A review of child sexual abuse cases presenting to a paediatric emergency department

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INTRODUCTION

Child sexual abuse (CSA) is a global public health issue with adverse short- and long-term repercussions. Formal definitions of CSA and the age for defining children differ around the world. In Singapore, CSA refers to any act where a child or young person below 16 years old is used for sexual pleasure or taken advantage of sexually.1

CSA has multiple consequences, many of which last into adulthood. Physical effects include sexually transmitted diseases such as human immunodeficiency virus infection2 and somatic complaints such as gastrointestinal disorders, chronic pain and psychogenic seizures.3 Many psychiatric consequences have been described, including post-traumatic stress disorder, sleep disorders, anxiety, depression, eating disorders, conversion disorder, borderline personality disorder, decreased self-esteem, decreased life satisfaction and suicide attempts.4-7 Behavioural outcomes include an increased risk of smoking, alcohol dependence, illicit drug use,8 delinquency, criminal behaviour and risky sexual behaviour.9 There are suggestions of increased risks of future marital problems10 and dependence on welfare.7 Subsequent generations are also affected, with children of victims of CSA at greater risk of being born preterm, having a single mother, or being involved in protective services.12

In Singapore, the Child Protective Service (CPS) oversees the investigation of child abuse allegations and the protection of children. The number of CSA cases...
We performed a retrospective chart review of electronic medical records. We included all patients aged 0–16 years old who presented to the ED of KK Women’s and Children’s Hospital (KKH) with sexual abuse from 17 June 2016 to 31 August 2020. KKH ED is the larger of 2 tertiary paediatric EDs in Singapore, and sees about 150,000 patients a year. The patients either presented of their own accord, with or without parents or guardians, for sexual abuse, or were accompanied by the police as part of the protocol for police investigations of CSA in Singapore, which includes a mandatory paediatric ED consultation for the purpose of safe disposition and referral to Gynaecology. A referral to a multidisciplinary team, including a medical social worker (MSW), was subsequently made, either by the attending ED doctor if the patient was discharged, or by the inpatient team if the patient was admitted. For patients who presented more than once for CSA, only their first ED presentation was included.

Patients were identified using ED diagnosis codes of “sexual abuse”, “child sexual abuse” and “sexual assault”. The diagnosis code of “child abuse” was also screened but did not yield any CSA cases. Data were extracted from ED records, follow-up outpatient specialist clinic records and MSW records. A structured data extraction form was used to extract information on the child’s demographics, details of the sexual abuse, perpetrator characteristics, the presence of pregnancy or sexually transmitted infections, the child’s background (e.g. psychiatric or behavioural issues, substance use, previous encounters with social service agencies), the child’s family structure, and potential associated family characteristics (e.g. history of parental incarceration or illicit drug use).

Each case was assigned a unique case identifier, and patient identifiers were not entered into the dataset. Our definition of CSA, and thus our study population, included cases where the victim was aged below 16 years, the legal age of consent for sexual activity, and voluntarily participated in the sexual activity. In our study, we referred to these cases of voluntary participation as “consensual” as opposed to “non-consensual”.

We described categorical data using frequencies and percentages, and continuous data using mean and standard deviation (SD). We performed a secondary analysis on girls, stratifying them by age <13 and ≥13 years, and compared the 2 groups for differences in abuse characteristics and risk factors. Boys were not included in this analysis due to their small number in the study, and characteristics between female and male victims of CSA are known to be different. We differentiated between these 2 age groups because children typically progress from primary to secondary school education at age 13 and may have an associated increase in autonomy. Categorical variables were analysed using chi-square tests and continuous variables were analysed using Student’s t-test. Data were analysed using SPSS Statistics software version 23 (IBM Corp, Armonk, US).

The study was approved by the SingHealth Centralised Institutional Review Board (2020/2761). The requirement for informed consent was waived due to the minimal risks of the study, the low feasibility
of retrospectively obtaining consent from a large number of patients, and the risk of inflicting psychological damage on patients by contacting them regarding a potentially traumatic past event.

RESULTS

Epidemiology

There were 790 patients who made 833 visits to the ED for CSA. Of these, 38 patients presented more than once for CSA, and only their first visit was included in the study. From 2016 to 2019, a mean of 16.2 patients per month were seen (Table 1). Fewer patients were seen in 2020 (mean of 13.0 per month) due to a fall in attendances by about half from April to July 2020, compared to the same period in the preceding years. This coincided with COVID-19 movement restrictions imposed nation-wide from 2 April to 1 June 2020, and subsequent phased reopening measures. The majority (747, 94.6%) of patients were girls, and 261 (33.0%) patients presented at <13 years old. Ethnic distribution is as shown in Table 1.

