Audit Of Genito-Anal Injuries In Male And Female Sexual Abuse Cases - A Retrospective Study.

Original Article
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ABSTRACT

Background: Sexual assault is a global issue wherein timely examination of sexual assault victims by medico-legal officers and an understanding of the characteristics and factors influencing their injuries have a crucial impact on medico-legal evidence collection and its use in the court. Genital injury findings improve the level of justice for victims, but the lack of injury does not negate the possibility of sexual violence incurred on the victim. The following study describes in great detail the different factors associated with injury characteristics and the medico-legal importance of all these factors.

Methodology: It was a retrospective descriptive study conducted at the Forensic Medicine Department of King Edward Medical University, Lahore, Pakistan. All the cases included that fulfill the predefined inclusion criteria were included. A record chart was designed, and six years' data was recorded in it from the medical records of the medico-legal clinic. It was entered and edited manually. Methods used to prevent data entry errors included double entry and validation following data entry. Difference of proportions between variables, where appropriate, has been calculated by Pearson Chi-Square test and Fischer Exact test at 95% confidence interval. Data were analyzed using SPSS v23. All procedures performed in this study involving human participants were following the ethical standards of the institutional and/or national research committee and the Helsinki declaration.

Results: Genito anal injury was present in 28.2% cases and was absent in 71.8% cases. Most of the victims were aged 11 to 15 years. The most common injury in the victims was a tear. In females, the most common injury site was the vagina, while the perianal area was the most injured site in males. There was a significant relation (p<0.05) between type and site of injury, gender, site of injury, and prior sexual intercourse experience and prevalence rate of injury.

Conclusion: This study concludes that the presence of injuries in the Genito anal area is suggestive of sexual assault and provides useful court evidence.

However, the absence of Genito anal injuries does not negate the possibility of sexual assault. This shows the need to educate the young people regarding sexual offenses and training the forensic examiners to evaluate such cases so that the perpetrators of such an act do not get off scot-free. There is also an additional need for social education and awareness campaigns regarding the rehabilitation of rape victims, considering the mounting numbers of sexual assault cases in our society.

Keywords: genital injury, anal injury, sexual assault, vaginal intercourse, sodomy

INTRODUCTION

Sexual violence is pervasive and worldwide. Sexual abuse is an act in which a person sexually touches another person with full intention without the recipient's explicit consent or uses force or intimidates a person to engage in a sexual act against their will. It includes rape, forcible sodomy, oral penetration, drug-facilitated sexual violence, groping, child sexual assault, or the vagina's torture in a sexual manual.[1,2,3] Notably, 34% of females and 15% of males are sexually abused in their lifetime.[4] About 10 to 17 years old are particularly at a higher risk for sexual assault. The risk is almost two times greater than the adults.[5] However, despite such prevalence of sexual assaults, less than 50 % of these victims seek medical care, and less than 13 % of the victims report to the police.[5,6] These victims do not seek medical help or report to the police because of fear of shame, blame, anger, social stigma, embarrassment, family factors, and lack of trust in police. Some of them
lack the information that there are medical and legal services in the community for their help, and even if they are aware, they are unaware of means to access them.[5]

In Pakistan and many other countries of the world, the onus of proof of rape lies on the accuser. The victim must prove that

1. Force or threat was used
2. The force was used without the explicit consent of the victim
3. Penetration occurred with or without ejaculation.[6]

So the cases that are reported are the tips of the icebergs. The presence or absence of the injuries after a sexual assault is of immense importance. The presence of injury increases the chance of prosecution and conviction.[7] In this perspective, forensic examination of injuries in sexual assaults is of immense importance as it leads to a collection of evidence in the form of injury, which has legal outcomes. Also, the forensic examination will provide healthcare so that injuries heal without adverse consequences.[8] Genital injury finding in victims of sexual assault improves the quality of justice for the victims by corroborating any other physical evidence and testimony, and it also influences a more fact-based decision making in the criminal justice system.[9] A great responsibility lies in forensic examiners’ shoulders because they have to use evidence related to the injuries to interpret their findings during cross-examination.[7] Physicians play a crucial role in both the medical and legal aspects of the sexual assault cases and must be trained to identify factors affecting the appearance of genito-anal injuries in alleged sexual assault.[10] It is, however, a misconception that injury must be present to prove a sexual assault. It has been explained that injury or lack of injury is a part of a constellation of evidence used by the criminal justice system.[7,9]

