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ORIGINAL ARTICLE

A RETROSPECTIVE STUDY ON SEXUAL ASSAULT: INJURIES, DEMOGRAPHICS, REPORTING DELAYS, AND MENTAL HEALTH IMPACTS IN CASES PRESENTED TO KHYBER MEDICAL COLLEGE, PESHAWAR

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Abstract

Background: Sexual assault remains a pervasive public health issue globally, with profound physical, psychological, and social consequences. In Pakistan, particularly in KPK, sociocultural stigma and systemic barriers significantly impede the reporting and management of such cases.

Objective: To analyze the patterns of injuries in sexual violence cases and its association with demographic characteristics of victims in Peshawar. To evaluate the impact of delays in reporting sexual assault on medical, legal, and forensic outcomes.. To assess the mental health consequences of sexual violence, including trauma, anxiety, and depression, among survivors.

Material and Methods: A retrospective Cross sectional study was conducted on 177 female sexual assault cases reported to the Forensic Department of Khyber Medical College, Peshawar during a period of 1st Jan 2023 to 31st dec 2024.Data were analyzed for demographic trends, types of physical injuries, semen analysis, psychological impact, reporting delays, and correlations between sexual activity status and mental health outcomes using SPSS version 25. Data was presented in the form of tables and graphs.

Results: The mean age of victims was 20.7 ± 8.3 years. A majority of 143 individuals (80.8%) were from urban areas. Genital injuries were present in 143cases (20.3%), with abrasions 18cases (10.2%) and lacerations 17cases (9.6%) being the most common. Extragenital injuries were reported in9 5.1%. Positive semen analysis was found in 131 (74.0%). Adverse mental health outcomes were observed in 76cases (42.9%). Reporting delays averaged 4.3 ± 2.8 days.

Conclusion: Sexual assault cases in KP disproportionately affect young urban women, with substantial delays in reporting that compromise forensic and psychological outcomes. Mental health effects are significant.

Keywords: Sexual offenses, mental health, injury, forensic science, anxiety.

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Introduction:

Sexual assault is a critical global public health issue that has catastrophic effects for survivors and society. According to the World Health Organization, over 370 million girls and women have suffered sexual abuse before the age of 18, with non-contact forms of sexual violence accounting for one in every five [1]. These numbers highlight the critical need for comprehensive data to assist preventative initiatives and enhance survivor care.

The prevalence of sexual violence in Asia is particularly concerning, with countries such as India, Afghanistan, and Pakistan reporting high case numbers. However, substantial underreporting due to cultural stigma, fear of retaliation, and insufficient legal frameworks considerably masks the true scope of the problem [2]. Thousands of sexual assault incidents are registered in Pakistan each

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year, but the true prevalence is thought to be much higher due to societal hurdles that discourage reporting[3]. Khyber Pakhtunkhwa (KP) province faces similar challenges, with cultural taboos and limited trust in the judicial system contributing to underreporting and low conviction rates [4]. Studies from tertiary care centers in KP reveal that a significant proportion of sexual assault victims are young women, with many presenting for medical examination more than 72 hours post-assault, thereby compromising forensic evidence collection[5,6].

Sequelae of sexual assault and its mental impact is far greater than physical harm. Survivors of sexual violence frequently experience long-term psychological consequences, such as post-traumatic stress disorder, depression, and anxiety [7]. According to research, increased media coverage of sexual violence has been linked to increased mental distress among Pakistani women, emphasizing the need for sensitive coverage and comprehensive mental health support services [8].

Despite the critical importance of understanding injury patterns, demographic characteristics, and factors affecting reporting delays in sexual assault cases, limited research exists from the KP region. Medico legal centers play a pivotal role in providing forensic examination and documentation services essential for both medical care and legal proceedings. However, comprehensive analysis of these factors is necessary to improve victim care and ensure justice delivery. This retrospective study aims to analyze sexual assault cases presented to Khyber Medical College, Peshawar, examining injury patterns, demographic characteristics, reporting delays, and mental health impacts on survivors. By investigating these crucial aspects, this research seeks to provide evidence-based insights to inform targeted interventions and improve care delivery for sexual assault survivors in the region.