Abuse characteristics

Abuse characteristics are described in Table 2. The first abuse occurred at <13 years old for 315 (39.9%) of patients. The majority (468, 59.2%) had more than one alleged event of CSA prior to presentation. The perpetrators were predominantly male for both female (721/747, 96.5%) and male (42/43, 97.7%) victims. A small proportion of victims was subjected to concurrent physical abuse (19, 2.4%). The abuse involved non-consensual acts in 432 victims (54.7%). The abuse was non-consensual for most male victims (36/43, 83.7%), and for more than half of female victims (396/747, 53.0%). Among girls <13 years old compared to those ≥13 years old, the abuse was more frequently non-consensual (210/237, 88.6% versus 186/510, 36.5%, P<0.001) and intrafamilial (113, 47.7% vs 41, 8.0%, P<0.001). In contrast, the perpetrator was most commonly a friend (452, 88.6%) for girls ≥13 years old. For girls <13 years old, the perpetrator more frequently lived in the same household (116, 48.9% vs 34, 6.7%, P<0.001), and the perpetrators were generally older (mean 30.5, SD 15.7 vs mean 19.1, SD 8.4, P<0.001). For girls <13 years old, the abuse occurred most frequently in the patient’s residence (132, 55.7%, P<0.001), whereas for girls ≥13 years old, the abuse occurred most commonly in the perpetrator’s residence (205, 40.2%), followed by the patient’s residence (107, 21.0%).

Girls ≥13 years old were more likely to have been involved in more intrusive abuses, with higher rates of penile-vaginal intercourse (390, 76.5% vs 56, 23.6%, P<0.001) and penile-oral or oral-vaginal intercourse (15.4, 30.2% vs 38, 16.0%, P<0.001). In contrast, girls <13 years old were more likely to have been fondled with no penetration (88, 37.1% vs 18, 3.5%, P<0.001).

Disclosure

Eight children were preverbal. Of the 782 children who could communicate verbally, 454/740 (61.4%) had

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Table 1. Year-on-year demographics between 2016 and 2020

| Year          | 2016a | 2017  | 2018  | 2019  | 2020b | Total |
|---------------|-------|-------|-------|-------|-------|-------|
| Total no. of cases | 115   | 185   | 189   | 197   | 104   | 790   |
| Mean no. of cases per month | 17.8  | 15.4  | 15.8  | 16.4  | 13.0  | 15.7  |
| Girls, no. (%) | 100   | 174   | 179   | 194   | 100   | 747   |
| Age <13, no. (%) | 45    | 73    | 64    | 60    | 19    | 261   |
| Girls aged <13, no. (%) | 37    | 67    | 59    | 58    | 16    | 237   |
| Ethnicity, no. (%) |       |       |       |       |       |       |
| Chinese       | 55    | 88    | 82    | 92    | 45    | 362   |
| Malay         | 37    | 75    | 75    | 82    | 51    | 320   |
| Indian        | 15    | 13    | 23    | 13    | 2     | 66    |
| Others        | 8     | 9     | 9     | 10    | 6     | 42    |

a From 17 June 2016 to 31 December 2016 (6.47 months)
b From 1 January 2020 to 31 August 2020 (8 months)
c Percentage out of number of girls presenting in that year
Table 2. Abuse characteristics

| Characteristic | Total (N=790) | Girls |
|----------------|-------------|-------|
|                | All (n=747) | <13 (n=237) | ≥13 (n=510) | P value* |
| Age <13 at first incident, no. (%) | 315 (39.9) | 289 (38.7) | – | – | – |
| >1 incident of sexual abuse prior to presentation, no. (%) | 468 (59.2) | 445 (59.6) | 129 (54.4) | 316 (62.0) | 0.051 |
| Non-consensual, no. (%) | 432 (54.7) | 396 (53.0) | 210 (88.6) | 186 (36.5) | <0.001 |
| Perpetrator male, no. (%) | 763 (96.6) | 721 (96.5) | 214 (90.3) | 507 (99.4) | <0.001 |
| Perpetrator age (mean±SD) | 23.3±12.9 | 22.7±12.4 | 30.5±15.7 | 19.1±8.4 | <0.001 |
| Intrafamilial, no. (%) | 171 (21.6) | 154 (20.6) | 113 (47.7) | 41 (8.0) | <0.001 |