There is a correlation between genito-anal injuries and demographic and assault characteristics in alleged sexual assault cases.[11,12] The young adolescent population appears to be the most vulnerable group in recent studies.[13] Genital injuries in female victims of sexual assault can be classified according to a system named “TEARS” (T=Tear, E=Ecchymosis, A=Abrasion, R=Redness, S=Swelling) introduced by Slaughter et al. in 1997.[14]

Genito-anal injuries are detected nowadays by the following methods:

1. Macroscopic examination
2. Toluidine blue stain
3. Colposcopy.

Toluidine blue staining is useful in sexual assault cases for the detection of Genito-anal injuries. The detection of injury in the posterior fourchette has increased from 16 to 40% in sexual assault victims by using toluidine blue.[15,16] However use of toluidine blue has some limitations like a reduced rate of detection of abrasion, application of stain must be made before every physical examination for collection of evidence, and injuries resulting during the careless physical examination can give false-positive results with toluidine blue.[17]

Colposcopy has found its applications in gynecological purposes. In 1981 it was used in rape cases for detecting genital injury.[18] It magnifies and photographs the lesion. Colposcopy has an advantage over toluidine blue in the detection of abrasions, and it also increases the detection rate of lacerations and swellings.[19] However, colposcopy being an invasive procedure, is disturbing for victims of sexual assault who are already traumatized.[20] Minor lesions detected by colposcopy are challenging to differentiate from consensual sexual intercourse, limiting its legal significance.[21]

The macroscopic examination is still popular because it is valuable when the victim denies invasive procedures like colposcopy. Besides, a colposcope is not available everywhere, and many physicians are still not used to it.[22]

There are variations in the study of populations and methodology, which hinders the interpretation of injury. Unfortunately, non-sexual assault victims do not undergo genital examination, so the physicians face difficulty in comparing the injuries of sexually assaulted victims with normal individuals. The literature related to macroscopic genital examination findings is deficient. The most appropriate and legally valuable examinations are done macroscopically by the physicians experienced in examining normal, diseased, and traumatized genitalia, and they know the principles of injury interpretation.[7] Upon reviewing the current literature, not much data from Asia is available regarding Genito-anal injuries in sexual assault cases. This research combines injuries in both genital and anal areas, and we hope that our study will be a significant contribution to the existing literature.

MATERIALS AND METHODS

We conducted a retrospective descriptive study, in the department of Forensic Medicine, King Edward Medical University, and Mayo Hospital, Lahore. The study spanned over two months from July 2019 to August 2019.
A purposive sampling technique was applied. Inclusion criteria for victims were as follows;
1. All the victims were from January 2013 to December 2018.
2. The ages of the research subjects were between 8 and 50 years.
3. History of non-consensual sexual activity present.
4. History of vaginal and/or anal penetration present.
5. No history of consensual sexual intercourse after the assault.

The exclusion criteria were as follows:
1. Age less than eight and greater than 50.
2. Victims who experienced no vaginal or anal penetration during the assault.
3. Victims who had consensual sexual intercourse after the assault.

Data Collection
Using a retrospective descriptive study design, all the research subjects who met the above-described inclusion criteria were included in the study. Secondary data was collected from the medical records of sexually assaulted men and women from the medico-legal clinic of the Department of Forensic Medicine, Mayo Hospital Lahore. The primary data was recorded and maintained by the Forensic staff physicians and residents of Mayo hospital, Lahore. They examined the victims from head to toe for non-genital as well as genital injuries. Genito-anal injuries were observed with patients in the lithotomy position. The macroscopic examination was done and consisted of inspection, palpation with digital per vaginal, and digital per rectum examination. Swabs were taken and sent to the Punjab forensic science agency (PFSA). Following things were recorded: name, father's name, sex, age, CNIC number, number and date of police docket, name and number of the police constable, occupation, residential address, marital status, identification points, last menstrual period, time of the sexual assault, relationship to the assailant, number of assailants, history of penetration, history of change of clothes, history of bath and the record of the examination.

