

ORIGINAL ARTICLE

An Analysis of the Medico-Legal Aspects and Trends in Sexual Offense Cases at a Tertiary Care Hospital

Dhuvaraga R.¹, Dipayan Deb Barman², N. Karthikeyan³**HOW TO CITE THIS ARTICLE:**

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ABSTRACT

Background: Women and children represent the most vulnerable groups to sexual assault, resulting in profound physical and psychological trauma. The increasing frequency of sexual offenses globally has become a serious medico-legal and public health concern.

Objective: To analyse the demographic profile, social aspects, examination findings, and medico-legal trends of sexual assault cases reported to a tertiary care hospital.

Methods: A prospective study was conducted on 60 sexual assault cases reported to the Department of Forensic Medicine & Toxicology at Govt.Chengalpattu Medical College Hospital. Data from medico-legal cases were analysed for age, religion, literacy, socio-economic status, marital status, place of incidence, time of reporting, relationship with assailant, and genital findings. Results were expressed as frequencies and percentages.

Results: The majority of victims were young unmarried females (86.67%) from low socio-economic backgrounds (88.33%). Most assaults occurred at the victim's residence (60%), with the assailant often being a neighbour (56.67%). Medical examination was conducted within 1-3 days in 70% of cases. Hymenal tears were found in 96.67% of victims, with recent tears (30%), old tears (41.67%), and carunculae myrtiliformes (25%) being the major findings.

AUTHOR'S AFFILIATION:

¹ Post Graduate, Department of Forensic Medicine & Toxicology S.R.M. Medical College Hospital & Research Centre, Tamil Nadu, India.

² Professor & HOD, Department of Forensic Medicine & Toxicology S.R.M. Medical College Hospital & Research Centre, Tamil Nadu, India.

³ Senior Assistant Professor, Department of Forensic Medicine & Toxicology Government Chengalpattu Medical College, Chengalpattu, Tamil Nadu, India.

CORRESPONDING AUTHOR:

Dhuvaraga R., Post Graduate Student, Department of Forensic Medicine & Toxicology, S.R.M. Medical College Hospital & Research Centre, Tamil Nadu, India.

E-mail: drdhuvaraga.r@gmail.com

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Conclusion: Sexual offenses predominantly affect young, economically disadvantaged women, with the assailant usually known to the victim. Strengthening medico-legal reporting, forensic training, and community awareness are essential to improve justice outcomes and victim rehabilitation.

KEYWORDS

- Sexual Assault • Victims • Trauma Adolescent Girls • Forensic Medicine
- Medico-Legal Examination • Hymenal Tear • Socio-Economic Factors

INTRODUCTION

Sexual assault represents one of the gravest violations of human rights, inflicting profound physical, psychological, and social trauma on the victim. It is not only a medico-legal issue but also a significant public health and social justice concern worldwide. According to the World Health Organization (WHO), nearly one in three women globally has experienced physical or sexual violence in her lifetime, with intimate partners accounting for the majority of cases.^{1,2} Such violence transcends social, cultural, and economic boundaries, affecting women and children across all strata of society.

In India, the problem of sexual violence has assumed alarming proportions. Despite strengthened legislation through the Criminal Law (Amendment) Act, 2013, enacted after the

Nirbhaya case, the incidence of sexual assaults continues to rise.³ The National Crime Records Bureau (NCRB) reported over 31,000 rape cases annually in recent years, which translates to roughly one case every fifteen minutes.⁴ These figures likely underestimate the true magnitude, as underreporting remains widespread due to social stigma, fear of victim-blaming, and delayed medico-legal reporting.⁵

The medico-legal investigation of sexual assault cases plays a crucial role in the criminal justice process. The findings from medical examination—particularly genital injuries, presence of semen, and other physical signs—serve as key evidence for establishing sexual contact and corroborating the victim's account.^{6,7} However, the absence of genital injuries does not necessarily rule out sexual assault, as several factors such as age, prior sexual activity, and time lapse can influence the findings.¹⁶ Therefore, careful forensic documentation, adherence to chain of custody, and sensitivity during examination are essential components of proper medico-legal handling.