Relationship of perpetrator to child, no. (%)

| Relationship                  | Total (N=790) | Girls |
|-------------------------------|---------------|-------|
| Friend                        | 524 (66.3)    | 510 (68.3) | 58 (24.5) | 452 (88.6) | – |
| Biological father             | 77 (9.7)      | 68 (9.1) | 53 (22.4) | 15 (2.9) | – |
| Mother’s partner              | 34 (4.3)      | 34 (4.6) | 19 (8.0) | 15 (2.9) | – |
| Other relative                | 60 (7.6)      | 52 (7.0) | 41 (17.3) | 11 (2.2) | – |
| Helper                        | 16 (2.0)      | 15 (2.0) | 15 (6.3) | 0 (0.0) | – |
| Teacher                       | 16 (2.0)      | 14 (1.9) | 11 (4.6) | 3 (0.6) | – |
| Others                        | 63 (8.0)      | 54 (7.2) | 40 (16.9) | 14 (2.7) | – |
| Perpetrator in same household as child, no. (%) | 171 (21.6) | 150 (20.1) | 116 (48.9) | 34 (6.7) | <0.001 |

Location of most recent incident, no. (%)

| Location                        | Total (N=790) | Girls |
|---------------------------------|---------------|-------|
| Patient’s residence             | 260 (32.9)    | 239 (32.0) | 132 (55.7) | 107 (21.0) | – |
| Perpetrator’s residence         | 244 (30.9)    | 236 (31.6) | 31 (13.1) | 205 (40.2) | – |
| Public areas of housing estates e.g. staircases, void decks | 100 (12.7) | 100 (13.4) | 20 (8.4) | 80 (15.7) | – |
| Others                          | 186 (23.5)    | 172 (23.0) | 54 (22.8) | 118 (23.1) | – |

Type of sexual abuse, no. (%)

| Type of sexual abuse            | Total (N=790) | Girls |
|---------------------------------|---------------|-------|
| Penile-vaginal                  | 446 (56.5)    | 446 (59.7) | 56 (23.6) | 390 (76.5) | <0.001 |
| Penile-oral/Oral-vaginal        | 206 (26.1)    | 192 (25.7) | 38 (16.0) | 154 (30.2) | <0.001 |
| Digital penetration             | 303 (38.4)    | 296 (39.6) | 98 (41.4) | 198 (38.8) | 0.511 |
| Penile-anal                     | 50 (6.3)      | 32 (4.3) | 8 (3.4) | 24 (4.7) | 0.403 |
| Foreign object penetration      | 13 (1.6)      | 10 (1.3) | 9 (3.8) | 1 (0.2) | <0.001 |
| Fondling with no penetration    | 118 (14.9)    | 106 (14.2) | 88 (37.1) | 18 (3.5) | <0.001 |
| Voluntary disclosure, no. (%)b | 490/782 (62.7) | 454/740 (61.4) | 188/230 (81.7) | 266/510 (52.2) | <0.001 |

If voluntarily disclosed, person to whom child disclosed, no. (%)

| If voluntarily disclosed, person to whom child disclosed, no. (%) | Total (N=790) | Girls |
|-----------------------------------------------------------------|---------------|-------|
| Parent/Guardian                                                | 220/490 (44.9) | 201/454 (44.3) | 129/188 (68.6) | 72/266 (27.1) | – |
| Other relative                                                 | 34/490 (6.9) | 34/454 (7.5) | 17/188 (9.0) | 17/266 (6.4) | – |
| Teacher/Counsellor/Youth worker                                | 125/490 (25.5) | 112/454 (24.7) | 25/188 (13.3) | 87/266 (32.7) | – |
| Friend                                                         | 60/490 (12.2) | 59/454 (13.0) | 8/188 (4.3) | 51/266 (19.2) | – |
| Other                                                          | 51/490 (10.4) | 48/454 (10.6) | 9/188 (4.8) | 39/266 (14.7) | – |

* Comparing girls aged <13 and ≥13

b Not including preverbal children
voluntarily disclosed the abuse to another person prior to presentation. Girls <13 years old more often voluntarily disclosed compared to girls ≥13 years old (188/230, 81.7% vs 266/510, 52.2%, \(P<0.001\)). Among those who voluntarily disclosed, girls <13 years old most commonly disclosed to parents or guardians (129/188, 68.6%), whereas girls ≥13 years old disclosed to teachers, counsellors or youth workers (87/266, 32.7%), parents or guardians (72, 27.1%), or friends (51, 19.2%). Those who had not voluntarily disclosed were typically brought to medical attention because of suspicions on the part of parents or other adults.

