



## Research article

# Characteristics of child commercial sexual exploitation and sex trafficking victims presenting for medical care in the United States<sup>☆</sup>



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## ABSTRACT

The objective of the study is to describe distinguishing characteristics of commercial sexual exploitation of children/child sex trafficking victims (CSEC) who present for health care in the pediatric setting.

This is a retrospective study of patients aged 12–18 years who presented to any of three pediatric emergency departments or one child protection clinic, and who were identified as suspected victims of CSEC. The sample was compared with gender and age-matched patients with allegations of child sexual abuse/sexual assault (CSA) without evidence of CSEC on variables related to demographics, medical and reproductive history, high-risk behavior, injury history and exam findings.

There were 84 study participants, 27 in the CSEC group and 57 in the CSA group. Average age was 15.7 years for CSEC patients and 15.2 years for CSA patients; 100% of the CSEC and 94.6% of the CSA patients were female. The two groups significantly differed in 11 evaluated areas with the CSEC patients more likely to have had experiences with violence, substance use, running away from home, and involvement with child protective services and/or law enforcement. CSEC patients also had a longer history of sexual activity.

Adolescent CSEC victims differ from sexual abuse victims without evidence of CSEC in their reproductive history, high risk behavior, involvement with authorities, and history of violence.

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## Introduction

While the true prevalence of human trafficking is unknown, the International Labour Organization estimates that 20.9 million people are victims of forced labor around the world. This estimate includes victims of labor and sex trafficking. Of this enormous group, approximately 4.5 million people are victims of forced sexual exploitation, including approximately 945,000 children (International Labor Organization, 2012). The Institute of Medicine defines the commercial sexual

*Abbreviations:* CSA, child sexual abuse/sexual assault; ASA, acute sexual assault; AUC, area under curve; AUROC, area under the receiver operating curve; CSEC, commercial sexual exploitation of children; ED, emergency department; NP, nurse practitioner; STI, sexually transmitted infection.

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exploitation of minors and sex trafficking of minors as “a range of crimes of a sexual nature committed against children and adolescents, including (1) recruiting, enticing, harboring, transporting, providing, obtaining, and/or maintaining (acts that constitute trafficking) a minor for the purpose of sexual exploitation; (2) exploiting a minor through prostitution; (3) exploiting a minor through survival sex (exchanging sex/sexual acts for money or something of value, such as shelter, food or drugs); (4) using a minor in pornography; (5) exploiting a minor through sex tourism, mail order bride trade and early marriage; and (6) exploiting a minor by having her/him perform in sexual venues (e.g., peep shows or strip clubs) (Institute of Medicine and National Research Council, 2013). For the purposes of this report, this definition will be labeled “commercial sexual exploitation of children”, or CSEC.

Given the difficulty in identifying victims and those at risk, accurate statistics for incidence and prevalence are not available (Stansky & Finkelhor, 2008). Estes and colleagues suggest that as many as 326,000 U.S. children are *at risk* for CSEC each year (Estes & Weiner, 2002).