Record Chart
In keeping with the study's objectives, a record chart was designed, and data was recorded using the medical records of the medico-legal clinic. It was divided into three sections.
1. The first section included the demographics of the subjects like ID, Gender, Age, and Year of arrival.
2. The second part included the characteristics of injury: Type of injury, Site of injury, presence or absence of old tear of the hymen, non-genito-anal injury, Time interval since the assault.[2]
3. The third part included the factors affecting the injury: Prior sexual intercourse experience, Relationship to the assailant, Number of assailants, Frequency of assault.

The type of wounds recorded in the study are as follows:
- Abrasion (superficial skin disruption),
- Contusion/ bruise (disruption of underlying small blood vessels causing discoloration with intact skin)
- Tear/laceration (a jagged tear often with the stretching of the underlying tissues),
- Redness (erythema),
- Swelling (oedematous skin).

The genito-anal area was classified into nine areas, and the site of injury was described according to this classification. The parts into which the genito-anal area was divided are:
1. Labia minora
2. Posterior fourchette
3. Peri urethral
4. Perianal
5. Hymen below 3 to 9 o’clock
6. Hymen at 3 to 9 o’clock
7. Hymen above 3 to 9 o’clock
8. Vagina

Sample Size
The sample size was calculated to be 206 on Open-Epi Software using the estimate of population size to be 100000 due to lack of data on the exact number of research subjects. The hypothesis of the outcome factor is 20%, the confidence interval is 95% and the accepted margin of error is 5%.

Data entry and quality assurance check
Data from the record chart were entered and edited manually. Methods used to prevent data entry errors included double entry and validation following data entry and data analysis screening for outliers during data analysis. Checks were applied to Open-Epi software. Data were cleaned by running frequencies and were then double-checked and entries, peer-reviewed.

Statistical Methods
Quantitative variables like age and time interval between incident and examination were expressed as Mean +/- SD. For qualitative variables like gender, type of injury, site of injury, old tear of the hymen, non-genito-anal injury, prior sexual intercourse experience,
relationship to the assailant, number of assailants, frequency of penetration, frequency, and percentage, quantitative variables like age and time interval between incident and examination were expressed as Mean +/- SD. For qualitative variables like gender, type of injury, site of injury, old tear of the hymen, non-Genito-anal injury, prior sexual intercourse experience, relationship to the assailant, number of assailants, and frequency of penetration, frequency, and percentage, have been calculated. A value of p less than 0.05 was considered to be statistically significant. The difference in proportions between variables, where appropriate, have been calculated. A value of p less than 0.05 was considered to be statistically significant. The difference of proportions between variables, where appropriate, was calculated by Pearson Chi-Square test and the relationship to the assailant, number of assailants, frequency of penetration, frequency, and percentage. The difference of proportions between variables, where appropriate, have been calculated by Pearson Chi-Square test and Fischer Exact test at a 95% confidence interval. The value of p less than 0.05 was considered to be statistically significant. Missing data was calculated but later on, excluded when statistical tests were applied. Data were analyzed using SPSS v23.

Social and ethical considerations

Following social and ethical considerations were taken into account during the research:

- Departmental approval was taken.
- Relevant laws and institutional and governmental policies were obeyed.
- Research guaranteed the Participants' confidentiality, and participants were anonymous throughout the research.
- Any discrimination against colleagues or participants based on gender, race, ethnicity or other factors was avoided along with biased attitude and insensitivity.
- It was ensured that there is no deception, scientific fraud or misconduct
- All procedures performed in studies involving human participants were conducted following the ethical standards of the institutional and/or national research committee and with the Helsinki declaration.