When comparing consensual and non-consensual acts, children involved in non-consensual acts were significantly more likely to voluntarily disclose the abuse (350/422, 82.9% vs 140/358, 39.1%, \(P<0.001\), and were more likely to disclose the abuse to parents or guardians (183/350, 52.3% vs 37/140, 26.4%, \(P<0.001\)). On subgroup analysis of girls ≥13 years old, a similar pattern of voluntary disclosure (non-consensual 140/184, 76.1% vs consensual 126/324, 38.9%, \(P<0.001\) was observed. However, in this subgroup, there was no significant difference in rates of disclosure to parents or guardians between those involved in non-consensual and consensual acts (40/140, 28.6% vs 32/126, 25.4%, \(P=0.561\)).

Consequences

Table 3 shows consequences resulting from sexual abuse. Girls <13 years old were more likely to be admitted to hospital compared to those ≥13 years old (42, 17.7% vs 25, 4.9%, \(P<0.001\)). This was likely for child protection reasons, given the higher rates of intrafamilial sexual abuse in the younger age group.

### Psychiatric, behavioural and familial characteristics

Psychiatric, behavioural and familial characteristics for CSA are shown in Table 4. Just over half of the patients had parents who were married to each other (411/783, 52.5%). The others had parents who were divorced, never married, or deceased. Less than half (374/784, 47.7%) lived in the same home as both biological parents. The majority lived with a single parent (including cases where the other parent was incarcerated), step-parent, other relative, or in a foster home or institution.

Among girls, those <13 years old more commonly had parent- or family-related potential risk factors, such as a parental history of illicit drug use (19/201, 9.5% vs 21/461, 4.6%, \(P=0.015\)) or a parental history of incarceration (28/233, 12.0% vs 28/498, 5.6%, \(P=0.002\)). In contrast, those ≥13 years old more commonly had child-related potential risk factors, such as a history of psychiatric or behavioural issues (230/510, 45.1% vs 27/237, 11.4%, \(P<0.001\), a history of smoking (161/347, 46.4% vs 15/211, 7.1%, \(P<0.001\), a history of alcohol use (75/333, 22.5% vs 6/209, 2.9%, \(P<0.001\)) or a history of illicit drug use (23/333, 6.9% vs 2/209, 1.0%, \(P=0.001\)).

Three in 8 (294/790, 37.2%) patients were previously known to CPS, a MSW, a counsellor, or other social service organisations. One in 8 (98/790, 12.4%) had either a previous ED visit or hospital admission for maltreatment, or a subsequent one during the study period.

**DISCUSSION**

Our study showed that CSA is a major problem in Singapore, with 39.9% of the victims in our study having been abused before they were 13 years old.
Table 4. Psychiatric, behavioural and familial characteristics