There is a lack of quantitative peer-reviewed research regarding risk factors and health consequences of CSEC (Barrows & Finger, 2008; Gozdziaik & Bump, 2008; Macy & Graham, 2012). Oram, Stockl, Busza, Howard, and Zimmerman, (2012) conducted a systematic review of published research on the prevalence and risk of violence and health problems among human trafficking victims and found only 19 eligible studies, and these typically combined both women and girls in their samples of sexually exploited victims. Combining study participants of varying age precludes identifying factors specific to children and adolescents. Much of the available data on CSEC is qualitative (Baldwin, Eisenman, Sayles, Ryan, & Chuang, 2011; Raphael, Reichert, & Powers, 2010; Raymond & Hughes, 2001), involving interviews of survivors or professionals who work with them. Many studies include victims of different forms of trafficking (Baldwin et al., 2011) (labor and sexual) or victims with very diverse geographic backgrounds (Decker, McCauley, Phuengsamran, Janyam, & Silverman, 2011; Sarka et al., 2008; Silverman et al., 2007). A number of risk factors have been associated with CSEC, although studies documenting these have important limitations. Williamson interviewed 13 female victims and found high rates of abuse prior to exploitation (91%), high rates of parental substance abuse (64%) and frequent runaway behavior (described as ‘common’ although no percentage given). However, this study had a very small sample size and no comparison group (Williamson & Prior, 2009). There are several studies on homeless and runaway youth in the United States and Canada documenting a high prevalence of survival sex (Walls & Bell, 2011) (Bigelsen & Vuotto, 2013; Chettiar, Shannon, Wood, Zhang, & Kerr, 2010; Greene, Ennett, & Ringwalt, 1999), with surveys reporting a range of 10–50% of youth engaging in exchanging sexual acts for food, lodging, drugs, or money. Walls found a 9.4% prevalence of survival sex among 1,755 homeless youth and young adults. Increased risk was associated with (1) identifying as African-American or ‘Other’; (2) identifying as gay, lesbian or bisexual; (3) prior use of inhalants or methamphetamines, (4) history of a suicide attempt and (5) history of parental substance abuse (Walls & Bell, 2011). However, this study and others (Chettiar et al., 2010; Greene et al., 1999) combined adolescents with young adults and included only homeless persons. Studies of CSEC risk factors and other characteristics identified at the time of presentation for health care are lacking.

Risk factors may or may not play a causal role in CSEC, and if they are causal, their role may be direct or indirect. Cochran, Stewart, Ginzler, and Cauce (2002) found that 14% of homeless young people identifying themselves as gay/lesbian/bisexual/transgender (GLBT) left home due to family conflict over their sexual orientation. Homeless and runaway youth have few options for accessing money for food, shelter and other necessities. Homelessness increases the risk of youth engaging in survival sex, especially for those living on the street rather than in shelters (Greene et al., 1999). Sexual abuse has been associated with subsequent CSEC and possible mediating factors include increased risk-taking behavior in victims of childhood sexual abuse, or altered emotional development in abused children that later renders them more vulnerable to CSEC (Stoltz et al., 2007). Substance abuse may increase the risk of CSEC because addicted youth need a constant supply of drugs which may outstrip their ability to secure money. Additionally, drugs and alcohol may decrease inhibitions and impair judgment, which may then lead to risk-taking behavior, or a failure to recognize dangerous situations. Young age renders a youth at risk because of limited life experience and immature brain development that favors risk-taking behavior and impulsivity. The adolescent brain has limited capacity to think critically, weigh the pro’s and con’s of a situation, and analyze risks. As is clear, only some risk factors are modifiable, but recognition of risk factors is important for prevention and early intervention.

Available information suggests that victims of human trafficking experience significant adverse behavioral and physical health consequences. In a study of health consequences of sex trafficking, Lederer conducted a mixed-methods approach, using qualitative data from focus groups and interviews of 107 female sex trafficking survivors in the United States, and quantitative data from a health survey (Lederer & Wetzel, 2014). They obtained detailed information documenting extensive physical and emotional adverse effects of trafficking, including significant weight loss in 43%, injuries sustained by 70%, signs/symptoms of depression in 89% and of post-traumatic stress disorder in 55%. Eighty-four percent reported substance abuse and 67% reported having an STI during their period of exploitation. However, this study combined adolescent and adult females and the number of participants under age 18 years is not listed. In addition, the study included no comparison group.

Results of the Lederer study indicated that frequently victims of sex trafficking seek medical care. In that study, 88% of victims had visited a medical provider during their period of exploitation (Lederer & Wetzel, 2014). Victims may present with signs/symptoms of a sexually transmitted infection, injuries related to physical or sexual assault, exacerbation of an untreated chronic disease, suicide attempt, drug ingestion, assistance with contraception, abortion or complications of pregnancy (Institute of Medicine and National Research Council, 2013; Lederer & Wetzel, 2014). Over 75% of a sample of

adolescent CSEC victims in New York City reported seeking medical care within the past 6 months (Curtis, Terry, Dank, Dombrowski, & Khan, 2008). The most common reasons for visiting a health care provider included a general check-up (42.6%) testing for sexually transmitted infections (34.1%); and testing for HIV (20.9%).

