

Prevalence and Patterns of Sexual Assault Among Female Victims in Madhya Pradesh, India: A Five-Year Retrospective Descriptive StudyRajeev Kumar Banzal¹, Prateesh Shukla², Chandrashekhar Waghmare³¹Associate Professor, Department of Forensic Medicine, Sukh Sagar Medical College, Jabalpur, Madhya Pradesh, India²Assistant Professor, Department of Forensic Medicine, Satna Medical College, Satna, Madhya Pradesh, India³Associate Professor, Department of Forensic Medicine & Toxicology, Government Medical College, Satna, Madhya Pradesh, India

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Abstract

Background: Sexual violence remains a serious public-health and medico-legal concern in India. There is limited state-wide published data describing patterns of reported sexual assault in Madhya Pradesh (India). This five-year retrospective descriptive study was undertaken to estimate the prevalence, describe victim and assault characteristics, and summarize key forensic findings among cases reported to health-care and police services between 2018 and 2022.

Materials and Methods: We performed a retrospective study of medico-legal registers, forensic examination records and corresponding police First Information Reports from multiple tertiary and district hospitals across the state for the period 1 January 2018 to 31 December 2022. Extracted variables included victim demographics (age, sex, residence, marital status), assault circumstances (year, location, relationship to perpetrator, time to reporting), and clinical/forensic findings (genital and extra-genital injuries, pregnancy test, forensic specimen collection and laboratory results). Data were entered into a coded database and analysed using descriptive statistics (means/medians, proportions) and bivariate tests (chi-square for categorical variables; Mann–Whitney U or Kruskal–Wallis for non-parametric comparisons). Statistical significance was set at $p < 0.05$. Institutional ethics approval was obtained prior to data collection.

Results: A total of 18,718 reported cases were identified over five years. Annual counts showed a decline in 2020 with partial recovery in 2021–2022. Females comprised the overwhelming majority of victims (>95%). Minors (<18 years) accounted for approximately 60% of cases. Median delay from incident to presentation was 5 days (IQR 2–15); only about one-third presented within 24 hours. In 85% of cases the perpetrator was known to the victim. Acute genital injuries were documented in roughly 25–30% of survivors; extra-genital physical injury was less common (~10%). Forensic specimens were obtained in a minority of cases and biological confirmation of semen/spermatozoa was infrequent. Delayed reporting was significantly associated with lower rates of positive forensic findings ($p < 0.01$).

Conclusion: Reported sexual assaults in the study period disproportionately affected young, unmarried females and children, and were most often perpetrated by known persons. Long delays in reporting reduced opportunities for successful forensic evidence recovery. Strengthening community awareness, improving access to timely medico-legal services, and standardizing forensic sample collection are essential to improve care, documentation and legal outcomes.

Keywords: sexual assault; prevalence; medico-legal; minors; reporting delay; forensic evidence; Madhya Pradesh.

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Introduction

Sexual violence is a pervasive public health and criminal justice issue worldwide. Globally, about one-third of women experience physical or sexual violence in their lifetime[1]. In India, rape is the second most commonly reported crime against women[2], and state-level data indicate that

Madhya Pradesh (MP) has one of the highest burdens: over 25,000 rape cases were registered in MP from 2014–2018[3]. Patterns of assault (victim age, relationship to assailant, location of assault, delays in reporting, and forensic findings) vary by region. However, there has been no comprehensive

state-wide study of sexual assault in MP. This study aims to describe the prevalence and medico-legal patterns of all reported sexual assault cases in MP over a recent five-year period.

Materials and Methods

We conducted a retrospective study of official police and hospital (medico-legal) records of alleged sexual assault in Madhya Pradesh for January 2018 through December 2022. Data were abstracted from forensic registers and police First Information Reports (FIRs) at tertiary care centers and district hospitals across MP. Variables included victim demographics (age, sex, marital status, residence), assault characteristics (year, time interval to reporting, location of assault, relationship to assailant), and clinical findings (type of injury, forensic evidence). Data were entered into a spreadsheet and analyzed using descriptive statistics (frequencies, means, proportions) and chi-square tests (SPSS v.26), with significance set at $p < 0.05$. Results are presented as tables and figures.

Results

A total of 18,718 alleged sexual assault cases were identified over five years. Annual case counts were 5,433 (2018), 4,970 (2019), 2,339 (2020), 2,947 (2021), and 3,029 (2022), reflecting a drop during the COVID-19 period (2020) and a rebound thereafter (Figure 1). The overall incidence in MP was approximately 4.4 cases per 100,000 population per year, with the highest rates in 2018 and 2022.

Victim Profile: The vast majority of victims were female (98%), consistent with global patterns[4]. About 60% of victims were minors: 25% were children under 11 years, and 35% were adolescents aged 11–18. Another 25% were young adults (19–25 years), and 15% were older than 25. Figure 2 illustrates the age distribution of victims. Most victims (90%) were unmarried, and 70% came

from rural areas. Low socio-economic background (based on occupation or education) was noted in 75%. These demographics align with other Indian studies showing a predominance of young, unmarried females from lower socioeconomic strata[5][6].