Material and Method:

Study design: Cross sectional study

Study setting: Forensic medicine department Khyber medical college Peshawar

Study duration: 1stJan 2023 to 31stDec 2024

Study sample: 177

Sampling technique: non probability consecutive sampling

Inclusion criteria: Only females cases presented with sexual assault history of any age was included in study

Exclusion criteria: Cases with incomplete documentation and unable to comprehend questions were excluded from study

Ethical approval: Ethical approval was taken from IREB KMC letter number 571/DME/KMC on 2nd June 2025

Data collection technique: Data for this retrospective study were obtained from official medico legal records maintained in the Forensic Medicine and Toxicology Department of Khyber Medical College, Peshawar, covering 177 female sexual assault cases reported between 1st January 2023 and 31st December 2024. Data extraction was carried out under the supervision of senior faculty members to ensure accuracy. Physical injuries were documented from medico legal examination Proforma and categorized into genital and Extragenital injuries, while laboratory findings such as semen analysis were also reviewed. Mental health outcomes, including trauma, anxiety, trust issues, and intimacy difficulties, were assessed from physicians' and psychiatrists' notes available in the case files. Although internationally standardized tools like PHQ-9 or PTSD checklists were not applied, assessments were based on clinical documentation recorded at the time of examination. For study purposes, these records were coded into structured categories for analysis using SPSS.

Statistical analysis: Data were entered, cleaned, and analyzed using SPSS version 25. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were used to summarize demographic characteristics, types of injuries, reporting delays, and semen analysis findings. Categorical variables, such as the presence or absence of injuries and mental health impacts, were presented as frequencies and percentages, while continuous variables like age and reporting delays were expressed as mean ± standard deviation. Associations between sexual activity status, mental health outcomes, and psychological Sequelae were assessed using chi-square tests, with a p-value of <0.05 considered statistically significant. Results were displayed in the form of tables, figures, and graphs for clarity and better interpretation.

Results:

A total of 177 females were included in the study who had been victims of sexual assault, had a mean age of 20.7 +/- 8.3 years ranging from 4 to 46 years. The cases of sexual assault were more pronounced in urban area with a incidence of 80.8% (n=143), and rest in rural area with incidence of 19.2% (n=34). The subjects examined in forensic department showed that 20.3% (n=36) had injuries in the genital region and 5.1% (n=9) had injuries in Extragenital regions, described in table 1 and table 2, respectively.

A 1.7% (n=3) had conceived due to assault and 1.7% (n=3) had sodomy. The reporting delay observed was 4.3 +/- 2.8 days ranging from 1 to 15 days.

Table 1: Injuries enumerated in genital area of subjects, note that multiple injuries were seen in individuals

Genital Injuries	Frequency (n=177))	Percentages (%)
Abrasion	18	10.2
Bruises	5	2.8
Laceration	17	9.6
None	141	79.7

Table 2: Injuries enumerated in Extragenital areas of subjects, note that multiple injuries were seen in individuals

Region with Extragenital injuries	Frequency	Percent
Abrasions in neck region	2	1.1
Abrasions in lower limbs	2	1.1
Bruises in facial region	2	1.1
Bruise in neck and breast region	3	1.7
None	168	94.9

Table 3 :Sexual Activity and Semen Analysis Findings

Variable	Frequency (n)	Percentage (%)
Subjects with History of Sexual Activity	148	83.6
Semen Positive for Spermatozoa	131	74.0

Table 4: Association Between Sexual Activity and Mental Health Impact

Variable	Frequency (n)	Percentage (%)	Statistical Association
Mental Health Impact	76	42.9	No association (p = 0.69)
No Mental Health Impact	101	57.1	

Table 5: Future Psychological Impacts and Sexual Activity Status

Psychological Impact	Frequency (n)	Percentage (%)	Statistical Association
Trust Issues Only	38	21.5	
Intimacy Issues Only	16	9.0	
Both Trust & Intimacy Issues	43	24.3	No association (p = 0.203)
No Psychological Impact	80	45.2	

