harm

Complications associated with invasive testing were observed.

Domkundwar et al. reported **priapism in 6 of 166 accused (3.6%)**, exceeding the proportion of clinically significant positive findings.[4]

4. Resource Implications

Routine semen collection and indiscriminate potency assessment were criticized as unnecessary burdens on healthcare systems and forensic services.[1]

5. Transition Toward Selective Evaluation

National protocols and expert recommendations[5, 7, 8] increasingly support potency assessment only when clinically or legally indicated, such as:

- Specific defence of impotence,
- Alleged inability to perform penetrative intercourse,
- Civil proceedings involving sexual function.

Preliminary Quality Appraisal

Table 2. Methodological Appraisal and Applicability Assessment of Included Scientific Evidence

Study	Level of Evidence	Major Limitation
Khandekar (2013)	Moderate	Limited sample detail
Shinge & Shrigiriwar (2013)	Moderate	Small sample size
Raheel et al. (2016)	Moderate	Narrative review
Domkundwar et al. (2020)	High	Single-center design
Akhade et al. (2023)	Moderate	Review methodology not fully systematic
Nishanth et al. (2025)	Moderate–High	Single-center data

Summary of Scientific Findings

The available evidence consistently indicates that:

Routine potency evaluation of accused persons contributes minimally to establishing culpability in contemporary sexual assault investigations, while imposing procedural burdens and exposing accused individuals to potentially avoidable interventions.

Judicial Synthesis

Although the scientific literature increasingly questions the value of routine potency testing, judicial decisions remain important in determining the evidentiary role of medico-legal examination in sexual offence cases.

State of Punjab v. Gurmit Singh (1996)

The Supreme Court emphasized that the testimony of the prosecutrix does not invariably require corroboration through medical evidence. The Court cautioned against adopting insensitive approaches that impose unrealistic expectations upon survivors and observed that unwarranted insistence on corroboration may result in miscarriage of justice.[12]

Implication for potency evaluation:

Routine potency testing cannot be regarded as indispensable merely to corroborate allegations of sexual assault.

Santosh Kumar Singh v. State (CBI) (2010)

The Court acknowledged the relevance of expert medical evidence while reiterating that its probative value depends upon the facts and circumstances of each case.[13]

Implication:

Medical examination remains important, but its components should be directed by investigative necessity rather than habitual practice.

Raja v. State of Karnataka (2016)

The Court upheld conviction after comprehensive evaluation of the evidence and reaffirmed that credible testimony of the prosecutrix may sustain conviction.[14]

Implication:

The absence of potency findings does not necessarily weaken the prosecution case.

Mukesh v. State (NCT of Delhi) (2017)

The Supreme Court highlighted the role of meticulous forensic investigation and the use of modern scientific techniques, including DNA evidence, in establishing guilt.[15]

Implication:

Contemporary forensic priorities have shifted toward objective biological evidence rather than routine determination of sexual capability.

Phool Singh v. State of Madhya Pradesh (2021)

The Court reiterated that delayed reporting or absence of specific medical corroboration cannot automatically negate otherwise reliable testimony of the prosecutrix.[16]

Implication:

The evidentiary framework governing sexual offences does not require routine potency evaluation as a precondition for conviction.

DISCUSSION

The present review demonstrates a striking discrepancy between contemporary scientific evidence and prevailing medico-legal practice regarding potency evaluation of accused persons in sexual assault cases.

Historically, potency assessment evolved during an era when rape under Indian law was narrowly confined to penile-vaginal intercourse. In such circumstances, allegations of impotence occasionally assumed defensive significance. However, the Criminal Law (Amendment) Act, 2013 substantially broadened the definition of rape, rendering penile penetration only one among several recognized forms of sexual assault.

Despite this transformation, routine potency examination continues to be practiced in many institutions. The evidence synthesized in this review suggests that such continuation is largely tradition-driven rather than evidence-based.

Original studies included in this review consistently demonstrated limited diagnostic yield. Domkundwar et al. reported clinically significant arterial insufficiency in only 1.8% of accused individuals undergoing penile Doppler evaluation, whereas procedure-related priapism occurred in 3.6%, indicating that harms may exceed benefits.[4] Similarly, Khandekar

highlighted the unnecessary expenditure of resources associated with indiscriminate semen collection from accused persons.[1]

The persistence of routine testing may partly reflect institutional inertia and the absence of nationally endorsed operational guidance until recently. The NICFS protocol represents an important advance toward standardization by emphasizing evidence collection and structured examination.[7]

Importantly, the judicial decisions examined in this review do not support the proposition that potency evaluation is an indispensable evidentiary requirement. Rather, the courts consistently prioritize credibility, scientific evidence where appropriate, and holistic appreciation of facts.[12-16]

Taken together, these findings suggest that the routine labelling of accused examination reports as "potency test reports" is inconsistent with current legal realities and scientific evidence.