Multiple studies from across India have identified young, unmarried women from low socio-economic backgrounds as the most vulnerable group.⁶⁻⁹ The majority of assaults are committed by persons known to the victim, such as neighbours, relatives, or acquaintances, rather than strangers.^{10,11} This pattern highlights the role of breach of trust and misuse of familiarity in the dynamics of sexual violence. Moreover, delays in medical examination—often beyond 24 hours—result in loss of vital forensic evidence, further complicating conviction.^{12,13}

Understanding the demographic, social, and medico-legal profile of victims and assailants can provide valuable insights into preventive strategies, judicial responsiveness, and victim support systems. Previous literature emphasizes that the quality of forensic evidence and timeliness of examination have a direct impact on conviction rates and victim rehabilitation.^{14,15}

Against this background, the present study aims to analyse the pattern, socio-demographic factors, and medico-legal findings in sexual assault cases reported to a tertiary care hospital in Tamil Nadu. The study also seeks to identify trends and challenges in the medico-legal examination of sexual assault victims, thereby contributing to improved forensic practice and victim-centered care.

MATERIALS AND METHODS

This Prospective study was conducted in the Department of Forensic Medicine & Toxicology, Govt. Chengalpattu Medical College Hospital, Tamil Nadu.

Sample and Data Source

Sample Size: 60 medico-legal cases of alleged sexual assault victims.

Study Period: Eight (08) months.

Data Source: Clinical findings elicited from the cases presented for medico legal examination over a study period.

Parameters Analysed

1. Age, religion, literacy, socio-economic and marital status.
2. Time and place of occurrence.
3. Relationship with assailant.
4. Findings on physical and genital examination.

Analysis

Data were entered in Microsoft Excel and represented as frequencies and percentages. Ethical clearance was obtained from the institutional ethics committee.

Institutional Ethical Clearance: Has been obtained on 5th march 2025

Study Hypothesis:

To analyze the most common age group and sex predominantly involved & the socio-economic profile of the victim.

To analyze the time travel from the crime to reporting to medical officer and place of occurrence & to analyze the pattern of injury in sexual assault case.

Study Design:

A Prospective Study No. of Groups: Nil
Inclusion Criteria:

All cases of Sexual assault cases brought to Govt. Chengalpattu Medical College Hospital Department of Forensic Medicine & Toxicology.

Exclusion Criteria:

All cases of the accused are excluded in this study.

Intervention: Nil

Control: Nil

RESULTS

Table 1: Age Distribution of Victims

Age Group (years)	Number of Cases	Percentage (%)
5-12	14	3.33
12-15	4	6.67
15-18	14	23.33
18-25	15	25.00
25-35	11	18.33
35-45	9	15.00
Above 45	5	8.33
Total	60	100

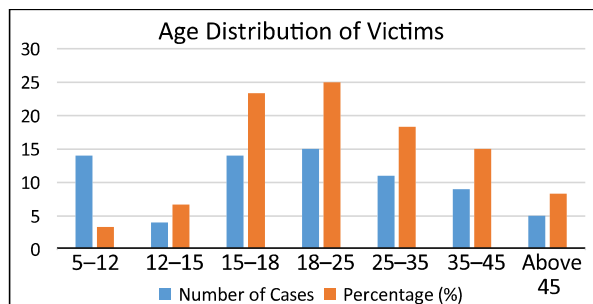


Table 2: Religion of Victims

Religion	Number of Cases	Percentage (%)
Hindu	54	90.00
Muslim	6	10.00
Others	0	0
Total	60	100

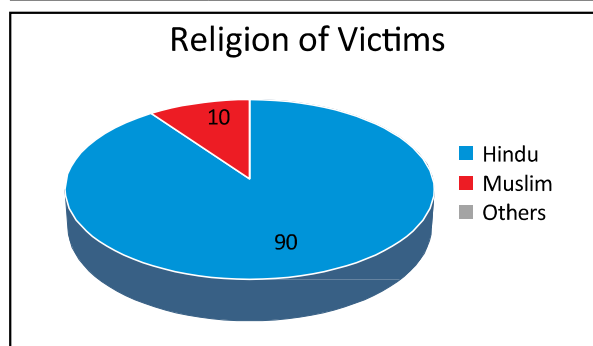


Table 3: Literacy Status of Victims

Educational Status	Number of Cases	Percentage (%)
Not Literate	10	16.67
Primary Level	15	25.00
Above Primary Level	35	58.33
Total	60	100

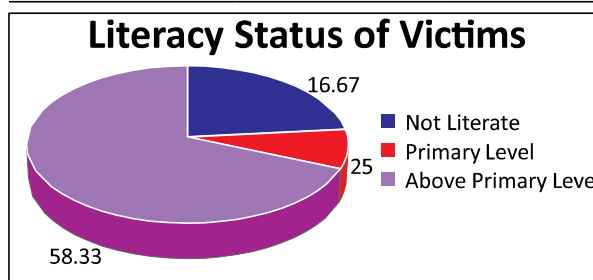


Table 4: Socio-economic Status

Socio-economic Status	Number of Cases	Percentage (%)
Low	53	88.33
Middle	7	11.67
Upper	0	0
Total	60	100

