

ORIGINAL ARTICLE

Medico-Legal Evaluation of Adult Female Sexual Assault Survivors: A Retrospective Study of Evidence, Clinical History and Gynecological Implications

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ABSTRACT

Introduction: Sexual assault involves non-consensual physical or sexual contact, causing harm to the victim. In such cases, healthcare professionals in emergency departments play a critical role as they are often the first point of contact for victims. Effective management of these cases relies heavily on proper evidence sampling, which is crucial for identifying perpetrators. However, in Pakistan, the low conviction rate in sexual assault cases is often attributed to inadequate forensic sampling techniques and a lack of specialized expertise, highlighting the need for improved training and protocols.

Objectives This study investigates sexual assault cases among women, focusing on prevalence, management and impacts.

Method: The study was conducted at Department of Forensic Medicine & Toxicology, LUMHS, Jamshoro and Medicolegal Section, Liaquat University Hospital, Hyderabad, analyzing data from July 2022 to June 2023. It identified 80 cases of female sexual assault victims who underwent comprehensive medical examinations by female medical officers. Biological samples, including vulvar, vaginal, and rectal swabs, were collected from the victims as part of the examination process.

Results: The results showed 80 cases of female sexual assault victims. The victims' ages ranged from 15 to 40 years, with a mean age of 22.4 years (± 3.12 years). Notably, 67% of the victims were unmarried and 65.1% belonged to lower socioeconomic backgrounds. Furthermore, 72.1% of the victims reported a history of penetration. Laboratory analysis of samples from these victims revealed that only 40% of those with a penetration history tested positive for male DNA.

Conclusion: Pakistan's healthcare system requires improvement, particularly in emergency departments, to effectively manage sexual assault cases. Healthcare professionals need training to properly collect and handle forensic evidence, record victim histories and document medical reports. Specialized forensic training is crucial for identifying perpetrators. Additionally, awareness campaigns in rural areas can educate communities about sexual assault and its long-term effects, promoting support for survivors and prevention efforts.

Keywords: Sexual assault, Forensic sampling, female victims, Survivors

INTRODUCTION

Sexual assault is an abusive crime that involves any unwanted physical or sexual act and can include unwanted touching and physical violence. A more violent form of sexual assault is rape. It involves forcing someone to have sexual intercourse without the person's consent¹. It is a crime to obtain consent by force and fear or to someone who is a minor (under 14 years of age). In the history of sexual assault, Pakistan has remained largely suppressed and has been a means of social control of women. Now more cases of sexual assault in Pakistan are being reported^{2,3}. Women's issues are grave, and a significant portion of the female population has been victims of assault in their lifetime. More specifically, cases of sexual violence indicate that a large population of women have been victims of extreme sexual violence. Emergency departments are crucial in situations where the victim is the first person to be attended to, and their staff usually includes nursing professionals who are trained to handle clinical emergencies⁴. Their expedited support is key to the preliminary first-aid which addresses the most critical physical needs of the victim and some psychological first-aid. There is a need of emergency first aid to the victim in the physical and in the psychological aspects. It is important that the woman is treated with utmost care. And it is more important that the doctor pays more attention to what the victim has to say. Long-term medical care benefits greatly from the immediate assistance as does the collection of forensic evidence as a medical legal precursory step. Biological evidence sampling is crucial to the medical care of assault victims. Compassionate and complete approaches to the care of survivors of sexual assault can make tremendous

difference in the outcome of the patient's care⁵.

Obtaining the evidence is challenging, complex and often poorly executed. It is dependent on integrating the patient history, the clinical assessment and the collection of evidence. The evidence collection and preservation are in the hands of the medical legal and forensic professionals⁶. The evidence's probative potency as well as the case's outcome balance on the skill and discipline of the collection. The impact of sexual violence is seen in every social and educational levels of women. The recent innovations within forensic disciplines can advantage the outcome of the case yet be delineated by the different standards of rationality within the population^{7,8}. There limits reliability is the centralized view of the index. Based on the survey in the achievements of the ages the 16 to 70 parameters the sexual violence index in the Sindh province rests at 31.5%. The 81% and the dominating view was in the satisfaction of the forensic efforts and 19% believed the police officers working on the case were uneducated in the modalities of the Sindh police⁹. The analytical approach within the drafting and the designing of the report can change the outcome of the conviction. Civilians in this case, the officers, should be instructed in fundamental classroom methods, new age forensic methods and tools and the strategies of goal-oriented policing^{10,11}. The over emphasized outcome of the system, justifies the ways in which the system can benefit and rationalize the bordering diplomacy. By enhancing these skills, the criminal justice system can better address sexual assault cases and provide justice to survivors.

