

Comparison of the Clinical Profile of Prepubertal versus Pubertal Female Child Sexual Abuse in a Tertiary Hospital

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ABSTRACT

Objective. This study aimed to compare the clinical profile of prepubertal and pubertal female child sexual abuse.

Methods. A cross-sectional analytical study involving 43 sexually abused children was done. Each patient was categorized as prepubertal or pubertal based on the Tanner stage. Medical history was gathered using a structured interview and physical examination done with proper documentation after obtaining consent. Blind review by child protection specialists was done on genital images. Descriptive statistics were utilized for all variables.

Results. This study showed 11.97% and 22.22% prevalence for prepubertal and pubertal child sexual abuse, respectively. Most prepubertal children disclosed digital vaginal penetration by the father and non-relative household members, while most pubertal children reported penile-vaginal penetration by the boyfriend. Fondling was common to both groups. The majority were repeated abuse and usually happened at the perpetrator's house. Behavioral changes and genital symptoms were common in prepubertal children. Findings of hymenal trauma were found in 25% of prepubertal girls and half of the pubertal adolescents. The interobserver variability of these hymenal findings was fair. The prevalence of sexually transmitted infections (STIs) was low, none for the prepubertal children, and only 6% of the adolescent had STI, which was Hepatitis B.

Conclusion. The clinical profile of sexually abused prepubertal children differed from that of pubertal adolescents. There was a higher incidence of hymenal trauma and STIs in adolescents.

Key Words: child sexual abuse, abuse profile, prepubertal, pubertal

INTRODUCTION

Sexual abuse is increasingly identified as a significant social and medical problem. The worldwide prevalence of child sexual abuse is 12-13%.¹ According to the US Department of Justice, National Crime Victimization Survey, female adolescents between the ages 12-17 account for 1 in 5 sexual assault reports.² The National Baseline Study on Violence Against Children in the Philippines (2015) showed that the lifetime prevalence of widespread sexual violence in the home is 13.7%. Sexually abused children seen in the WCPUs were teenagers 13-15 years old.³ Children are ideal victims of sexual abuse because they are powerless, vulnerable, and have limited understanding of the appropriate behavior between adults and children.

Child sexual abuse occurs when a child is engaged in a sexual situation. Some cases may involve physical contact with or without oral, anal, or vaginal penetration. In contrast, others do not include touching (e.g., a child is made to watch sexual acts or pornography). The dynamics of child sexual

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abuse differ from those of adult sexual abuse. In the majority of cases, perpetrators are known to the victims. In many instances, perpetrators “groom” their victims and use threats, manipulation, or coercion instead of physical force. The delay between the onset of abuse and disclosure is typical.⁴ Children rarely disclose sexual abuse immediately after the event.⁵ Moreover, disclosure tends to be a process rather than a single episode and is often initiated following a physical complaint or a behavior change.

History from the child is the most important diagnostic feature in concluding that a child has been sexually abused.⁶ Various research studies have shown that most sexually abused children have standard genital examinations. Possible explanations for not finding any injury include: no abuse happened, the type of abuse does not usually cause harm such as fondling with clothes on or oral sex, abuse with penetration occurred but did not cause injury, and abuse happened and caused injuries, but the injuries healed completely.⁷ A routine physical examination does not exclude the possibility of sexual abuse or prior penetration. The majority of sexual abuse victims have standard anogenital examinations. In McCann et al., nonhymenal genital injuries healed at various rates depending on the type, location, and severity. Hymenal injuries healed rapidly except for the more extensive lacerations, left no evidence of the previous injury.^{8,9} There is a remarkably complex healing process that occurs after a hymenal injury. The rapid resolution of these injuries makes it imperative that a child be examined as soon as possible when there is suspicion of sexual assault.

According to the Centers for Disease Control and Prevention, STDs are not common in prepubertal children or infants evaluated for abuse; thus, testing all sites for all organisms is not routinely recommended.¹⁰ Evaluation for STD of a child should be made on an individual basis. However, children who received the diagnosis of one STD should be screened for all STDs.¹¹ In the study done by Siegel et al. on the prevalence of sexually transmitted diseases in children and adolescents, 3.2% of prepubertal girls and 14.6% of pubertal girls have STIs. The prevalence of other STIs such as *C trachomatis* and *trichomonas* in prepubertal girls is low and may be omitted from routine evaluations. On the other hand, all pubertal girls evaluated for sexual abuse should be tested for STIs because of the high prevalence of asymptomatic infection in their age group.¹¹ In the Philippines, Fabay et al., in a study done in 2005, found a 4.06 % prevalence of STI among sexually abused children. The most common presentation was vaginal discharge, and *N. gonorrhoea* was the most common pathogen isolated.¹²

Over the past years, there has been a growing recognition of and interest in identifying, diagnosing, and treating children who have been sexually abused. Medical professionals evaluate children with various levels of expertise and training. Increasingly, the gynecologic specialist is asked to provide an expert evaluation of children who are possible victims of sexual abuse or assault. Since the diagnosis of sexual

abuse may result in criminal investigation, the assessment and diagnosis must be made by a trained and experienced professional or specialist with the utmost care and attention to research and reason.

The fundamental problem that besets evidence in medical child protection is the lack of local studies. Child sexual abuse is often diagnosed based on information obtained from the child/guardian/informant/witness. However, there are manifestations of child sexual abuse such as disclosure of the child, physical signs and symptoms, behavioral changes, and other means of discovery such as the presence of STIs, forensic findings, a police inquiry, and social work assessment. A careful history of the abuse is the most critical part of the evaluation since most victims have normal anogenital findings. Furthermore, STIs are sporadic in the pediatric population. Despite the low prevalence of STIs in prepubertal girls, physicians often test most children for STIs because the condition may be asymptomatic. The presence of STIs can provide valuable evidence in the court to confirm the allegation of abuse.