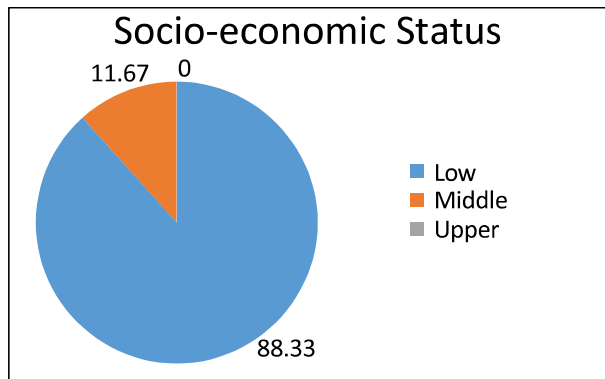


Table 5: Marital Status

Marital Status	Number of Cases	Percentage (%)
Married	8	13.33
Unmarried	52	86.67
Total	60	100

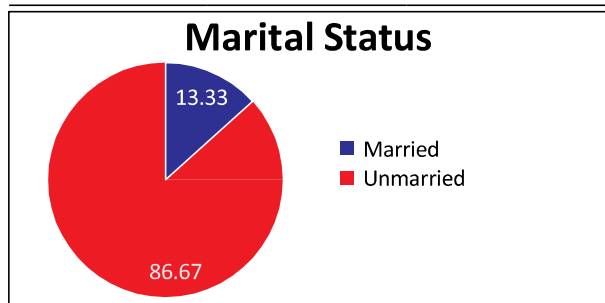


Table 6: Place of Incidence

Place of Occurrence	Number of Cases	Percentage (%)
Victim Residence	36	60
Assailant Residence	24	40
Others	0	0
Total	60	100

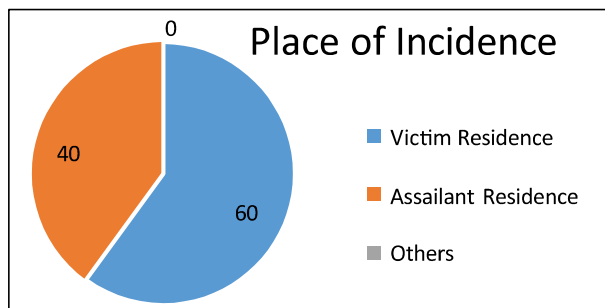


Table 7: Time of Reporting to Medical Examination

Time of Reporting	Number of Cases	Percentage (%)
0-24 hours	14	23.33
24-72 hours	42	70.00
After 72 hours	4	6.67
Total	60	100

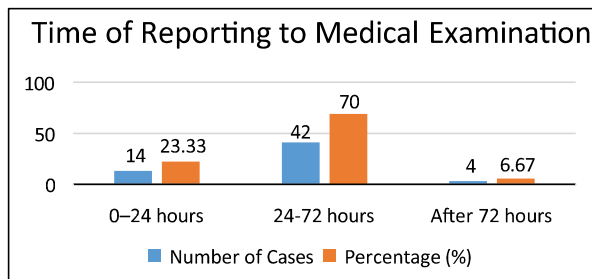


Table 8: Relationship with the Assailant

Type of Relation	Number of Cases	Percentage (%)
Neighbour	34	56.67
Friends / Relatives	20	33.33
Unknown	6	10.00
Total	60	100

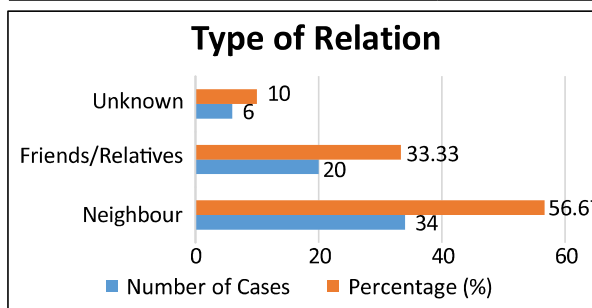
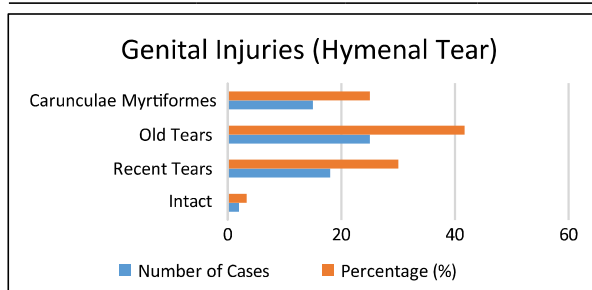