| Characteristic                                      | Total            | All  | <13  | ≥13  | P value<sup>a</sup> |
|-----------------------------------------------------|------------------|------|------|------|---------------------|
| **Child-related characteristics**                   |                  |      |      |      |                     |
| History of psychiatric or behavioural issues, no. (%)| 265/790 (33.5)   | 257/747 (34.4) | 27/237 (11.4) | 230/510 (45.1) | <0.001              |
| Special needs/Developmental delay, no. (%)          | 53/790 (6.7)     | 45/747 (6.0) | 22/237 (9.3) | 23/510 (4.5) | 0.011               |
| History of smoking, no. (%)                         | 181/586 (30.9)   | 176/558 (31.5) | 15/211 (7.1) | 161/347 (46.4) | <0.001              |
| History of alcohol use, no. (%)                     | 82/569 (14.4)    | 81/542 (14.9) | 6/209 (2.9) | 75/333 (22.5) | <0.001              |
| History of institutional drug use, no. (%)          | 26/569 (4.6)     | 25/542 (4.6) | 2/209 (1.0) | 23/333 (6.9) | 0.001               |
| Previously known to social services, no. (%)       | 57/790 (7.2)     | 53/747 (7.1) | 11/237 (4.6) | 42/510 (8.2) | 0.075               |
| Child Protective Service, no. (%)                   | 294/790 (37.2)   | 276/747 (36.9) | 65/237 (27.4) | 211/510 (41.4) | <0.001              |
| Medical social worker, no. (%)                      | 87/790 (11.0)    | 83/747 (11.1) | 34/237 (14.3) | 49/510 (9.6) | 0.055               |
| Counsellor/Others, no. (%)                          | 266/790 (33.7)   | 251/747 (33.6) | 54/237 (22.8) | 197/510 (38.6) | <0.001              |
| **Parent- or family-related characteristics**       |                  |      |      |      |                     |
| Marital status of parents, no. (%)<sup>b</sup>      |                  |      |      |      |                     |
| Married                                             | 411/783 (52.5)   | 384/741 (51.8) | 118/236 (50.0) | 266/505 (52.7) | 0.497               |
| Divorced                                            | 287/783 (36.7)   | 275/741 (37.1) | 101/236 (42.8) | 174/505 (34.5) | –                   |
| Never married                                       | 52/783 (6.6)     | 49/741 (6.6) | 10/236 (4.2) | 39/505 (7.7) | –                   |
| One or both deceased                                | 33/783 (4.2)     | 33/741 (4.5) | 7/236 (3.0) | 26/505 (5.1) | –                   |
| **Child living with, no. (%)**                      |                  |      |      |      |                     |
| Both biological parents                              | 374/784 (47.7)   | 352/741 (47.5) | 108/236 (45.8) | 244/505 (48.3) | 0.517               |
| Single biological parent                             | 114/784 (14.5)   | 108/741 (14.6) | 42/236 (17.8) | 66/505 (13.1) | –                   |
| Biological parent + Step-parent                     | 118/784 (15.1)   | 113/741 (15.2) | 28/236 (11.9) | 85/505 (16.8) | –                   |
| Biological parent + Other relative                  | 64/784 (8.2)     | 59/741 (8.0) | 28/236 (11.9) | 31/505 (6.1) | –                   |
| Other relative                                      | 50/784 (6.4)     | 48/741 (6.5) | 14/236 (5.9) | 34/505 (6.7) | –                   |
| Non-relative, e.g. adopted or foster parent         | 23/784 (2.9)     | 23/741 (3.1) | 7/236 (3.0) | 16/505 (3.2) | –                   |
| Institutionalised                                   | 41/784 (5.2)     | 38/741 (5.1) | 9/236 (3.8) | 29/505 (5.7) | –                   |
| Mother employed, no. (%)                            | 518/769 (67.4)   | 495/729 (67.9) | 160/232 (69.0) | 335/497 (67.4) | 0.674               |
| History of illicit drug use in parents, no. (%)     | 46/699 (6.6)     | 40/662 (6.0) | 19/201 (9.5) | 21/461 (4.6) | 0.015               |
| History of incarceration of parents, no. (%)        | 60/769 (7.8)     | 56/731 (7.7) | 28/233 (12.0) | 28/498 (5.6) | 0.002               |
| History of domestic violence in family, no. (%)     | 109/774 (14.1)   | 103/734 (14.0) | 43/234 (18.4) | 60/500 (12.0) | 0.020               |

<sup>a</sup> Comparing girls aged <13 and ≥13

<sup>b</sup>The discrepancy between 783 and 784 is due to missing data of 1 child about the marital status of the parents.

Similar to worldwide studies,<sup>16–18</sup> most of the victims were girls and most of the perpetrators were men. However, the proportion of victims who were boys (43, 5.4%) in our study was lower than global reports,<sup>16,17</sup> even in comparison to other Asian countries such as South Korea,<sup>19</sup> China<sup>20</sup> and Taiwan.<sup>21</sup> There are reports that boys are more reluctant to disclose CSA.<sup>22-24</sup> Reasons that have been postulated include boys fearing not being recognised as a victim, being perceived as less masculine, or being labelled...
homosexual.\textsuperscript{22,25} It is unclear whether the low proportion of boys in our study is due to a true lower prevalence or a lower rate of disclosure.

The Singapore ethnic composition in 2020 was 74.3\% Chinese, 13.5\% Malay, 9.0\% Indian and 3.2\% others.\textsuperscript{26} Comparing the ethnic composition of victims to national statistics, there were proportionately fewer Chinese (362, 45.8\%) and more Malay (320, 40.5\%) victims. Further research is needed to understand the reasons for the ethnic distribution of patients who presented to the ED, and the extent to which this distribution reflects differences in the prevalence and disclosure rates of CSA between ethnic groups.

Certain differences in characteristics of the abuse between girls aged <13 and ≥13 years old were similar to differences found in studies conducted in other countries. Those aged <13 years old were more likely to be involved in non-consensual and intrafamilial abuses, whereas those aged ≥13 years old were more likely to be involved in consensual and extrafamilial underaged sexual activity. This was similar to previous studies that showed that younger children are more likely to be victimised by a parent or relative, whereas older children are more likely to be victimised by extrafamilial perpetrators.\textsuperscript{27-29} Those ≥13 years old were also more likely to have penetrative abuse, especially penile-vaginal and penile-anal penetration, which was consistent with previous findings.\textsuperscript{27}