Published local studies done on female child sexual abuse are limited. There is no published study evaluating the clinical profile of sexually abused female children in this tertiary institution. This study will compare the prepubertal and pubertal child sexual abuse, provide baseline information on the prevalence, demographics, patterns, nature of abuse, and physical findings. Furthermore, it will determine the prevalence of STIs in children and adolescents evaluated for sexual abuse.

OBJECTIVES

General Objective

This study aimed to compare the clinical profile of prepubertal and pubertal female child sexual abuse in a tertiary hospital.

Specific Objectives

- to determine the prevalence of prepubertal and pubertal female child sexual abuse in a tertiary hospital
- to describe the demographics of prepubertal and pubertal girls seen in the tertiary hospital
- to describe the profile of the child abuse based on the history obtained as follows:
 - type of abuse
 - perpetrator’s characteristics
 - sexual history
 - manner of disclosure
 - presence of genitourinary symptoms
 - behavioral changes
- to compare the physical examination findings and genital findings in these cases of prepubertal and pubertal girls
- to compare the prevalence of sexually transmitted infections in these cases of prepubertal and pubertal girls

METHODS

Study Design

We performed a cross-sectional analytical study involving 43 female children who consulted for sexual abuse at the child protection unit of the tertiary hospital from January 2018 to September 2018. Each patient was categorized as prepubertal or pubertal based on the Tanner stage. For this study, Tanner stage 1 or 2 were defined as prepubertal, and Tanner stages 3 to 5 as pubertal to compare the mechanisms of abuse in those children who completed pubertal changes from those who are not.

Population

The patient population in the study included female children referred to the child protection unit for sexual abuse who satisfied the following criteria:

- Inclusion criteria for this study were female children aged from birth to 18 years old who presented with concerns of sexual abuse. Sexual abuse may involve physical contact in any part of the body, with or without oral, anal, or vaginal penetration. In contrast, others do not include touching (e.g., a child is made to watch sexual acts or pornography). Also included are teenage pregnancies with less than 12 years old (statutory rape) and those with the age difference of more than five years with their partners.
- Exclusion criteria were patients with incomplete physical examination findings and improper documentation, patients who refused to be examined, and medically unstable patients.

Sample Size

A minimum sample size of 300 subjects was required for the study. This value gives 80% power to detect an effect size of 5% at 0.05 α level of significance. The test statistic used was the two-sided z test with pooled variance. The value used for the sample size computation was based on the study by Siegel et al.¹¹

However, hospital records at the child protection unit show approximately 50 sexually abused cases per year. Hence, the computed sample size was re-calculated using the formula for the finite population adjustment method.¹³

$$N_{\text{adjusted}} = \frac{\text{computed sample size}}{(1 + \text{computed sample size} / \text{population})}$$

$$N_{\text{adjusted}} = 300 / (1 + 300/50) = 43$$

The sample size was 43 cases. Quota sampling was used in the study.

Study Procedure

Approval from the Institutional Review Board was obtained. Consent/assent for the medical examination was acquired by a trained nurse or nurse assistant assigned to this

study from the accompanying adults/children as part of the protocol. The consent for the study was taken together with the support coming from the child protection unit before the interview process. If the perpetrator was the parent, the permission was taken from the other parent or the guardian accompanying the child. In all the procedures, the standard child protection unit protocol was followed.

The pediatric gynecology and ambulatory fellows assigned to the child did the history and physical examination. A data collection form that contains all the necessary information needed for the study was used. Data including the demographic information, medical history from parents/guardians, medical history from the child, and examination results were recorded on data collection forms. The medical history was gathered using a structured interview format using open-ended questions. Confidentiality of the information was ensured.

A comprehensive evaluation by the pediatric gynecology fellows, ambulatory pediatrics fellow assigned at the child protection unit, and social worker were done on all children under the supervision of the child protection specialist consultant. Children were examined acutely if the reported sexual abuse occurred within the past 72 hours or complaints of pain or bleeding. Timing of medical evaluations and a list of indications for immediate and deferred examinations are listed in Table 1 of the Appendix. Examination by the fellows was conducted in a very gentle and respectful approach to avoid further trauma to the patient. Complete physical examination was performed with specific attention to the genital and anal areas noting the presence or absence of discharge, Tanner stage, and signs of hymenal injury or abnormality. Acute hymenal trauma is characterized by bleeding, bruising, abrasion, or laceration of the hymen. The presence of healed hymenal laceration describes non-acute trauma. Children were examined in supine frog leg or lithotomy position using labial separation and traction. Anogenital images were photo-documented using the camera of the child protection unit. The consent for photo documentation was included in the initial consent as part of the standard protocol. The images were adequately stored and kept confidential under the care of the child protection unit. Destruction procedures were not done on the photos since they will be preserved as evidence in court for future use. Findings concerning non-acute injury were verified using a cotton swab, instillation of normal saline, or prone knee-chest position if necessary. The genital examinations were categorized as normal/nonspecific findings or indicative/suggestive of sexual abuse (Table 2, Appendix). To assess inter-rater reliability of the physical findings, genital images from all study participants were subjected to blind review by two experienced child protection unit specialists. The blind review by the child protection specialists was done to minimize the bias from the child's history.