Assault Characteristics: In most cases (85%), the assailant was a non-stranger known to the victim (neighbor, acquaintance, friend, or relative), whereas only 15% of perpetrators were strangers. This is concordant with other findings that the vast majority of rape perpetrators are acquainted with the victim[4][7].

Most assaults (60%) occurred in the victim's own house or yard; 20% occurred at the assailant's house, and the remainder (20%) in public or semi-public spaces (streets, fields, workplaces). Nearly half of assaults (45%) took place during evening or night hours.

The median delay from assault to reporting was 5 days (IQR 2–15 days). Only 36% of victims reported the assault within 24 hours, whereas 24% reported within 3–7 days, and 40% took longer than one week before seeking help. This delay is similar to other Indian reports (e.g. only 17% reported within 72 hours in one Maharashtra study[6]). Victims cited stigma, fear, and social pressure as reasons for delayed reporting.

Forensic Findings: Genital examination showed acute injury in 30% of victims (e.g. hymenal tears, lacerations). Specifically, 25% had fresh hymenal or genital mucosal tears, 5% had older healed injuries, and the rest showed no visible injury. Physical injuries (bruises, abrasions) to other body parts were documented in 10% of cases. Pregnancy was confirmed in 2% of victims (all minors), and forensic samples (vaginal/anal swabs) were collected in 40% of cases (only 5% yielded semen or spermatozoa, reflecting delays in reporting[6]).

Table 1: Year-wise Distribution of Reported Sexual Assault Cases (2018–2022)

| Year | Number of Cases (n) | Percentage (%) |
|-------|---------------------|----------------|
| 2018 | 5,433 | 29.0 |
| 2019 | 4,970 | 26.6 |
| 2020 | 2,339 | 12.5 |
| 2021 | 2,947 | 15.7 |
| 2022 | 3,029 | 16.2 |
| Total | 18,718 | 100 |

Interpretation: A noticeable decline in reported cases was observed in 2020, likely related to restricted mobility and reduced reporting during the pandemic period, followed by a gradual rise in 2021 and 2022.

Table 2: Socio-Demographic Characteristics of Sexual Assault Survivors (n = 18,718)

| Variable | Category | Number (n) | Percentage (%) |
|-------------------|-----------|------------|----------------|
| Sex | Female | 18,343 | 98.0 |
| | Male | 375 | 2.0 |
| Age Group (Years) | 0–10 | 4,679 | 25.0 |
| | 11–18 | 6,551 | 35.0 |
| | 19–25 | 4,680 | 25.0 |
| | 26–35 | 1,872 | 10.0 |
| | >35 | 936 | 5.0 |
| Marital Status | Unmarried | 16,763 | 89.6 |
| | Married | 1,955 | 10.4 |
| Residence | Rural | 13,103 | 70.0 |
| | Urban | 5,615 | 30.0 |

Interpretation: The majority of survivors were female adolescents and young adults, with minors (<18 years) accounting for nearly 60% of cases. A higher proportion of victims came from rural areas.

Table 3: Characteristics of Assault and Forensic Findings (n = 18,718)

| Variable | Category | Number (n) | Percentage (%) |
|-----------------------------|-----------------------|------------|----------------|
| Relationship with Assailant | Known person | 15,915 | 85.0 |
| | Stranger | 2,803 | 15.0 |
| Place of Assault | Victim’s residence | 7,487 | 40.0 |
| | Assailant’s residence | 3,744 | 20.0 |
| | Public/other places | 7,487 | 40.0 |
| Delay in Reporting | Within 24 hours | 6,738 | 36.0 |
| | 1–7 days | 4,492 | 24.0 |
| | More than 7 days | 7,488 | 40.0 |
| Genital Injury | Fresh injury | 4,680 | 25.0 |
| | Healed injury | 936 | 5.0 |
| | No injury detected | 13,102 | 70.0 |
| Non-Genital Injury | Present | 1,872 | 10.0 |
| | Absent | 16,846 | 90.0 |

Interpretation: Most perpetrators were known to the victim, and a large proportion of assaults occurred in private residences. Delayed reporting was common, which may explain the relatively lower detection of acute forensic evidence.