The study aims to contribute to a better understanding of sexual assault and to support the development of more effective interventions and policies to help survivors and ensure justice. It evaluates current medical and forensic practices, identifies challenges, and assesses physical and psychological effects. The

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goal is to improve healthcare and legal responses, inform professional training, and enhance victim support services for better outcomes and justice.

Objectives: The study will focus on understanding the prevalence, features and handling of sexual violence towards women. It will seek to assess the value of the existing medicine and forensics dealing with such cases, featuring the gaps and flaws in the system, and evaluate the consequences of such violence on the victims. The study will ameliorate the legal and healthcare approaches to sexual assault, the training offered to the healthcare system and the assistance rendered to victims in order to develop policies that are responsive to the needs of the victims of sexual violence. Legal action and policy formulation is needed to improve the procedures that respond to the victims' needs.

METHODOLOGY

The study was conducted Department of Forensic Medicine & Toxicology, LUMHS, Jamshoro and Medico-legal Section, Liaquat University Hospital, Hyderabad, analyzing data from July 2022 to June 2023 and identified 80 cases of female sexual assault. In every instance, thorough examination was carried out by a medical officer of a woman, accompanied by the collection of biological material using vulvar, vaginal and rectal swabs. These were then dried and stored at -20° C freezer until they were used for further examination.

The swabs collected were evaluated for the presence of sperm with the use of the Christmas tree assay technique. Forensic professionals dry swabs and then extract the DNA which they then compare to a number of probable suspects for the purpose of the detecting the offenders. The reports of the victim were compared with the medical and lab tests fully to check their validity. During the entire span of the investigation, the victims were given proper medical treatment and their receives were done with consideration of the patient's autonomy. The overarching goal of the entire investigation was to properly document anything that could potentially be used to deny justice to the victims.

RESULTS

The study examined 80 sexual assault cases involving female victims aged 15-40 years, with a mean age of 22.4 years. The age distribution revealed that the majority of victims (74.1%) reported penetration, with the 15-25 age group being the most affected and mostly (66.9%) unmarried.

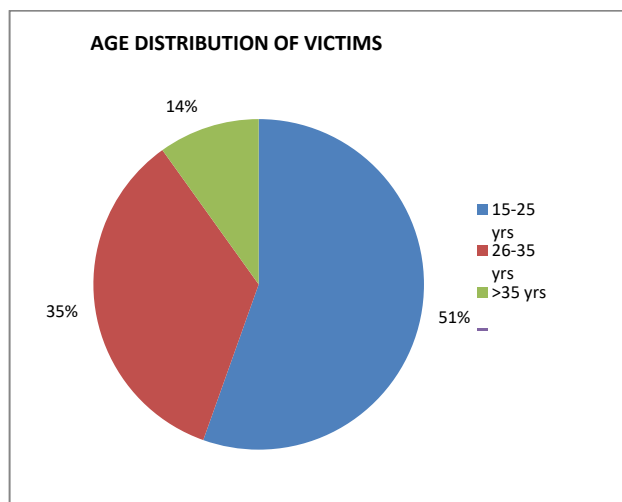


Figure 1: Showed the Age Distribution of Victims

Laboratory analysis of samples from all victims showed that only 40.1% of those with a penetration history tested positive for male DNA, and a Y haplotype was obtained in only 18 cases.

Notably, mostly belong to lower socioeconomic status (65.17%) and 62.5% of cases were reported to the hospital or police within the initial 48 hours, a critical timeframe for evidence collection.

Table 1: Showed Socioeconomic and Demography of Victims

Socio-economic Variables	No. of Patients(n)	Percentage(%)
Marital Status		
Unmarried	54	66.96%
Married	26	33.03%
Occupation		
Student	15	17.85%
Working	30	38.39%
Not working	35	43.75%
Socioeconomic Status		
Lower class	52	65.17%
Middle class	27	33.92%
Upper class	1	0.89%

Additionally, most female victim are not working (43.75%), some are working (38.39%) and few victims are students(17.85%). Some cases (n=27) had circumstances that suggested no semen would be found in the vaginal canal, highlighting the importance of considering individual case details in forensic investigations.