Criteria for sexually transmitted diseases testing and evaluation followed the consensus of medical and legal child protection practitioners in the Philippines guidelines

(Table 3, Appendix). The decision to obtain genital or other specimens for STD diagnosis was made on an individual basis. STI testing for *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, human immunodeficiency virus (HIV), Hepatitis B virus, and *Treponema pallidum* were recommended in children who met any study criteria. STI work included trichomoniasis and moniliasis detection, gram stain (TMG), culture and sensitivity testing, VDRL/RPR determination, HIV screening, and hepatitis B profile.

Ethical Considerations

The study commenced upon the approval of the Institutional Review Board. No subject participated in the study without written informed consent.

Data Safety and Confidentiality

Subject information was kept in a secure office, with access available only to the investigator. Individually identifiable research data were not shared with others who were not part of the research team.

The investigator and all key personnel have completed the Good Clinical Practice (GCP) training on the responsible conduct of research with human data.

Compensation

No payment was given to the participating patients.

Discontinuation

Any subject who previously consented may choose to withdraw from participation at any point during the study.

Data Processing and Analysis

Data were encoded using the Microsoft Excel program. Statistical analysis was performed using STATA 14 MP. Descriptive statistics were utilized for all variables. Categorical variables with nominal data were summarized using frequencies and percentages. For numerical data, mean and standard deviation were computed. But for numerical data

with skewed distributions, median values were identified. Analysis of interobserver reliability was assessed using the Kappa statistic. The level of significance used was 0.05.

RESULTS

From January 2018 to September 2018, a total of 43 children referred to the Child Protection Unit of the tertiary hospital for sexual abuse were included in the study. A total of 117 children with various types of abuse were seen at the child protection unit during that period. Based on Tanner Staging, 16 were categorized as prepubertal (Tanner 1 and 2), and 27 as pubertal (Tanner 3-5). Sexual abuse was disclosed by 14 prepubertal children and 26 pubertal children. This gave a prevalence of 11.97 % for prepubertal child sexual abuse and 22.22 % for pubertal child sexual abuse. Two of the three children with no disclosure of sexual abuse were cases of anogenital warts referred to the child protection unit to rule out possible abuse. There were 10 (37%) teenage pregnant mothers in the pubertal group.

The prepubertal group had an age range of 3-10 years with the mean of 6.19 years, 94% were assessed as Tanner Stage 1 while the pubertal group had an age range of 10-18 years with the mean of 15.11 years, the majority with Tanner stage of 4 (48%) and 5 (48%). The majority of the children in both groups were from Quezon City. Half of the prepubertal group consulted within 72 hours from the abuse incident, while only 3.7% of the pubertal group consulted acutely. The prepubertal group had a median of 2 days from the last abuse incident to the time of consult while 240 days for the pubertal group.

Types of Sexual Abuse

Half of the prepubertal girls said that the perpetrator's finger was inserted into their vagina, while 38% disclosed fondling. In the pubertal group, 37% reported fondling, and 30% said that the penis was inserted into their vagina. (Figures 1 and 2)

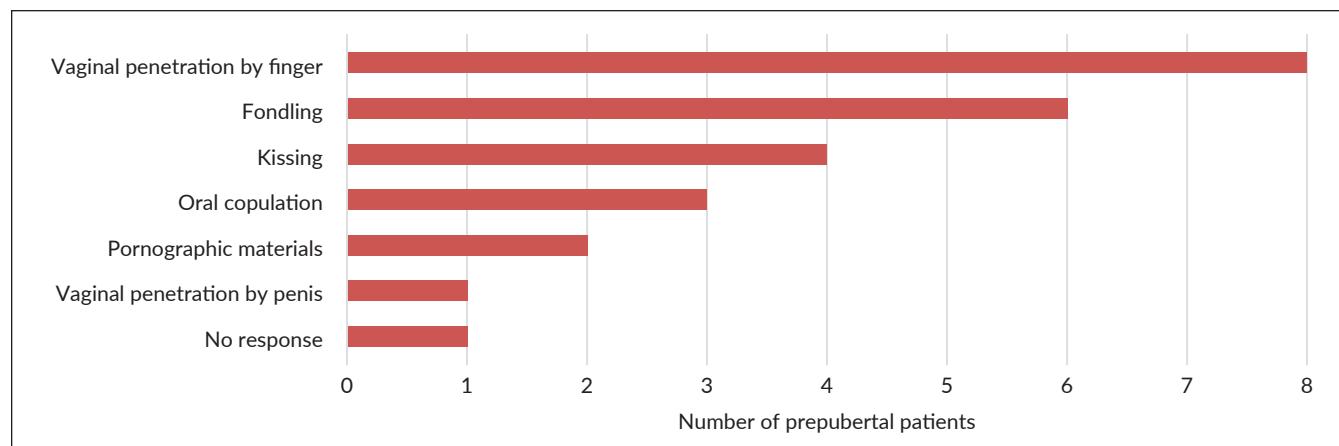


Figure 1. Types of Sexual Abuse Experienced by Prepubertal Patients Seen at PCMC-CPU, January to September 2018.