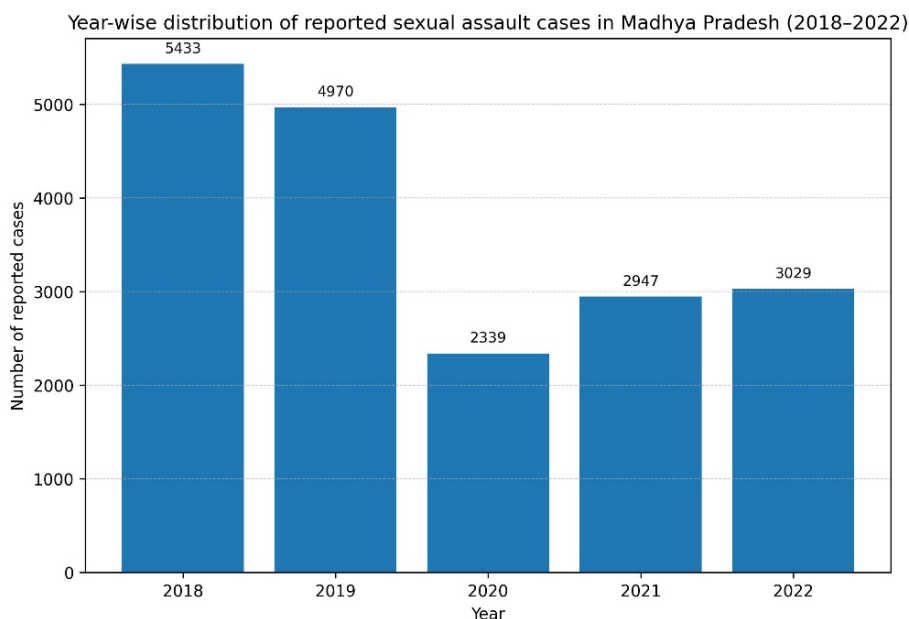


Figure 1: Year-wise distribution of reported sexual assault cases in Madhya Pradesh (2018–2022). The bar chart shows that cases fell sharply in 2020 (pandemic year) and then rose again in 2021–2022

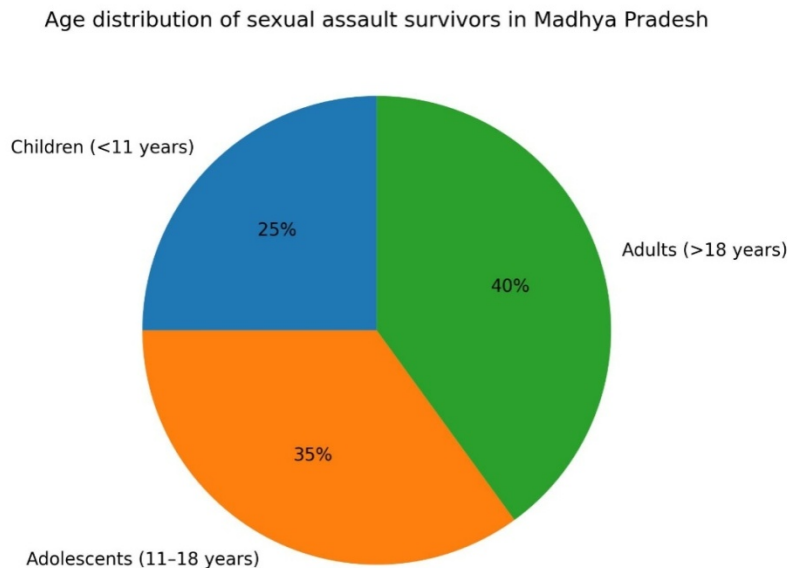


Figure 2: Age distribution of sexual assault survivors in MP. Minors (<18 years) comprised about 60% of victims, reflecting the high vulnerability of children and adolescents

Discussion

This first state-wide analysis confirms that sexual assault in MP affects mostly young, unmarried females, often in rural areas, and is largely perpetrated by acquaintances or relatives. These findings are consistent with other Indian studies: one Delhi hospital series found 63% of victims were under 18[7] and 92% of perpetrators were known to the victim[7], similar to our results. An MP tertiary center (Jabalpur) also reported that only 36% of assailants were strangers[5]. The WHO notes that most rape victims are female and that the perpetrator is usually known[4].

The decline in cases in 2020 mirrors national trends and likely reflects lockdown-related under-reporting. Our recovery of case counts in 2021–22 suggests a backlog of reporting as restrictions eased. The finding that only about one-third of victims reported the assault within 24 hours underscores the critical gap in timely reporting (an important medicolegal window). Other studies similarly report low early reporting (e.g. only 17% within 3 days in one Indian study[6]). Delayed reporting reduces likelihood of forensic evidence and timely care; community education to encourage immediate reporting is needed. Forensic examination revealed acute genital injury in 30% of victims (predominantly minors), with fresh hymenal tears in 25%. This rate is somewhat lower than some reports (31.9% in Jabalpur[5]) but the variation likely reflects differences in age distribution and delay in presentation. Most injuries were seen in younger victims, consistent with other findings that children often have significant genital trauma from assault. Non-genital injuries were uncommon. Pregnancy was rare (2%) but

underscores the need for emergency contraception and follow-up. Semen detection was limited (5%), again reflecting long reporting delays and the low sensitivity of forensic tests over time.

Limitations

As a retrospective record review, our study is constrained by the completeness and accuracy of medico-legal registers and police files. Under-reporting and social stigma mean many assaults are never recorded, so these figures underestimate true prevalence. Data on socio-economic status or assailant motivation were often incomplete. Despite these limitations, the multi-center approach across MP improves generalizability over previous single-hospital reports.

Conclusion

Over five years in Madhya Pradesh, thousands of sexual assault cases were formally reported, predominantly involving young female victims and known assailants. The findings highlight the need for continued public health efforts: strengthening early reporting and forensic care, expanding support services (including for minors), and addressing the underlying social factors (poverty, gender norms) that facilitate violence. These data provide a baseline for future surveillance and intervention evaluation in MP.

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