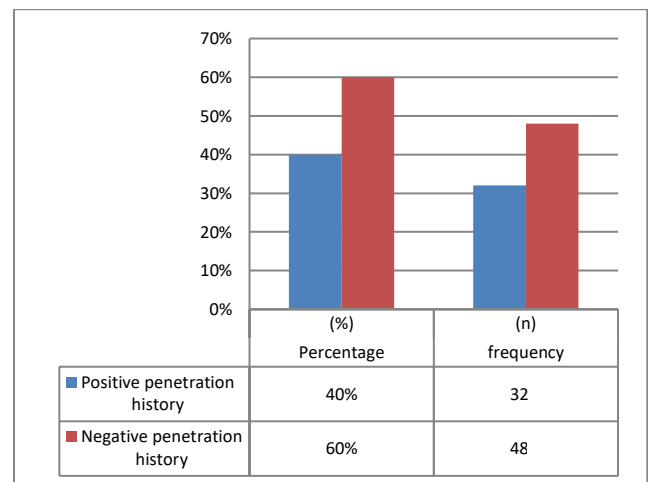


Figure 2: Showed the Frequency & Percentage of Positive and Negative Penetration History

DISCUSSION

A previous study in Italy on evidence collection in sexual assault cases found that over 50% of cases had biological evidence of the perpetrator on the victim's body. The time between the assault and evidence collection is crucial in forensic investigations. Delayed forensic processing can lead to negative results in up to 40% of cases, especially when penetration is reported¹². Furthermore, delays in gynecological examinations can compromise evidence collection, as victims may change clothes or bathe, potentially losing vital evidence. Emergency medicine doctors should receive comprehensive training to conduct timely and thorough medical and gynecological examinations¹³. Retrospective analysis has identified several factors that can lead to inaccurate investigations, including incomplete patient histories, delayed collection of vaginal swabs (beyond 24 hours post-assault) and incomplete medical examinations. Ensuring accurate and detailed record-keeping is essential to eliminate discrepancies between the victim's account and forensic finding^{14,15}. Additionally, it's crucial to note if the victim has changed clothes or underwear before evidence collection, as this can impact the integrity of biological specimens. Investigators should also investigate about any consensual sexual activity post-assault to differentiate between the perpetrator's DNA and that of another individual. In some cases, victims may provide vague histories due to altered consciousness, further complicating the

investigation. Addressing these factors can help improve the accuracy and effectiveness of forensic investigations in sexual assault cases¹⁶.

Furthermore, the delay in conducting gynecological examinations is contrary to the gathering of evidence since victims may change clothes or bathe and, in the process, lose critical evidence. Emergency room physicians must be provided with extensive training to conduct timely and effective medical and gynecological examinations¹³. Retrospective analysis has established that several factors contributing to flawed analysis include poor patient history taking, delayed vaginal swabbing (over 24 hours following assault) and neglecting to carry out a proper medical exam. Maintaining proper and accurate records is important to rule out inconsistencies between the statement of the victim and the forensic evidence^{14,15}. Further, it is also significant to determine if the victim has already changed clothes or underwear prior to evidence collection because it may affect the integrity of the biological material. The investigators must also inquire about subsequent consensual sex after the assault in order to distinguish between the suspect's DNA and another person's. Victims in some cases may provide uncertain histories due to states of altered consciousness and this complicates the investigation further. The problems can be eliminated in order to improve the accuracy and effectiveness of forensic investigation in sexual assault¹⁶.

Sexual assault may also have long-term impact for the psychological and physical health of victims. Post-traumatic stress disorder (PTSD) is common among the majority of survivors, playing an extensive role in their day-to-day lives and perceptions of well-being. Provision of access to psychological counseling is essential to enable victims to deal with lasting impacts and start recovery. By providing solutions to the immediate and long-term requirements of sexual assault victims, hospitals can contribute significantly towards their recovery and pursuit of justice. In order to uphold the credibility of medical reports and minimize confounding factors in cases of sexual assault, hospitals must strive to deliver complete care to victims. It involves making medical personnel sensitive to taking empathetic interviews and documenting minute details expeditiously. The psychiatric assistance provided to the victims in the hospital also confirms the accuracy of what they say¹⁷. When the victims are inadequately assisted, they lead to severe post-traumatic stress, which causes changed or inconsistent descriptions of the assault. The study highlighted that timely and thorough forensic investigations, combined with comprehensive medical and psychological care, are crucial in supporting sexual assault survivors and ensuring justice. By addressing gaps in healthcare practices, legal prosecution and support services, we can better serve victims and encourage a more supportive environment for their recovery and pursuit of justice.

CONCLUSION

The Pakistani health system requires serious improvement particularly in the emergency departments, to accommodate sexual assault cases appropriately. Special training is needed for healthcare professionals to manage victims with sensitivity and

completeness, with proper forensic sampling and evidence handling to standards. The training is necessary to identify the attackers and assist legal cases. In addition, accurate documentation of the victim's past and the latest medical report are crucial to legal objectives. Outside the healthcare sector, community education initiatives for health are similarly crucial in an attempt to educate populations about sexual assault, its long-term physical and psychological effects and the need to avail treatment. Closing these gaps will enable Pakistan to serve more resilient individuals better and positively prevent sexual violence.

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