Interestingly, potential risk factors were different for girls aged <13 and ≥13 years old. Previous studies have demonstrated that risk factors for CSA can be grouped into child-, parent- and family-related domains.\textsuperscript{20} In our study, we found that child-related potential risk factors such as a history of psychiatric or behavioural issues, smoking, alcohol use and illicit drug use were more common in the ≥13 age group, whereas parent- and family-related potential risk factors such as a parental history of illicit drug use or incarceration were more common in the <13 age group. It should be noted that child behavioural issues such as smoking, alcohol use and illicit drug use are generally more common in the ≥13 age group, and it was not within the scope of our study to conclude whether they were more common in CSA victims than in the general paediatric population. The interplay of factors contributing to CSA is complex and causality relationships may be difficult to determine. However, the differing characteristics between the <13 and ≥13 age groups indicate that existing strategies to identify and prevent CSA could be specifically targeted at different age groups. For example, we suggest that for at-risk families with younger children, schools, prisons, courts, hospitals and community agencies could work more closely with individuals or family groups to identify possible threats to child safety, including those created by prolonged parental absence resulting from parental divorce or incarceration. For teenagers in whom curiosity and peer influence may contribute to risk-taking behaviours, more emphasis could be placed on equipping parents and teachers to handle issues relating to teenage sexuality and to educate teenagers on managing situations that may lead to sexual abuse.

In children of both sexes and age groups, parental divorce was prevalent. The parental divorce rate of 36.7\% in the study is in contrast to national statistics that show 21.1\% of marriages are dissolved by the 15th year of marriage.\textsuperscript{31} The majority of children lived in a household that did not include both biological parents. It is reported that children from non-nuclear families are at higher risk for CSA victimisation,\textsuperscript{30,32} and they form an important group for schools, courts and social service agencies to target in efforts to detect and reduce CSA.

While the majority of children voluntarily disclosed the abuse, this was more common among girls <13 compared to those ≥13 years old. Moreover, while most girls <13 years old disclosed to their parents or guardians, those ≥13 years old disclosed to a wider variety of people including teachers, counsellors, youth workers and friends, with only a quarter disclosing to their parents or guardians. In addition, although those involved in non-consensual acts, compared to those involved in consensual acts, were more likely to disclose to parents or guardians, this difference was not seen when analysing girls ≥13 years old. This was consistent with previous studies that have found that adolescents are less likely to disclose to parents compared to younger children.\textsuperscript{27} It has been proposed that this may be because adolescents may feel that family members will react more negatively to a disclosure, especially when the perpetrator is known to the family.\textsuperscript{33}

We found a worrying trend that the majority of children experienced recurring incidents of CSA before presenting to the ED, suggesting a delay in disclosure. Previous studies exploring why children may be reluctant to disclose CSA have found that barriers to disclosure include emotions of guilt and shame, not considering themselves to be abused, a perceived lack of understanding and limited support from adults, the fear of parental sanctions, and the fear of negative consequences for the offender and the child’s own family.\textsuperscript{34-36} Further investigations need to be carried out to identify barriers to disclosure in
Singapore’s cultural context. We believe that efforts should be taken to encourage prompt disclosure before recurrent events occur. This could include training parents and teachers on effective questioning of children about possible CSA, providing more opportunities for children to disclose, and providing avenues for friends of victims, particularly adolescent victims, to disclose.

It is notable that 37.2% of the children were previously known to social services prior to their ED visit. In Singapore, the child protection system involves statutory interventions via CPS, specialised community-based interventions via child protection specialist centres, and community-based services via community agencies such as family service centres and school-based services. These offer a wide range of targeted services at the legal, educational, community and healthcare levels. In the acute hospital setting, CSA cases are referred to MSWs, and the type of support offered depends on the patient’s age and whether the event was consensual. For children aged ≥13 years who engage in consensual acts, MSWs typically offer education on sexuality, handling peer relationships and contraception. For children of all ages involved in non-consensual acts, MSWs typically focus on screening for trauma symptoms, providing emotional support and counselling, and educating children on recognising and avoiding potentially dangerous situations.

The occurrence of CSA in the group of children already known to social services suggests that more can be done for primary and secondary prevention of CSA. For young children, previous research has found that education programmes are more effective when based on concrete concepts, such as appropriate touch and what is forbidden, rather than abstract concepts such as rights and feelings. We suggest that schools and community organisations work together with parents and caregivers to equip young children with the knowledge of recognising inappropriate sexual behaviour and developing preventive skills. For teenagers, there is evidence that programmes that increase attachment to school or reduce school dropout are effective in delaying sexual activity and reducing teenage pregnancy, even when the programmes do not directly address sexuality. Besides providing sexual education, schools offer opportunities for youths to succeed, and help them to develop plans for higher education and careers.