<table>
<thead>
<tr>
<th>Site of Injury</th>
<th>Type of Genito- Anal Injury</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labia minora</td>
<td>Tear Ecchymosis Abrasion Redness Swelling Any other wound</td>
<td></td>
</tr>
<tr>
<td>Periurethral</td>
<td>1 (0.4%) 0 0 1 (0.4%) 0 0 0 2 (0.9%)</td>
<td></td>
</tr>
<tr>
<td>Perianal</td>
<td>10 (4%) 4 (1.9%) 3 (1.4%) 3 (1.4%) 0 3 (1.4%) 23 (11.1%)</td>
<td></td>
</tr>
<tr>
<td>Hymen below 3 to 9 o'clock</td>
<td>6 (2.8%) 0 1 (0.4%) 0 0 0 7 (3.4%)</td>
<td></td>
</tr>
<tr>
<td>Hymen at 3 to 9 o'clock</td>
<td>6 (2.8%) 0 0 1 (0.4%) 0 1 (0.4%) 8 (3.8%)</td>
<td></td>
</tr>
<tr>
<td>Hymen above 3 to 9 o'clock</td>
<td>0 0 0 0 0 1 (0.4%) 1 (0.4%) 1 (0.4%)</td>
<td></td>
</tr>
<tr>
<td>Vagina</td>
<td>6 (2.8%) 1 (0.4%) 0 0 1 (0.4%) 1 (0.4%) 9 (4.3%)</td>
<td></td>
</tr>
<tr>
<td>Cervix</td>
<td>3 (1.4%) 0 0 1 (0.4%) 0 0 4</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Type of wound at each Genito-anal injury site.
RESULTS
From 2013 to 2018, 300 cases of sexual assault were reported in the Forensic Department of King Edward Medical University, Mayo Hospital Lahore. Out of these, 206 cases matched our criteria and were included in this study. There were 76 (36.9%) male victims and 130 (63.1%) female victims. The minimum age was eight years, and the maximum age was 50 years, with the mean (SD) of 18 (7.4). The maximum number of victims (38.9%) were found to be in the age group of 11 to 15 years. Most of the victims (39.5%) were examined within 24 hours after the assault. The median was two days, and the mean was 13 days. The genito-anal injury was absent in 148 cases (71.8%) and 58 (28.2%). The tear was the most common type of injury detected at the Genito anal area in 33 cases (16%), contusion/ecchymosis in 5 cases (2.4%), abrasion in 5 cases (2.4%), redness in 6 cases (2.9%), swelling in 1 case (0.5%) and multiple wounds in 6 cases (2.9%).

The males were assaulted in the anal area while females at vaginal, anal, or both areas. The most common Genito anal injured site was perianal in 23 cases (11.3%) of males while in females, the most commonly injured site was found to be vagina in 9 cases (4.4%), followed by hymen at 3 to 9 o'clock position in 8 cases (3.9%). There were 149 cases (73%) in which no injured site was found after the examination. The tear was most common in the perianal region, followed by the vagina. Contusion was most common in the perianal region. The injury was absent in 148 (71.4%) cases. Pearson Chi-square test showed a significant relationship(P<0.05).

Old tears of hymen were present in 70 cases (51.1%) and were absent in 67 cases (48.9). Non-Genito anal injury was absent in 156 cases (76.8%) and was present in 47 cases (23.2%). In 89 cases (53.3%), the victims had no prior sexual intercourse experience, while in 78 cases (46.7%), the victims had prior sexual intercourse experience. There were 136 victims (73.9%) who did not know their assailants. In 48 cases (26.1%), the victims had a known relationship with their assailants. In this study, the relationship to the assailant was divided into known and unknown. As per the statistical analysis, the assailant's relationship did not significantly affect the prevalence rate of wound type or site of the wound. In our study, 144 cases (70.6%) had been assaulted by a single assailant, while multiple assailants had assaulted 60 cases (29.6%). In this study, the number of assailants was divided into single and multiple. There was no significant relationship between the number of assailants and prevalence rate of type or site of injury. There was single penetration in 106 cases (52%), while there were multiple penetrations in 98 cases (48%). There was no significant relationship between frequency of penetrations and prevalence rate of type or site of injury.