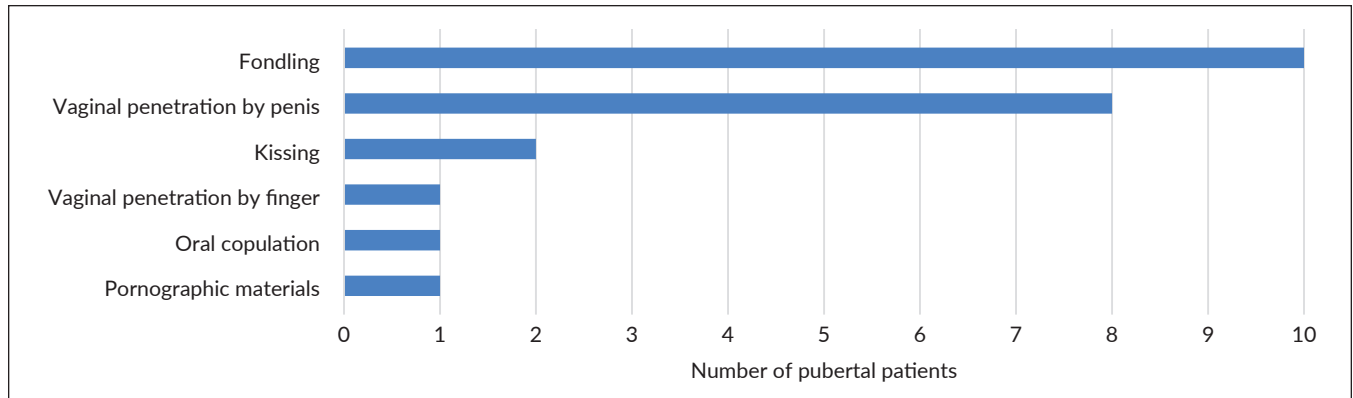


Figure 2. Types of Sexual Abuse Experienced by Pubertal Patients Seen at PCMC-CPU, January to September 2018.

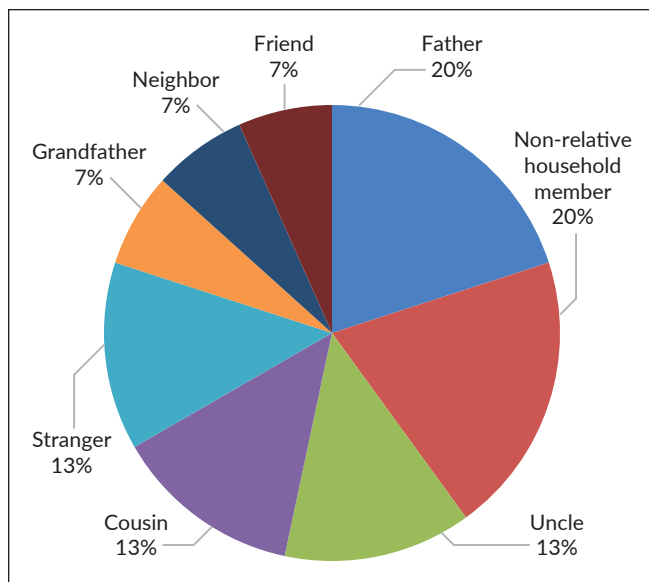


Figure 3. Prepubertal Victim's Relationship to the Perpetrator.

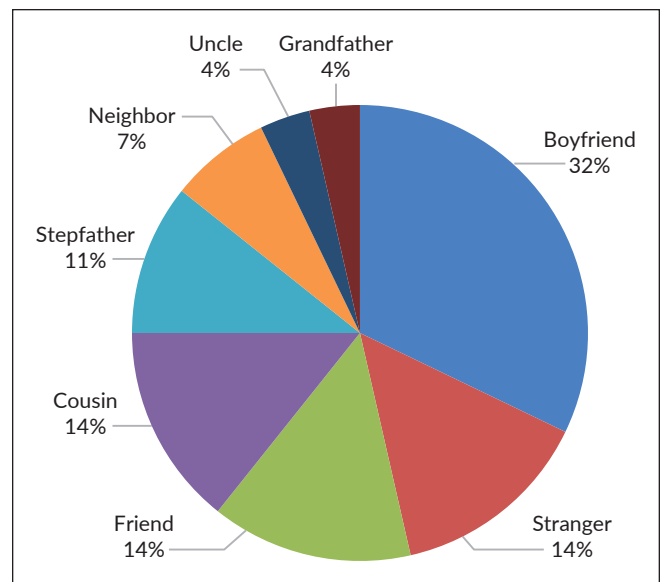


Figure 4. Pubertal Victim's Relationship to the Perpetrator.

For both groups majority of the sexual abuse happened in the perpetrators' house, followed by the victims' house.

Perpetrators' Characteristics

Different perpetrators' profile was noted on both groups. For the prepubertal group, the age of the perpetrators ranged from 7-48 years, mean of 26.40 ± 15.76 . The majority were their fathers and non-relative household member (Figure 3). Five (5) of 16 (31%) were juvenile perpetrators with the age range of 7-16 years old. Half of the prepubertal children were abused more than once with the frequency of 1x to 6x. For the pubertal group, the age of perpetrators ranged from 15-45 years, mean of 25.09 ± 9.00 , with the boyfriend being the most common perpetrator since most of the subjects included in this group were teenage pregnant mothers (Figure 4). The majority (59%) of the pubertal group were also abused more than once with a frequency of 1.10. Most of the subjects or informants reported not knowing

their perpetrator's history of any STI for both prepubertal and pubertal groups (60% and 69%, respectively). STI was positive in perpetrators of 2 prepubertal children and none in pubertal patients.

For the STI history in the victims and family members, only one prepubertal child had a history of STI reported as genital warts.

There was no history of any STI in the family members of all pubertal patients and 93% of prepubertal patients.

Disclosure

Most of the prepubertal group first disclosed the abuse incident to their mother (37%), while the pubertal group disclosed mainly to their friend (30%). (Figures 5 and 6) Half of the respondents told their sexual abuse incident in at least seven days (1 hour, 3 years) among prepubertal patients. Half of the pubertal patients disclosed the incident within 30 days (1 hour, 5 years).