The study was limited by its retrospective nature. There may be inaccuracies in self-reported data obtained from interviews with children and their caregivers, especially regarding sensitive information such as the children’s history of substance use and their parents’ history of illicit drug use or incarceration. The history was also limited in young, and especially preverbal, children. In addition, we were only able to include cases that were brought to medical attention, and were unable to account for cases that were unreported. In particular, the low proportion of boys in our study suggests the possibility of under-reporting of male victims. The fall in reported cases in 2020 during the period of national COVID-19 movement restrictions also suggests that the true rate of CSA may have been under-represented during this period.

The characteristics of unreported cases may differ from reported cases, and further studies are required to investigate the prevalence of under-reporting of CSA in Singapore and the nature of unreported cases. Finally, we were unable to determine if families utilised community resources and sought help through existing helplines prior to or after the ED attendance. We were therefore unable to fully evaluate the utility and effectiveness of existing community resources.

CONCLUSION

Our study highlights that CSA is an important problem in Singapore and found that girls <13 years old were frequently abused in their own home by a family member. Parental divorce and not living with both biological parents were frequent in the population. Girls ≥13 years old more frequently had psychiatric and behavioural issues, and a history of smoking and/or alcohol use. Understanding the characteristics associated with CSA will enable vulnerable groups of children to be identified and protected, for example by training them to recognise and avoid situations that may lead to sexual abuse. We found that many children presented after more than one incident of abuse, suggesting that potentially at-risk children require closer surveillance by parents, schools and support organisations, and that they should be provided with more opportunities for disclosure.

REFERENCES

1. Singapore Statutes Online. Child and Young Persons Act. Sect. 7, 31 December 2001. Available at: https://sso.agc.gov.sg/Act/CYPA1993#pr7-. Accessed on 29 November 2020.