Statistical Methods and Significant Relations
Quantitative variables like age and time interval between incident and examination are expressed as Mean +/- SD. For qualitative variables like gender, type of injury, site of injury, old tear of the hymen, non-genito-anal injury, prior sexual intercourse experience, relationship to the assailant, number of assailants, and frequency of penetration, frequency and percentage have been calculated. The difference of proportions between variables, where appropriate, has been calculated by Pearson Chi-Square test and Fischer Exact test at a 95% confidence interval. A value of p less than 0.05 was considered to be statistically significant. Missing data was calculated but later on, excluded when statistical tests were applied. Data were analyzed using the data entry program SPSS version 23. There was a statistically significant relation (p<0.05) between the gender of the victim and site of injury determined by the Pearson Chi-square test [Table 2]. There was a statistically significant correlation (p<0.05) between the type and site of injury [Table 1]. The tear was the most common injury at the perianal area, vagina, hymen below 3 to 9 o'clock, and hymen at 3 to 9 o'clock position. Ecchymosis was the most common injury in the perianal area and vagina. Abrasion was the most common injury at the perianal area, labia minora, and hymen from 3 to 9 o'clock. The swelling was most common in the vagina, while redness was most common in the perianal area. There was a statistically significant increase (p<0.05) in the rate of wear, abrasion, redness, and multiple wounds if victims had never had prior sexual intercourse [Table 3]. An old tear of hymen had a statistically significant relation (p<0.05) with the type of Genito anal injury.

DISCUSSION
This study's objective was the medico-legal evaluation of injuries suffered by the male and female victims of sexual assault and the use and impact of these medico-legal findings on the legal outcome. Our study has determined the number of factors that influence the characteristics of injuries suffered by the victims.
Figure 1: Type of Genito-anal injuries

<table>
<thead>
<tr>
<th>Gender</th>
<th>Labial minora</th>
<th>Perineal</th>
<th>Perianal</th>
<th>Hernia below 3 to 9 o'clock</th>
<th>Hernia at 3 to 9 o'clock</th>
<th>Hernia above 3 to 9 o'clock</th>
<th>Vagina</th>
<th>Cervix</th>
<th>No injured site</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0</td>
<td>0</td>
<td>21 (27.6%)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>55 (72.3%)</td>
<td>76</td>
</tr>
<tr>
<td>Female</td>
<td>1 (0.007%)</td>
<td>2 (0.015%)</td>
<td>2 (0.015%)</td>
<td>7 (0.05%)</td>
<td>8 (0.062%)</td>
<td>1 (0.007%)</td>
<td>9 (0.07%)</td>
<td>9 (0.07%)</td>
<td>94 (0.7%)</td>
<td>128</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>2</td>
<td>23</td>
<td>7</td>
<td>8</td>
<td>1</td>
<td>9</td>
<td>9</td>
<td>149</td>
<td>204</td>
</tr>
</tbody>
</table>

Table 2: Site of Genito-anal injury concerning gender

<table>
<thead>
<tr>
<th>Prior sexual intercourse experience</th>
<th>No wound</th>
<th>Tear</th>
<th>Ecchymosis</th>
<th>Abrasion</th>
<th>Redness</th>
<th>Swelling</th>
<th>Any other wound</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td>54 (0.6%)</td>
<td>22 (24.7%)</td>
<td>0</td>
<td>3 (0.03%)</td>
<td>4 (0.04%)</td>
<td>0</td>
<td>6 (0.06%)</td>
<td>89</td>
</tr>
<tr>
<td>Present</td>
<td>68 (0.88%)</td>
<td>6 (0.07%)</td>
<td>1 (0.01%)</td>
<td>1 (0.01%)</td>
<td>0</td>
<td>1 (0.01%)</td>
<td>0</td>
<td>77</td>
</tr>
<tr>
<td>Total</td>
<td>122</td>
<td>28</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>6</td>
<td>166</td>
</tr>
</tbody>
</table>

Table 3: Type of Genito-anal injury concerning prior sexual intercourse experience
All the interesting findings and comparison of our results with the previous national and international literature has been discussed below in detail.