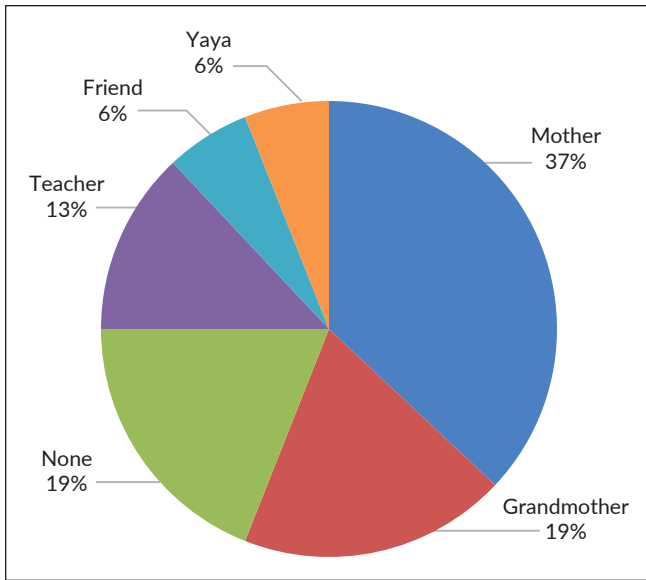


Figure 5. Persons Disclosed to of the Sexual Abuse Incident of Prepubertal Patients.

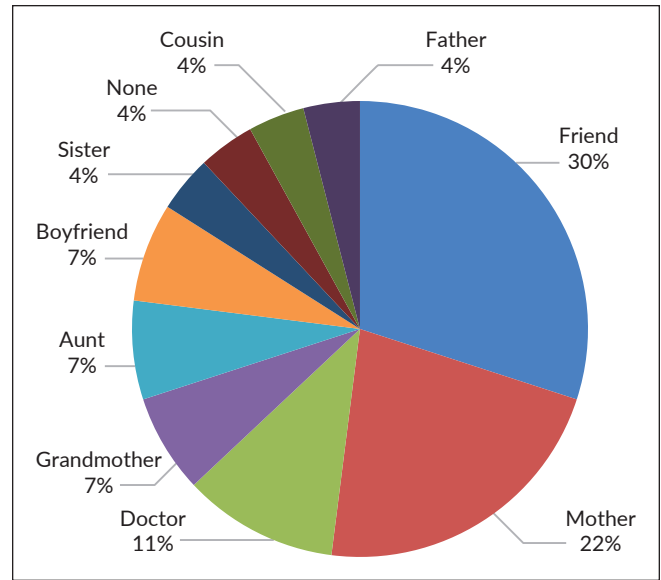


Figure 6. Persons Disclosed to of the Sexual Abuse Incident of Pubertal Patients.

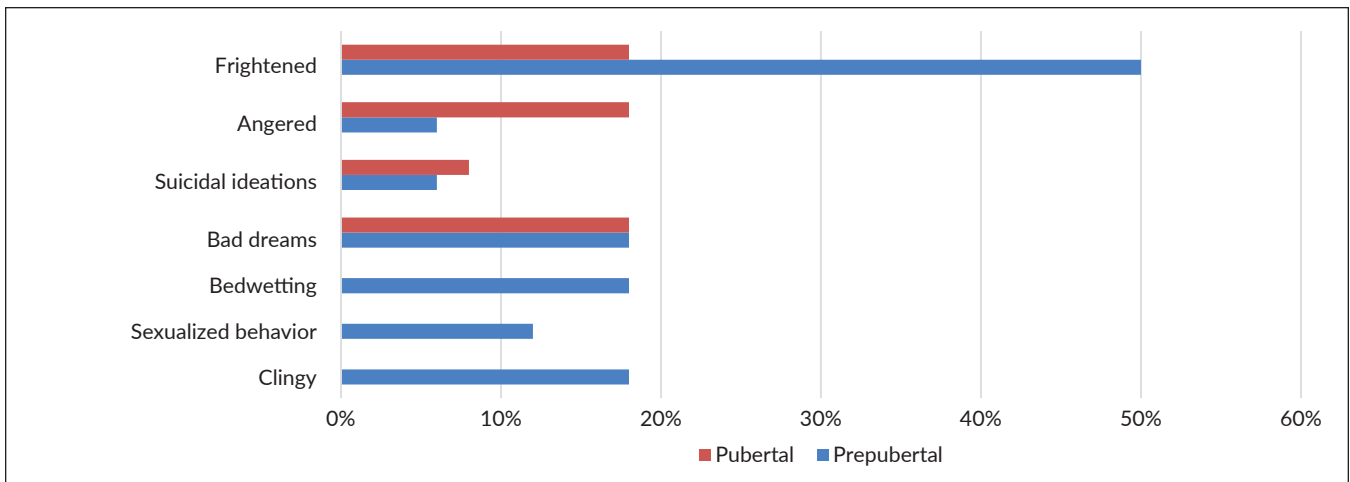


Figure 7. Percent Reported Behavioral Changes After Sexual Abuse Incident Among the Prepubertal and Pubertal Patients.

Genitourinary Symptoms and Behavioral Changes

Genitourinary symptoms were commonly reported in the prepubertal group. Half of the prepubertal children (8/16) complained of genital pain, 31% (5/16) had vaginal discharge, 19% (3/16) had vaginal bleeding, and 6% (1/16) with vulvar erythema. Among the pubertal group, only 1 reported genital pain, and another one complained of erythema.

Half of the prepubertal children were frightened after the incident. Fear was more common in prepubertal children, while anger was more common in the pubertal group. The occurrence of bad dreams and suicidal ideations were of the same proportion in both groups. Bedwetting, sexualized behavior, and clingy behavior were manifestations observed only in the prepubertal group. (Figure 7)

Physical Examination Findings

General physical findings showed no pertinent injuries in both groups. Results on the anogenital exam suggestive of sexual abuse were noted on the hymen. At the same time, other areas appeared normal except for genital warts in 1 prepubertal child and 1 pubertal adolescent. The presence of vaginal discharge was noted only in 3 (19%) prepubertal children.