Due to the frequency of adverse health consequences and the likelihood that victims will seek medical care, health care providers are in a unique position to identify and assist victims of CSEC. The health care professional must learn to recognize high-risk patients, even as fear, shame, distrust of authorities, lack of perception of victim status, and language barriers prevent many patients from disclosing their victimization (Baldwin et al., 2011; Estes & Weiner, 2002; Institute of Medicine and National Research Council, 2013). A number of organizations have published recommendations for screening and victim identification, including the Polaris Project and the US Department of Health and Human Services (Polaris Project, 2012; United States Department of Health and Human Services, 2008). Many of these strategies lack clinical validation and aim to include adults and children, victims of all types of trafficking, and domestic as well as international trafficking (Barrows & Finger, 2008). The VERA Institute developed and validated a tool for use by victim service providers, although most participants in the validation study were adults and foreign-born. The shortened form of the tool still contained 16 questions which imply a relatively lengthy interview. While this may reveal extremely helpful information, its implementation in a busy health care setting may be difficult (Vera Institute of Justice, 2014). The Covenant House of New York developed and validated a screening tool for use in a homeless shelter; their study population included older adolescents and young adults (18–23 years old) (Bigelsen & Vuotto, 2013). The generalizability to younger adolescents presenting to a medical facility is not clear. Currently there is a lack of evidence-based screening tools for specifically identifying sexually exploited domestic minors in a health care setting (Macy & Graham, 2012).

To develop an effective screening tool that identifies youth at high risk for CSEC when they present for medical care, quantitative studies comparing known or suspected victims with a control group of youth are needed in order to identify key differentiating characteristics. The aim of our study was to identify characteristics of CSEC patients that distinguished them from victims of child sexual abuse and sexual assault (CSA) not related to CSEC when seeking medical care at a large metropolitan pediatric facility.

## Materials and methods

### Study design

This study was approved by the study site's Institutional Review Board. A medical record review was conducted by a senior medical student (SV), who received instruction on chart review methodology and database management, as well as information on the specific study variables, and methods of relevant data retrieval from the electronic medical records. The medical student received oversight by the senior author (JG) and when there were questions or concerns, these were discussed with the senior author and a conservative decision was made regarding data inclusion. The review was conducted of patients identified as "suspected CSEC" who presented to any of three emergency departments or one child protection clinic at a major metropolitan children's hospital in the southern United States. The child protection team keeps a log of patients for whom information obtained from authorities, family, child, medical record or other sources indicates a high likelihood that the patient is a victim of CSEC according to the IOM definition (Institute of Medicine and National Research Council, 2013). For example, law enforcement may bring a child to the emergency department after discovering her during a raid of a known site of prostitution, or a child may disclose to the medical provider during an evaluation of acute sexual assault that the assault occurred in the context of child trafficking. To be included in the 'suspected CSEC' group definite legal confirmation of victimization is not required as this is not always available at the time of the medical visit. The majority of patients in this group were brought to the emergency departments or clinic by law enforcement specifically due to concerns of CSEC. The hospital child protection team is called to the emergency departments to consult on patients in whom CSEC is suspected. Additional patients are seen in the child protection clinic. These patients are entered into the log kept by the child protection team. Patients who come to the hospital but are not seen by the team may be identified during a monthly community multidisciplinary meeting in which CSEC cases are reviewed and discussed. Eligible patients for this study were between 12 and 18 years of age and presented between January 1, 2011 and December 31, 2013.