**Age of the victim**

Our study revealed that young age was the most critical risk factor for sexual assault as the mean age of victims of abuse in this study was 18, and the maximum number of victims were in the age group of ten to twenty years. This is consistent with many previous studies by Ingemann et al. and Acierno et al. [23,24] Young age is the age of ignorance, and children lack knowledge about how to protect themselves in case of sexual abuse. They are easily overpowered by the assailants and are unable to resist. Education and social awareness, especially addressing the young generation, can be fruitful in this regard.

**Gender of the victim**

In this study, female victims were 63.1%, and male victims were 36.9%. It contrasts with Ernst et al. and Frazier et al., in which the proportion of male victims was significantly lower.[25,26] It is due to the reason that in our study, a significant number of male victims had reported the sexual offense committed against them. Most of the male victims were children who were encouraged by their guardians to report this violence. This study is the first of its kind to give a significant account of medico-legal assessment of injury characteristics and risk factors associated with sexual abuse in male victims as most previous studies have focused on female victims only. Even the studies like Ernst et al. and Frazier et al. have included male victims, the number of such victims is significantly lower, probably due to lack of case reporting by the male victims due to social stigma and other factors. [25,26]

**Type of injury**

The most common type of injury in this study was tear (laceration) (33%), consistent with other studies like Zilkens et al. and Cartwright et al.[11,27] Various factors affect the type of injury, including the penile size, roughness of assault, and resistance offered by the victim. Larger penile size most commonly results in laceration compared to abrasion, which is produced by smaller penile size. This implies that most of the assailants in this study, like previous studies, had a larger penile size. Moreover, it is possible that most of the assailants were more violent physically, and the victims also offered more resistance, which produced a more extensive injury like laceration than smaller injuries like contusion or abrasion.

Since this study included both male and female victims, the most common injury site was found to be different in both genders. The most common injured site in females was the vagina (4.4%), which is in sharp contrast with the study by Suttipasit et al. in which the posterior fourchette was the most common site of injury in females.[22] Suttipasit et al. found that the force to push the penis downward for penetration would cause injury to the posterior part more than the anterior part, and hence, the posterior fourchette was the most common injured site in his study.[22] Nevertheless, the greater incidence of vaginal injury in our study might be because most of the victims in this study belonged to the age group of 11 to 15 years and the females in this age group are mostly pre-pubertal. In pre-pubertal females, vaginal lubrication is not as efficient as post-pubertal females, making the vagina more prone to injury in case of non-consensual sexual assault. Moreover, the vagina being the site of the injury, in this study, can be correlated with the position of the victim and assailant during the assault. The victim is almost always in the supine position in the assault, and the assailant is on top and forces the penis in the vagina, which makes the vagina more susceptible to injury than other sites. In males, the peri-anal area was the most common site of injury (11.3%), consistent with the study by McLean et al. [28] The reason seems evident as the assault in males is penile-anal, which exerts all the force on the peri-anal area and makes it the most commonly injured site.

**Non-genito-anal injury**

The non-genito-anal injury like injury on thighs, shoulders, face, breast, and other body parts in this study was significantly lower (23.2%) than other studies like Palmer et al. non-genito-anal injury rate was between 40% to 81%.[29] This study's non-Genito anal injury rate (23.2%) was also lower than the Genito anal injury rate (28.2%). This study had no significant relationship between non-genito-anal and genito-anal injury, while the study by Palmer et al. showed a significant increase in genital injuries with an increase in bodily injuries.[25] It could be interpreted that our study victims might have experienced physical violence only in genito-anal areas and other body parts sustained less violent force.

This finding of our study also suggests that genital examination must be done in victims of sexual abuse even if no bodily injuries are sustained; otherwise,
important medicolegal evidence could be lost.