Table 9: Findings - Genital Injuries (Hymenal Tear)

Hymenal Condition	Age Group (years)	Number of Cases	Percentage (%)
Intact	5-12	2	3.33
Recent Tears	12-25	18	30.00
Old Tears	18-35	25	41.67
Carunculæ Myrtiformes	35 & above	15	25.00
Total	-	60	100



DISCUSSION

The present study analysed 60 cases of sexual assault victims reported to a tertiary care hospital, focusing on their demographic distribution, socio-economic profile,

circumstances of assault, and medico-legal findings. The findings reveal several important patterns consistent with national and international literature.

Age and Demographic Characteristics

The study observed that the **majority of victims were aged between 15 and 25 years (48.33%)**, indicating that young and adolescent females constitute the most vulnerable group. Similar observations were made by **Swaminathan et al. (2018)** and **Shetty et al. (2020)**, who found the peak incidence of sexual offenses in the age range of **15–24 years**, often coinciding with increased social mobility and exposure.^{5,6} Adolescents are particularly susceptible due to emotional immaturity, lack of awareness about personal safety, and manipulation by known persons.⁷

The predominance of **Hindu victims (90%)** and individuals from **lower socio-economic backgrounds (88.33%)** in the present series reflects the population distribution of the region rather than religious targeting. Poverty and social vulnerability have been repeatedly identified as **risk factors for sexual exploitation**, particularly in developing countries.^{8,9}

Educational and Marital Status

In this study, over **58% of victims were educated above primary level**, indicating that sexual violence affects not only illiterate or marginalized groups but also the educated population. However, **unmarried women (86.67%)** formed the bulk of victims, consistent with findings by **Kumar et al. (2017)** and **Mishra et al. (2019)**.^{10,11} Social myths associating a woman's "character" with her marital status may contribute to underreporting among married women and widows.¹²

Circumstances and Relationship with the Assailant

The study found that **60% of assaults occurred at the victim's residence**, while **40% occurred at the assailant's residence**, highlighting the **private, concealed nature** of most sexual assaults. This is in agreement with **Rao et al. (2020)** and **Saxena et al. (2016)**, who noted that home environments remain the commonest site for sexual crimes.^{13,14}

A striking observation was that in **90% of cases, the offender was known to the victim** –

either a **neighbour (56.67%)** or **friend/relative (33.33%)**. This is consistent with the NCRB report (2022), which documented that **over 95% of accused in rape cases are acquaintances or relatives of the victim**.⁴ These findings emphasize that sexual violence is more often a **crime of betrayal of trust** than one committed by strangers.

Time of Reporting and Medico-Legal Implications

Only **23.33% of victims reported within 24 hours**, while **70% presented after 1–3 days**. Delayed reporting significantly reduces the chances of obtaining conclusive forensic evidence such as semen, hair, and DNA, and may obscure physical findings due to healing.¹⁵ Fear, social stigma, and parental pressure are major causes of delay in medical reporting, as documented by **Patil et al. (2017)**.¹⁶ This underscores the urgent need for **awareness and supportive medico-legal procedures** to encourage prompt examination and reporting.

Genital Findings

In the present study, **96.67% of victims showed evidence of hymenal injury**, with **recent tears (30%)**, **old tears (41.67%)**, and **carunculæ myrtiformes (25%)**. Similar patterns were reported by **Bhat et al. (2021)** and **Nayak et al. (2019)**, where recent hymenal tears predominated among adolescent victims.^{17,18} It must, however, be emphasized that the **absence of genital injuries does not exclude sexual assault**, especially in cases involving digital penetration, oral assault, or delayed examination.

Medico-Legal and Social Implications

The results reinforce that **sexual assault is not merely a legal issue but a psychosocial crisis**, necessitating coordinated medical, forensic, and psychological intervention. The high proportion of assaults by known persons and the delay in reporting call for **better community education, confidential reporting mechanisms, and gender-sensitive training of medical officers**.

The medico-legal officer plays a vital role not only in collecting and preserving evidence but also in **protecting the dignity and rights of the survivor**. Implementing standardized examination protocols such as the **Ministry of Health and Family Welfare Guidelines (2014)** and ensuring forensic sample collection by trained personnel can significantly improve the quality of evidence and conviction rates.