A control group ("child sexual abuse/sexual assault" (CSA) group) was formed by a search of the hospital database for patients aged 12–18 years with a diagnosis of child sexual abuse (ICD-9 code 995.53) who presented to any of the three emergency departments or one child protection clinic between 2010 and 2013. Patients received this ICD-9 code when they presented with a history of alleged sexual abuse or acute sexual assault, or suspected abuse/assault was discovered during the course of the visit (for example, a child may present with a vaginal discharge and disclose recent assault when answering questions for the medical history). Legal or child protective service confirmation of abuse/assault was not required. Youth who come to the child protection clinic do so for evaluation of suspected abuse and are referred by medical providers, law enforcement or child protective services. Suspected victims who present to the emergency department may be self-referred or brought in by authorities. The vast majority of patients in the control group presented with abuse/assault as their chief complaint. Patients were excluded from this group if there was evidence suggesting commercial sexual exploitation (for example, the child was sexually assaulted by a customer during a commercial sexual transaction).

The CSEC patients were matched with controls based on age at first CSEC exam ( $\pm 6$  months), date of CSEC exam ( $\pm 1$  year), race/ethnicity, and gender. At least two controls were sought for each case. One case only had one matched control, due to the fact that a second control could not be identified within the inclusion criteria. All available controls patients were used from the database.

Data was collected from electronic medical records, including current and prior visits to the institution. Information included demographics, such as age, gender and race/ethnicity. The general demeanor of the child during the medical visit related to CSA or CSEC (index visit) was recorded (cooperative or not), since the child's behavior may reflect the likelihood that they will agree to provide information to the examiner which could help in identifying risk. Variables associated with possible risk factors for CSEC were evaluated, including prior history of mental health disorders as reported by the patient or other source (including but not limited to, depression, bipolar disorder, attention deficit hyperactivity disorder, schizophrenia), history of acute sexual assault prior to the index visit, history of CSEC activity as defined by IOM, history of violence at the hands of caregivers (physical abuse), any history of use of alcohol or drugs, either during events leading to the index visit, or before this time. Information regarding recent and remote episodes of running away from home was documented, as was known involvement of the child's family by child protective services (excluding public benefits) or prior history of child involvement with law enforcement and the judicial system. As complications of CSEC activity may alert health care providers to the possibility of victimization, variables associated with adverse effects of CSEC were evaluated. Information was obtained related to current anogenital complaints at the time of the index visit as these may reflect a sexually transmitted infection (STI). Information was extracted related to any prior history of STIs or pregnancy, and current or prior history of menstrual problems, such as excessive pain, or excessive/prolonged bleeding. Data was extracted related to prior history of sexual violence (for example, forcible restraint, penetration with foreign object), or prior history of major physical trauma (bony fractures, wounds requiring sutures, traumatic loss of consciousness). The sexual violence and physical trauma may reflect prior abuse (risk factor for CSEC) or violence occurring during the victimization period. To identify high-risk behaviors that may lend themselves to anticipatory guidance by health care providers, information was sought regarding frequency of condom use during prior sexual encounters and prior or current use of contraception. To determine if youth had sought medical care during victimization or in the recent past (when they were likely at very high risk of CSEC), information was sought related to recent contact with health care providers (within the past 2 months of index visit).

Existing data did not allow determination of whether some events included in these variables occurred prior to any CSEC activity, or during the period of exploitation. For example, when a patient is asked how often she uses condoms, her reply of, 'rarely' may apply to the sexual encounters she had prior to exploitation, to those she had while being victimized, or to both.

#### Data analysis

Statistical significance was evaluated at the 0.05 level, and data analyses were performed using SAS 9.3 (Cary, NC). Descriptive characteristics were evaluated overall and by sexual exploitation status (CSEC vs. CSA) using means and standard deviations for continuous variables and frequencies and percents in discrete cases. In circumstances of non-normality, means and standard deviations were replaced with medians and interquartile ranges (IQR). CSEC and CSA patients were age and gender-matched in a 1:2 ratio to reduce potentially confounding effects and selection bias, with CSA patients identified from the aforementioned hospital database. Differences between sexual exploitation groups were assessed using *t*-tests for continuous variables and Chi-square tests of independence in discrete cases. In situations of non-normality, the *t*-test was replaced by a non-parametric equivalent (Mann-Whitney *U* or Kolmogorov-Smirnov test); likewise, an exact form of the Pearson's Chi-square test was implemented when expected frequency counts were low ( $< 5$ ).