Internationally, potency testing is rarely employed routinely during forensic examination of sexual assault suspects. Contemporary practice emphasizes DNA recovery, injury documentation, and case-specific evaluation rather than blanket assessment of erectile capability.[8]

Proposed Indication-Based Framework for Potency Evaluation

Routine potency evaluation of all accused persons should be discouraged.

Potency assessment may be considered only under the following circumstances:

Appropriate indications

- Specific defence of impotence raised by the accused;
- Alleged inability to perform penetrative intercourse constituting a material issue in dispute;
- Civil proceedings involving nullity of marriage or compensation claims;
- Court-directed evaluation supported by reasons;
- Clinical suspicion of genuine erectile dysfunction requiring objective assessment.

Situations where routine potency testing is generally unnecessary

- All sexual assault accusations without specific indication;
- POCSO cases involving non-penetrative allegations;
- Cases where DNA and other objective evidence adequately address investigative requirements;
- Circumstances in which the findings would not influence adjudication.

Limitations

This review has several limitations.

First, the empirical literature addressing potency evaluation among accused persons is limited in quantity and largely confined to Indian settings.

Second, most original studies were single-center investigations with relatively modest sample sizes.

Third, owing to methodological heterogeneity, quantitative pooling and meta-analysis were not feasible.

Fourth, judicial decisions were synthesized narratively rather than systematically, reflecting the inherent differences between legal precedents and scientific studies.

To our knowledge, few reviews have integrated empirical evidence, professional guidance, and judicial perspectives on this topic.

CONCLUSIONS

The findings of this PRISMA-based systematic review suggest that routine potency evaluation of accused persons in sexual assault cases has limited scientific and medico-legal relevance in post-2013 India.[3-8]

Available evidence demonstrates low diagnostic yield, potential procedure-related harms, and substantial resource implications associated with indiscriminate testing.[1, 4] Landmark judicial pronouncements further indicate that conviction in sexual offence cases does not depend upon routine corroborative medical evidence relating to potency.[12-16]

An indication-based approach, guided by statutory requirements, scientific evidence, and judicial principles, is therefore recommended.

Future multicentric studies and national consensus guidelines are required to further refine medico-legal practice and promote rational utilization of forensic resources.

Conflict of Interest

The authors declare that they have no conflict of interest.

Funding

No funding was received for this study

Informed Consent

Not applicable

BIBLIOGRAPHY

1. Khandekar I. Relevance of semen collection of the accused of rape at the time of forensic medical examination. *J Indian Acad Forensic Med.* 2013;35(3):200–202.
2. Shinge SS, Shrigiriwar MB. Medico-legal examination of accused of alleged rape cases: A prospective study. *J Indian Acad Forensic Med.* 2013;35(4):332–335.
3. Raheel MS, Yadav A, Pooniya S, Gupta SK, Jaiswal AK. Potency test of a rape accused in India – Rationale, problems and suggestions in light of the Criminal Law (Amendment) Act, 2013. *Egypt J Forensic Sci.* 2016;6:352–356.
4. Domkundwar S, Jadhav VV, Khandelwal S. Rationale of evaluation of potency in medicolegal cases of sexual assault by penile color Doppler with injection of papaverine. *Indian J Forensic Med Toxicol.* 2020;14(1):61–66.
5. Akhade SP, Kothari P, Sabale PR, Chavali KH. Comprehensive review and recommendations for evaluation of sexual potency of male in context of the Indian legal system. *Med Sci Law.* 2023;63(2):95–101.
6. Nishanth VS, Rajaram P, Naga Mohan Rao BV, Sudha R, Rupesh KA. A hospital records-based study on the profile of accused in sexual assault cases under the POCSO Act (2021–2023). *Indian J Forensic Med Toxicol.* 2025;19(3).
7. National Institute of Criminology and Forensic Science. *Protocol for Medico-Legal Examination of Accused of Sexual Assault.* Revised Version. New Delhi: Ministry of Home Affairs, Government of India; 2019.
8. Rao TSS, Banerjee D, Sawant NS, Narayan CL, Tandon A, Manohar S, et al. Forensic and legal aspects of sexuality, sexual offences, sexual dysfunctions, and disorders. *Indian J Psychiatry.* 2022;64(Suppl 2):S108–S128.
9. Sharma H. Medical examination of the accused in a rape case. *J Legal Res Jurid Sci.* 2023;2(1):118–135.
10. Verma L, Tiwari H, Tiwari P, Joshi R. Medical examination of sexual assault cases and related law. *Int J Eth Trauma Victimology.* 2020;6(1):22–26.
11. Sehgal N, Arora B. Admissibility of medical forensic reports in sexual offences in legal purview. *Int J For Multidiscip Res.* 2025;7(2).
12. State of Punjab v. Gurmit Singh. (1996) 2 SCC 384.
13. Santosh Kumar Singh v. State through CBI. (2010) 9 SCC 747.
14. Raja v. State of Karnataka. (2016) 10 SCC 506.
15. Mukesh v. State (NCT of Delhi). (2017) 6 SCC 1.
16. Phool Singh v. State of Madhya Pradesh. (2022) 2 SCC 74.
17. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ.* 2021;372:n71.