Based on the anogenital examination findings, 4 of the 16 (25%) prepubertal children had hymenal findings suggestive of sexual abuse, including deep notches and genital warts. Septate hymen, a normal hymenal variant, was also noted in 1 prepubertal child. The 3 prepubertal children with positive hymenal findings disclosed that a finger was inserted

into their vagina. One patient with no disclosure of abuse had genital warts.

Among the pubertal group, 16 of the 27 (59%) children seen have hymenal findings indicative of sexual abuse, including lacerations, healed transections, deep notches, a missing segment of hymenal tissue, and genital warts. All the subjects with positive hymenal findings claimed that a finger or penis was inserted into their vagina and that some are already pregnant teens or have given birth.

Comparison of Physical Examination Findings

The degree of agreement between the fellow and the first CPU specialist was 55.81% ($\kappa = 0.20$; $p=0.06$). The degree of agreement between the fellow and the second CPU specialist was 60.47% ($\kappa = 0.27$; $p=0.01$). Lastly, the degree of agreement between the two CPU specialists was 60.47% ($\kappa = 0.28$; $p<0.01$). See Table 1.

These measures of reliability were considered Fair according to Landis and Koch (1977).¹⁴ See Table 2.

Table 1. Interobserver Reliability of Hymenal Findings

Findings	Kappa
Negative	0.31**
Positive	0.27**
Undetermined	< 0.00

** $p<0.01$

Table 2. Agreement Measures for Categorical Data¹⁴

Kappa Statistic	Strength of Agreement
below 0.0	Poor
0.00 – 0.20	Slight
0.21 – 0.40	Fair
0.41 – 0.60	Moderate
0.61 – 0.80	Substantial
0.81 – 1.00	Almost perfect

Sexually Transmitted Infections (STIs)

STI screening in the study included Gram stain and culture, screening for Syphilis, Hepatitis B, and HIV infection. Gram stain and culture were done on three prepubertal children with vaginal discharge, but findings were not suggestive of STI. Culture results showed scanty Streptococcus pyogenes, Escherichia coli, and Klebsiella pneumoniae. The screening was done on prepubertal children with genital warts, and the results were negative for other STIs. For the pubertal group, screening was indicated in 16 (59%) patients and only 1 (6%) of the pubertal patients screened came out positive for Hepatitis B after the examination.

DISCUSSION

Child sexual abuse is a universal problem with grave life-long outcomes. It is any sexual activity with a child where consent is not or cannot be given. This study was conducted to compare the clinical profile of prepubertal and pubertal child sexual abuse and provide data that may help establish future guidelines.

Children and adolescents are at high risk for sexual assault. Studies by Finkelhor at Crimes Against Children

Research Center show that 1 in 5 girls is victim of sexual abuse. Children ages 7 and 13 are the most vulnerable to sexual abuse, and throughout their lifetime, 28% of U.S. youth ages 14-17 had been sexually victimized.¹⁵ National Crime Victimization Survey also reported that those aged 16-19 are four times more likely to be victims of sexual assault, while 16% are younger than 12years.² National baseline studies on violence against children in the Philippines (2015) also reported that 1 out of 5 children is sexually abused. About 17.1% of children aged 13-18years experienced any form of sexual violence while growing up.³ The prevalence of child sexual abuse in this study is 22.22% in pubertal children and 11.97% in prepubertal children. This is consistent with the 20% prevalence in other studies and the finding that adolescent children are more commonly seen at the child protection unit. Adolescents are the usual victim of sexual abuse because they tend to engage in risk-taking behaviors and are impulsive and vulnerable to peer pressure.

Age is a significant factor in sexual abuse. The median age for reported abuse is nine years old.¹⁵ For this study, the mean age for prepubertal children is six years and 15 years for pubertal children. Teenage pregnant mothers also constitute one-third of pubertal children. The risk of teen pregnancy is much higher for girls with a history of child sexual abuse. Girls who are sexually abused are 2.2 times as likely as non-abused peers to become teen mothers, and 45% of pregnant teens report a history of child sexual abuse.¹⁶ The increased risk for pregnancy at a young age is likely due to sexualized behavior which is another common consequence of child sexual abuse.

Types of Sexual Abuse

Sexual abuse includes a range of activities like “intercourse, attempted intercourse, oral-genital contact, fondling of genitals directly or through clothing, exhibitionism or exposing children to adult sexual activity or pornography, and the use of the child for prostitution or pornography. In a study involving children eight months to 17 years, a victim of sexual abuse, fondling was disclosed in 36%, oral-genital contact in 31%, digital-vaginal penetration in 44%, and penile, vaginal contact in 63%.¹⁷ Another study showed that unwanted sexual touching was the most common form of sexual abuse experienced by 5% of females. In comparison, 2.4% had forced attempted sex.³ Fondling or touching private parts such as breast and genitalia was also observed as the most common form of abuse in this study disclosed by 37% of both prepubertal and pubertal children. Digital vaginal penetration was claimed by half of the prepubertal children. However, it is also possible that some children did not experience complete penetration beyond the hymenal rim into the vaginal vault because prepubertal children might not be able to distinguish penetration from no penetration. After all, they are not developmentally capable of doing so. Penile, vaginal contact was also commonly observed in the adolescent group and usually perpetrated by their relatives and friends.