Prior sexual intercourse experience
For this study, the women who did not report prior sexual intercourse (53.3%) had a significantly higher rate (p<0.05%) of overall Genito anal injuries(53.6%) while the victims who had previous intercourse experience (46.7%) sustained lesser injuries(46.3%). It might be because previous sexual intercourse may have made the genital structures dilated, as remodeling of the vagina that occurs with frequent intercourse can result in dilatation and loss of vaginal rugosities. In contrast, those victims who had no prior intercourse experience had their vagina constricted and rugose, making it more liable to injury. This is consistent with the study by Sugar et al., which also showed a significant lowering of the rate of genito-anal injuries with prior intercourse experience.[30]

Relationship to the assailant
This study found no significant difference in Genito anal injury prevalence, whether the assailant was a stranger or acquaintance, similar to Hilden et al. and Sugar et al.[21,30] The reason for this might be that only a small number of victims (26.1%) had a relationship with the assailant as compared to the majority (73.9%) who did not know their assailants, and these small number of victims who had a relationship with the assailant did not sustain injuries greater or lesser than the majority group due to which no significant statistical relation was observed. In contrast, Palmer et al. showed a significant relationship between the prevalence of Genito anal injury and the assailant’s relationship as there was a significant decrease in the number of injuries if the assailant was known in that study.[29]

Time interval between incident and examination
In this study, most of the injuries were detected in 24 hours, which is consistent with Suttipasit et al., where the maximum number of injuries had been detected within 24 hours of the incident.[22] This reflects that initial examination of victims of sexual abuse is necessary to collect significant medicolegal evidence because as time passes by, injuries start to heal, resulting in loss of substantial court evidence. Moreover, injuries change their nature as time passes as lacerations might become shallow and turn into abrasion, altering the results. This necessitates the earliest possible examination of such cases.

STRENGTHS AND LIMITATIONS
Studies detailing sexual assault in females are numerous, but to the best of our knowledge, this study is the first of its kind, reporting the sexual assault in the male population and extensive and systematic data collection. This study also shows the importance of medicolegal evidence of sexual assault cases in court, which has been emphasized by only a few studies previously. However, there are some limitations to this study, such as the study from this population cannot represent the whole country because, in Pakistani society, the number of sexual assault cases that are reported is significantly less as compared to other developed countries, owing to the societal and cultural taboos associated with it. Moreover, we did not have access to the assailants’ personal information, such as the penis and erectile function size. There was no supportive evidence, such as photographs. We had to rely on the victim for the history of assault, which makes it subjective. The documentation might not be uniform since different examining clinicians evaluate the situation differently. Psychological factors were also not considered in this study.

CONCLUSION
This study concludes that the presence of injuries in the genito-anal area suggests sexual assault and provides useful court evidence. However, the absence of genito-anal injuries does not negate the possibility of sexual assault. Besides, this study shows that sexual assault is more common in the younger population. This shows the need to educate the young people regarding sexual offenses and training the forensic examiners to evaluate such cases so that the perpetrators of such an act do not get off scot-free. Survivors of sexual assault must be provided with psychological assistance to make sure of their sound mental health. There is also an additional need for social education and awareness campaigns regarding the rehabilitation of rape victims, considering the mounting numbers of sexual assault cases in our society.

RECOMMENDATIONS
A multi-center study should be carried out to observe variation in age and gender distribution and the site of genito-anal injuries in sexual abuse cases.

REFERENCES


AUTHOR CRediT

SG & SM: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Writing (Original draft)

SA: Investigation, writing (Original draft)

NM: Investigation, Data curation, Writing (review & editing)

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ETHICAL CONSIDERATION

This study was approved by the Institutional Review Board of King Edward Medical University, Lahore, Pakistan on 03-02-2020 via letter no 116/RC/KEMU.
HOW TO CITE

CONFLICT OF INTEREST
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SUPPLEMENTARY MATERIAL
All the data shared is under terms of CC BY. The Supplementary Material raw SPSS data sheet in PDF format with size less than 1500 kb and can be downloaded from this URL: https://wp.me/abyAqB-Dh