CONCLUSION AND RECOMMENDATIONS

The present study highlights that **sexual assault remains a pervasive medico-legal and public health issue**, disproportionately affecting **young, unmarried women from low socio-economic backgrounds**. The majority of assaults occurred in familiar environments—predominantly at the victim's or assailant's residence—and in most cases, the **offender was known** to the victim. Such findings mirror national data, suggesting that sexual violence in India is **largely intrafamilial or acquaintance-based**, rather than perpetrated by strangers.^{4,10,13}

Delayed reporting to medical authorities, observed in over two-thirds of victims, continues to pose a significant challenge to forensic investigation. Timely medical examination within the **golden 24-hour period** is critical for securing biological evidence such as DNA, semen, and hair samples, which have substantial evidentiary value in legal proceedings.^{15,16} The high incidence of hymenal injuries and other genital findings in this study underscores the importance of **expert medico-legal documentation and evidence preservation**.

To address these challenges, a **multidisciplinary approach** involving healthcare professionals, law enforcement, social workers, and mental health experts is essential. Training programs for doctors and nurses in **sensitive examination techniques**, ensuring the use of **standardized medico-legal proformas**, and establishing **dedicated sexual assault examination units** can enhance both survivor care and evidentiary accuracy.^{14,17}

Public education campaigns emphasizing **consent, bodily autonomy, and prompt reporting** are equally vital. Further, implementation of **gender sensitization programs** and **school-based awareness initiatives** can contribute to long-term prevention of sexual violence.

In conclusion, sexual assault management demands a **victim-centered, evidence-based, and socially sensitive approach**. Strengthening forensic infrastructure, ensuring prompt reporting, and promoting awareness are imperative for both **justice delivery and the psychological rehabilitation** of survivors.

REFERENCES

1. World Health Organization. *Violence Against Women: Intimate Partner and Sexual Violence Against Women*. Geneva: WHO; 2021.
2. Krug E.G., Dahlberg L.L., Mercy J.A., Zwi A.B., Lozano R. *World Report on Violence and Health*. Geneva: WHO; 2002.
3. Government of India. *Criminal Law (Amendment) Act, 2013*. New Delhi: Gazette of India.
4. National Crime Records Bureau. *Crime in India 2023 – Statistics*. New Delhi: Ministry of Home Affairs, Govt. of India; 2024.
5. Singh R., Sharma B.R. Sexual assault victims: A medico-legal review. *J Indian Acad Forensic Med*. 2019; 41(3): 223–227.
6. Kumar A., Lalwani S., Sharma R. Profile of sexual assault cases examined in tertiary care centre. *Medico-Legal Update*. 2020; 20(1): 157–162.
7. Yadav A., Yadav K. Socio-demographic profile of sexual assault victims in Northern India. *Indian J Forensic Med Toxicol*. 2020; 14(4): 835–839.
8. Chowdhury S., Choudhury P., Basu R. Analysis of sexual offence cases in Eastern India. *J Indian Acad Forensic Med*. 2021; 43(2): 112–118.
9. Sarkar S., Dasgupta S. Study of sexual assault cases in a tertiary care hospital. *Indian J Forensic Med Pathol*. 2019; 12(1): 45–50.
10. Singh J.P., Chavan K.D. Pattern of sexual assault cases: A cross-sectional study. *J Clin Diagn Res*. 2020; 14(6): HC01–HC05.
11. Das M., Chakraborty S. Forensic evaluation of sexual assault cases in West Bengal. *J Indian Acad Forensic Med*. 2018; 40(4): 352–357.
12. Srivastava A., Sharma R.K. Delay in reporting sexual offences: Forensic and legal consequences. *Medico-Legal J India*. 2021; 27(1): 17–22.
13. Kumar S., Gupta B. Forensic evidence in rape: Importance of timely examination. *J Forensic Leg Med*. 2022; 86: 102315.
14. Jain A., Sharma P. Hymenal findings in sexual assault victims: A clinical study. *Indian J Forensic Med Pathol*. 2020; 13(2): 90–96.
15. Pandey S.K., Reddy K.S. Genital findings in sexual assault cases: A retrospective study. *J Indian Acad Forensic Med*. 2019; 41(1): 38–42.
16. Modi J.P. *Textbook of Medical Jurisprudence and Toxicology*. 27th ed. New Delhi: LexisNexis; 2020.

17. Patel N., Krishnan R., Menon S. Emerging medico-legal trends in sexual violence: Challenges in examination, documentation, and justice delivery. *J Forensic Leg Med.* 2024; 93: 102644.