2. Bechtel K. Sexual abuse and sexually transmitted infections in children and adolescents. Curr Opin Pediatr 2010;22:94-9.
3. Paras ML, Murad MH, Chen LP, et al. Sexual abuse and lifetime diagnosis of somatic disorders: a systematic review and meta-analysis. JAMA 2009;302:550-61.
4. Chen LP, Murad MH, Paras ML, et al. Sexual Abuse and Lifetime Diagnosis of Psychiatric Disorders: Systematic Review and Meta-Analysis. Mayo Clin Proc 2010;85:618-29.
5. Ng QX, Yong BZJ, Ho CYX, et al. Early life sexual abuse is associated with increased suicide attempts: An update meta-analysis. J Psychiatr Res 2018;99:129-41.
6. Hailes HP, Yu R, Danese A, et al. Long-term outcomes of childhood sexual abuse: an umbrella review. Lancet Psychiatry 2019;6:830-9.
7. Fergusson DM, McLeod GFH, Horwood LJ. Childhood sexual abuse and adult developmental outcomes: findings from a 30-year longitudinal study in New Zealand. Child Abuse Negl 2013;37:664-74.
8. Nelson EC, Heath AC, Lynskey MT, et al. Childhood sexual abuse and risks for licit and illicit drug-related outcomes: a twin study. Psychol Med 2006;36:1473-3.
9. Herrera VM, McCloskey LA. Sexual abuse, family violence, and Nielson EC, Heath AC, Lynskey MT, et al. Childhood sexual abuse and risks for licit and illicit drug-related outcomes: a twin study. Psychol Med 2006;36:1473-3.
10. van Roode T, Dickson N, Herbison P, et al. Child sexual abuse and persistence of risky sexual behaviors and negative sexual outcomes over adulthood: findings from a birth cohort. Child Abuse Negl 2009;33:161-72.
11. Dube SR, Anda RF, Whitleff CL, et al. Long-term consequences of childhood sexual abuse by gender of victim. Am J Prev Med 2005;28:430-8.
12. Noll JG, Trickett PK, Harris WW, et al. The cumulative burden borne by offspring whose mothers were sexually abused as children: descriptive results from a multigenerational study. J Interpers Violence 2009;24:424-49.
13. Ministry of Social and Family Development. Child Abuse Investigations, 16 April 2020. Available at: https://www.msf.gov.sg/research-and-data/Research-and-Statistics/Pages/Child-Abuse-Investigations.aspx. Accessed on 29 November 2020.
14. Ngiam XY, Kang YQ, Aishworyia R, et al. Child maltreatment syndrome: demographics and developmental issues of inpatient cases. Singapore Med J 2015;56:612-7.
15. Chew YR, Cheng MH, Goh MC, et al. Five-Year Review of Patients Presenting with Non-Accidental Injury to a Children’s Emergency Unit in Singapore. Ann Acad Med Singap 2018;47:413-9.
16. Stoltenborgh M, van IJzendoorn MH, Euser EM, et al. A global perspective on child sexual abuse: meta-analysis of prevalence around the world. Child Maltreat 2011;16:79-101.
17. Barth J, Bernetz L, Heim E, et al. The current prevalence of child sexual abuse worldwide: a systematic review and meta-analysis. Int J Public Health 2013;58:469-83.
18. Murray LK, Nguyen A, Cohen JA. Child sexual abuse. Child Adolesc Psychiatr Clin N Am 2014;23:321-37.
19. Lee Y, Kim S. Childhood maltreatment in South Korea: retrospective study. Child Abuse Negl 2011;35:1037-44.
20. Ma Y. Prevalence of Childhood Sexual Abuse in China: A Meta-Analysis. J Child Sex Abus 2018;27:107-21.
21. Chen CT, Yang NP, Chou P. Child maltreatment in Taiwan for 2004-2013: A shift in age group and forms of maltreatment. Child Abuse Negl 2016;52:169-76.
22. Gagnier C, Collin-Vézina D. The Disclosure Experiences of Male Child Sexual Abuse Survivors. J Child Sex Abus 2016;25:221-41.
23. O’Leary PJ, Barber J. Gender differences in silencing following childhood sexual abuse. J Child Sex Abus 2008;17:133-43.
24. Lex-Wiesel R, First M. Willingness to disclose child maltreatment: CSA vs other forms of child abuse in relation to gender. Child Abuse Negl 2018;79:183-91.
25. Sivagarunathan M, Orchard T, MacDermid JC, et al. Barriers and facilitators affecting self-disclosure among male survivors of child sexual abuse: The service providers’ perspective. Child Abuse Negl 2019;88:455-65.
26. Singapore Department of Statistics. Population Trends 2020, September 2020. Available at: https://www.singstat.gov.sg/-/media/files/publications/population/population2020.pdf. Accessed on 14 December 2020.
27. Giroux ME, Chong K, Coburn PI, et al. Differences in child sexual abuse cases involving child versus adolescent complainants. Child Abuse Negl 2018;79:224-33.
28. Ho TP, Mak FL. Sexual abuse in Chinese children in Hong Kong: a review of 134 cases. Aust N Z J Psychiatry 1992;26:639-43.
29. Fischer DG, McDonald WL. Characteristics of intrafamilial and extrafamilial child sexual abuse. Child Abuse Negl 1998;22:915-29.
30. Assink M, van der Put CE, Meeuswen MWC, et al. Risk factors for child sexual abuse victimization: A meta-analytic review. Psychol Bull 2019;145:459-89.
31. Ministry of Social and Family Development. Dissolution of Marriages Among Marriage Cohorts, 1987-2015, 2018. Available at: https://www.msf.gov.sg/research-and-data/Research-and-Statistics/Documents/Statistics%20Series%20-%20Dissolution%20of%20 Marriages%201987-2015.pdf. Accessed on 14 December 2020.
32. Finkelhor D, Moore D, Hamby SL, et al. Sexually abused children in a national survey of parents: methodological issues. Child Abuse Negl 1997;21:1-9.
33. Kogan SM. Disclosing unwanted sexual experiences: results from a national sample of adolescent women. Child Abuse Negl 2004;28:147-65.
34. Lemaigre C, Taylor EP, Gittoes C. Barriers and facilitators to disclosing sexual abuse in childhood and adolescence: A systematic review. Child Abuse Negl 2017;70:39-52.
35. Morrison SE, Bruce C, Wilson S. Children’s Disclosure of Sexual Abuse: A Systematic Review of Qualitative Research Exploring Barriers and Facilitators. J Child Sex Abus 2018;27:176-94.
36. Paine ML, Hansen DJ. Factors influencing children to self-disclose sexual abuse. Clin Psychol Rev 2002;22:271-95.
37. Pribe G, Svedin CG. Child sexual abuse is largely hidden from the adult society. An epidemiological study of adolescents’ disclosures. Child Abuse Negl 2008;32:1095-108.
38. Ministry of Social and Family Development. Protecting the Safety and Well-Being of Children, 2016. Available at: https://www.msf.gov.sg/policies/Strong-and-Stable-Families/Nurturing-and-Protecting-the-Young/Child-Protection-Welfare/Pages/Protecting-Children.aspx. Accessed on 13 May 2021.
39. Collin-Vézina D, Daigneault I, Hébert M. Lessons learned from child sexual abuse research: prevalence, outcomes, and preventive strategies. Child Adolesc Psychiatry Ment Health 2013;7:22.
40. Kirby D. The impact of schools and school programs upon adolescent sexual behavior. J Sex Res 2002;39:27-33.