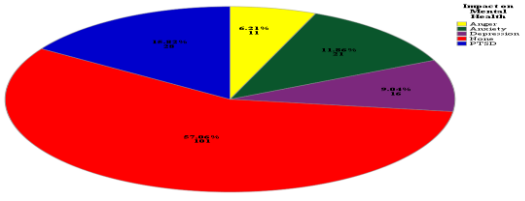

Figure 1: Impacts of sexual assault in mental health outcomes

Sexual assault is a profoundly traumatic event that expressively undermines a person's sense of control and bodily autonomy, frequently leading to both immediate and lasting psychological distress. Its sudden, uncontrollable nature often leaves survivors handling with persistent feelings of helplessness. The current study highlights notable demographic and geographic trends in sexual assault cases reported at Forensics Department of Khyber Medical College Peshawar, showing a significantly higher incidence in urban areas (80.8%) compared to rural regions (19.2%).This difference between urban and rural cases is consistent with global outlines, this may reflect reporting bias rather than actual incidence rates reported in study(9).The elevated reportage in urban areas stalk from greater access to healthcare, greater awareness of legal rights, and less stigma around seeking medical help compared to rural areas in Pakistan.

The average age of 20.7 years (±8.3), emphasizes the heightened vulnerability of young adults, especially those in their late teens and early twenties. This aligns with global data indicating that individuals aged 18–24 are at more risk for sexual assault[10]. The victims as young as 4 years old further stresses the disturbing prevalence of child sexual abuse and the urgent need for trauma-informed.

The study identified genital injuries in 20.3% of victims, with abrasions (10.2%) and lacerations (9.6%) being the most frequently observed, while Extragenital injuries were reported in just 5.1% of cases. These results are consistent with findings from other regional study[6], offering important local insights into the injury patterns associated with sexual assault cases in the Peshawar area. The comparatively low incidence of physical injuries accentuates that the lack of visible trauma does not rule out the occurrence of sexual assault, as many such incidents may leave no detectable physical evidence.

The study's finding that 42.9% of victims experienced adverse mental health outcomes highlights a serious public health issue, as psychological symptoms can emerge or intensify well after the assault. The identified categories; trust issues (21.5%), intimacy difficulties (9.0%), and a combination of both (24.3%), underscore the deep interpersonal toll of sexual trauma.

At the neurobiological level, sexual trauma can disrupt the body's stress regulation systems resulting in altered cortical levels and an increased vulnerability to mood disorders and post-traumatic stress disorder[11]. In conservative societies such as Indo-Pakistan, survivors frequently endure additional trauma due to social and cultural stigmas, including victim-blaming, social

segregation, and even rejection by family, all of which compound emotional suffering and impede the healing process. Additionally, a study by emphasizes a concerning two-way relationship between mental health issues and sexual victimization, indicating that those with pre-existing mental health disorders are at greater risk for assault, and that survivors often face new or intensified psychological symptoms following the attack[12]. The reaction of support systems also holds significant importance; supportive and compassionate responses from family, healthcare providers, and law enforcement can enhance healing, while negative or indifferent reactions can greatly worsen trauma[13].

The high rate of positive semen analysis (74.0%) among the 83.6% who encountered sexual activity indicates the importance of forensic examination and evidence collection on priority basis. However, the focus must extend beyond forensic evidence to comprehensive care addressing immediate medical needs, psychological support, and long-term follow-up. The study's inclusion of cases involving assault-related pregnancies (1.7%) and sodomy (1.7%) underscore the necessity for specialized care protocols. Pregnancies resulting from assault pose distinct clinical and psychosocial challenges that require a multidisciplinary approach. The guidelines review concerning individuals with severe mental disorders emphasizes the involved relationship between mental health and trauma, highlighting the importance of tailored protocols in institutional environments[14].

There is a worrying delay in seeking medical and legal assistance after sexual assault, as evidenced by the reported reporting delay of 4.3 ± 2.8 days, in cases submitted to Khyber Medical College. This delay is caused by a number of issues, such as concerns about family honor, mistrust of law enforcement, fear of social stigma, and ignorance of the significance of early reporting, especially in conservative nations like Pakistan [15]. Additionally, victims may suffer from denial or psychological shock, all of which might impede prompt disclosure [16]. These delays are further made worse by practical obstacles including restricted access to medical facilities and economic limitations.

CONCLUSION

This study conducted by Khyber Medical College Peshawar provides important local insights into the effects of assault, contributing to the global understanding of this issue. Additionally, the presence of child victims underscores the urgent requirement for specialized protocols tailored for pediatric care. By combining local findings with regional and international research, it becomes clear that assault is a widespread public health concern that demands coordinated, culturally sensitive, and evidence-based responses. Healthcare systems should focus not only on immediate medical treatment but also on providing long-term psychological support and social reintegration services for survivors.

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