Perpetrators' Characteristics

Children experience sexual violence in various settings perpetrated by family members, partners, peers, and strangers. Offenders are overwhelmingly male, ranging from adolescents to the elderly. Approximately one-third of offenders are juveniles.¹⁵ The younger the child victim, the more likely it is that the perpetrator is a juvenile. Juveniles are the offenders in 43% of assaults on children under age six.¹⁶ Prepubertal children have younger perpetrators, age 7-48 years, compared to 15-45 years of pubertal children.

In most cases, as in 3 out of 4 incidents, the victims know their assailants.² Approximately 30% of children who are sexually abused are abused by family members. For the younger age group, the majority of the abuser/alleged perpetrators are family members. Of those molesting a child under six, 50% are family members. Family members also accounted for 23% of those abusing children ages 12 to 17.⁹ About 60% of children who are sexually abused are abused by people the family trusts.¹⁶ Majority of the perpetrators in the prepubertal children are their fathers and non-relative household member. These are the people they trust and have easy access to them.

In contrast, most of the perpetrators in the pubertal group are their boyfriends since one-third of the respondents are teenage pregnant mothers. A stranger abuse only 13-14% of sexually abused children. Most child sexual abuse incidents for all ages occur in one-perpetrator/one-child circumstances, although for both groups majority of the abuse occurred more than once.

People who sexually abuse children can be found in families, schools, churches, recreation centers, youth sports leagues, and other places children gather. Most sexual abuse of children occurs in residence, typically that of the victim or perpetrator – 84% for children under age 12, and 71% for children aged 12 to 17.¹⁶ This is consistent with the findings of this study that the most commonplace occurrence of sexual abuse is the perpetrators' house and the victims' house. Lack of supervision, single-headed households, and absent parents increase the risk for sexual violence against children in the home.³

Disclosure

There is wide variability in timing and context of the disclosure; many children wait weeks, months, or years before they tell someone. In children, fear of or threats by the perpetrator are leading causes of delayed disclosure. Child sexual abuse accommodation syndrome may explain why children's exposure is often delayed following abuse and why disclosure is sometimes problematic or retracted. This happens when the perpetrator is either the father or a close relative living in the household. Understanding this typical behavior pattern is vital to understanding why the child victim behaves in a particular way, especially if she keeps the abuse secret for a long time, recants a previous statement, or blames herself for the abuse.⁶ Additional factors include

embarrassment, lack of opportunity to tell, and the nature of the relationship with the perpetrator. Among adolescents, fear of retribution, feelings of guilt, not self-identifying as a victim, lack of knowledge regarding her rights, and effects from alcohol might lead to delay in disclosure.² One of the drivers of sexual violence is the culture of shame and fear of reporting, including taboos against discussing sexuality with children, thus limiting people's access to information on protection and prevention measures that may limit their risk of exposure to sexual exploitation.³

Low disclosure rates are typical of sexual violence against children (NBS-VAC, 2015). If the child disclosed it at all, it is usually to a friend.³ Pubertal children have delayed disclosure compared to prepubertal children, and most of them are told to their friends. Disclosure is often initiated after an inquiry about a physical complaint such as genital pain or bleeding.¹⁸ This is noted on prepubertal children who have genital complaints that led their mothers or caretakers to investigate the possible abuse. The presence of genital symptoms also explains why most prepubertal children consulted earlier than the pubertal children.

Behavioral Changes

Children who have been sexually abused may also develop behavioral and physical symptoms. In younger children, recurring nightmares, mood swings, sexualized behavior, fear of people or places, enuresis, and clingy and anxious are some telltale signs. Hurting oneself, changes in eating habits, changes in personality, outbursts of anger, suicide attempts, depression, promiscuity, drug, and alcohol abuse are the commonly observed changes after a sexual assault in adolescence.¹⁹ The abuse is frightening and emotionally disturbing for the victim, and it brings about a fundamental disturbance of sexual development. It can give rise to profound feelings of guilt, shame, low self-esteem, and familial and social isolation.⁵ Children sexually abused are at significantly greater risk for later posttraumatic stress and other anxiety symptoms, depression, and suicide attempts. Prepubertal children experienced more behavioral changes compared to the pubertal group. Children younger than ten years are more frightened; thus, they become clingy and have enuresis and bad dreams. They also developed sexualized behavior. Psychological assessment was done on sexually abused children as part of their management.

Physical Examination Findings

Anogenital findings in this study showed a higher proportion of children with hymenal findings indicative of trauma, 25% and 59% in prepubertal and pubertal girls, respectively. Most of the children with hymenal findings disclosed digital vaginal penetration, penile, vaginal penetration, or are teenage pregnant mothers. Hymenal injuries noted on the prepubertal children include deep notches and genital warts. In contrast, the pubertal children have lacerations, healed transection, and missing segments of hymenal tissue

in addition to the abovementioned findings. In the study by Paoin, pubertal girls were found to have more diagnostic and suspicious findings of penetrating trauma than prepubertal girls. Whereas prepubertal girls have more nonspecific findings of penetrating trauma than pubertal girls.⁶ Findings suggestive of sexual abuse in this study were noted mainly on the hymen; the rest of the physical findings appeared normal. According to Mc Cann et al., most nonhymenal injuries healed with little or no evidence of previous trauma and hymenal injuries except for the more extensive lacerations.^{8,9} Accepted explanations for routine anogenital examinations include the nature of sexual contact, delays in disclosure, and the body's ability to heal quickly and completely.²⁰

Most findings that are due to abuse are found in the posterior area of hymen and introitus. The peripheral edge of hymen between 3 and 9 o'clock with the patient in supine is caused by penetration.¹ In the vast majority of cases where there is credible evidence that a child has been penetrated, only between 5 and 15% of those children will have genital injuries consistent with sexual abuse.¹⁵ Diagnostic findings were present in 7%, estimated odds of the diagnostic conclusions were 12.5 times higher for children reporting genital penetration than those who said only contact.²⁰ More than 90% of girls ages 3-8 years old who described digital or penile-vaginal penetration had no signs of injury. Definitive and specific findings are more common in those who reported genital to genital contact (86%) than in those who reported digital-to genital contact (16%).¹⁷ In a study by Anderst et al., most victims who reported non-acute repetitive penile-genital contact that involved some degree of perceived penetration had no definitive evidence of penetration on examination of the hymen. A rate of abnormal findings of 5.5% was found for a subset of victims of penetrative abuse, including anal and digital penetration.²¹ Compared to the abovementioned studies on anogenital findings in child sexual abuse, this study showed a higher incidence of hymenal findings indicative of trauma.

Proper determination and documentation of physical findings are ensured for the protection of abused children. The two child protection specialists did a cross-examination of the hymenal findings to ensure interobserver reliability of hymenal findings. The reliability of the readings was considered fair, with a degree of agreement of 55-60%. Colposcope was not used in taking pictures of the hymen; hence some of the hymen configurations were not clear in photos. The accurate interpretation of genital findings in children requires specialist training, and experts in this field should be consulted wherever possible.⁵

Sexually Transmitted Infections

STIs are rare but, in some cases, the only medical evidence of sexual abuse. The presence of an STI is often used to support allegations of sexual abuse and, in some cases, may prompt an investigation of possible abuse. However, despite the high prevalence of sexual abuse, most abused children will

not have a sexually transmitted disease identified. Screening is generally not indicated in the absence of vaginal discharge, specific lesions, or a history of mucosal contact. The incidence of STDs in prepubertal children is estimated to be 1-5%.⁷ STIs studies have shown that STIs are documented in 4%-14% of adolescents and 8% in girls ages 0-13 years old.² The prevalence of STIs, specifically Gonorrhea and *C. trachomatis*, was low, ranging from 0.4 to 1.8%. No child was found to have syphilis or HIV by serology.²² The most common presentation for STI in children was mucoid discharge, disclosure of sexual abuse, and behavioral changes.¹² Findings in this study showed a low prevalence of STI, with 1 (6%) pregnant adolescent being positive for Hepatitis B infection and none of the prepubertal children being positive for STI. Hepatitis B infection is also transmitted by nonsexual route; thus, other ways of transmission should be ruled out for this case. The prepubertal child and an adolescent with genital warts have no disclosure of sexual abuse, and both were negative on screening with other STIs. Genital warts, though no evidence of sexual abuse, should prompt a search for associated findings and concomitant STIs. In one retrospective study of children with HPV infection, children who were 4-8 years of age were 2.9 times more likely to have been sexually abused compared with children younger than four years of age, and children who were 8-12 years of age were 12.1 times more likely to have been abused compared with children younger than four years of age.²³ Genital warts have been diagnosed in children who have been sexually abused and in children who have no other evidence of sexual abuse.²²

SUMMARY

This study showed differences in the clinical profile of prepubertal and pubertal child sexual abuse. The prepubertal children who mostly spend their time at home were abused predominantly by the people in their household. Genital findings and behavioral changes were common in them; hence the primary caretaker, mainly their mothers, investigated the possible abuse leading to earlier disclosure and consulted for this age group. On the other hand, the pubertal adolescents who were found to have a higher incidence of sexual abuse tend to have delayed disclosure because of fear and guilt. Hence the disclosure mainly was to their friends. Risk-taking behaviors were common to them, so their usual perpetrators were their boyfriends.

Limitations

This study has limitations. First, only limited sexually abused children were consulted in our institution hence a small sample size. Second, the colposcope and the high-resolution camera were not used in photo documentation because only the available CPU camera was utilized. Although there were only two trained child protection specialists in our institution, incorporating child protection in the curriculum of residents and fellows in training would help improve in

evaluation, management, and referrals of child abuse cases. Another limitation of the study is that not all laboratory tests for STIs, such as Nucleic Acid Amplification Test (NAAT) for chlamydia, were available in our institution; hence there may be a possibility of underdiagnosis.

CONCLUSION

Child sexual abuse is likely the most prevalent health problem children face, with the most serious array of consequences. The clinical profile of sexually abused prepubertal children differed from the pubertal adolescents, and many findings in this study were similar to those in other reports.

The perpetrators were usually known to the victims of both groups, and they were someone they trusted. Digital vaginal penetration was commonly reported by prepubertal children, while penile-vaginal penetration for pubertal adolescents. Genitourinary symptoms and behavioral changes were more common in prepubertal children, thus leading the mother to suspect the possible abuse and seek earlier consult in the hospital. Hymenal findings seen in prepubertal children include deep notches and genital warts. There was a higher incidence of hymenal trauma and STIs in adolescents in the diagnostic results.

All children should be taught how to recognize sexual abuse, protect themselves, and immediately report the abuse since the study showed that most perpetrators were known to them. Prepubertal children at an early age should know about their private parts, know the good touch and the bad touch, and disclose the possible abuses at home. Adolescents should also be advised regarding risk-taking behaviors and their consequences.

It is recommended that the study be done in other child protection units with more child sexual abuse cases to attain a larger sample size. Furthermore, proper documentation using a high-resolution camera and colposcope or videography is suggested for accurate interpretation of anogenital findings.

Statement of Authorship

All authors participated in the data collection and analysis and approved the final version submitted.

Author Disclosure

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APPENDIX

Appendix tables are available from the corresponding author upon request.

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