## Results

The sample was comprised of 84 patients of whom 27 were CSEC victims and 57 were CSA victims. The average age of CSEC patients was 15.7 years compared to 15.2 years for CSA patients. Among the CSEC victims, over half (56%) were African American and 30% were white. A majority (89%) identified as non-Hispanic. The CSA group was similar in that over half (53%) were African American, 32% were white, and 84% identified as non-Hispanic. Only three males were included in the sample, all of whom were part of the CSA group. There were no significant demographic differences between the two groups. Demographic characteristics are summarized in [Table 1](#).

Complete information was not available for every patient. The variable was coded as missing (N/A) if its presence or absence was not specifically documented. Considering only the variables for which at least 50 patients had data, the following were significantly more common in the CSEC group than in the CSA group: how long the patient had been sexually active prior to the index visit ( $p = 0.001$ ), frequency of condom use ( $p = 0.010$ ), prior history of STI ( $p < 0.001$ ), use of contraception other than condoms ( $p < 0.001$ ), history of violence by parents/caregivers ( $p = 0.001$ ), history of violence with sexual activity ( $p = 0.012$ ), drug/alcohol use ( $p < 0.001$ ), multiple drug use ( $p < 0.001$ ), history of running away from home ( $p < 0.001$ ), history of child protective services involvement ( $p = 0.003$ ), and history of law enforcement involvement ( $p < 0.001$ ). There were no statistical differences in history of pregnancy, menstrual problems, history of mental health disorders, prior sexual abuse, or commercial sexual exploitation.

**Table 1**  
 Characteristics of CSEC<sup>1</sup> and CSA<sup>2</sup> groups: demographics, medical history, current anogenital symptoms, sexual history and other history.

Characteristic	Level	CSEC/CST(total N = 27) <sup>3</sup>	CSA/SA(total N = 57) <sup>3</sup>	p-Value
<b>Demographics, N (%)</b>				
Gender (N = 83)	Female	27 (100%)	53 (94.6%)	0.548
	Male	0 (0%)	3 (5.4%)	
Race (N = 84)	White	8 (29.6%)	18 (31.6%)	0.969
	African American	15 (55.6%)	30 (52.6%)	
	Other	4 (14.8%)	9 (15.8%)	
	Hispanic	3 (11.1%)	9 (15.8%)	
Ethnicity (N = 84)	Hispanic	3 (11.1%)	9 (15.8%)	0.743
	Non-Hispanic	24 (88.9%)	48 (84.2%)	
Age (years), mean (SD)	–	15.7 (1.5)	15.2 (1.4)	0.128
<b>Demeanor of child, N (%)</b>				
Cooperative (N = 78)	Yes	24 (96%)	53 (100%)	0.321
<b>Medical history, N (%)</b>				
Mental health disorder (N = 81)	Yes	10 (38.5%)	25 (45.5%)	0.553
Health visit with last 2 months (N = 27)	Yes	6 (42.9%)	6 (46.2%)	0.863
History of CSEC or ASA <sup>4</sup> (N = 79)	Yes	10 (40.0%)	19 (35.2%)	0.680
<b>Current anogenital symptoms, N (%)</b>				
Vaginal discharge (N = 84)	Yes	8 (29.6%)	11 (19.3%)	0.291
Genital pain (N = 84)	Yes	1 (3.7%)	7 (12.3%)	0.427
Itching (N = 84)	Yes	2 (7.4%)	5 (8.8%)	1.000
Abnormal bleeding (N = 84)	Yes	1 (3.7%)	4 (7.0%)	1.000
Pelvic pain (N = 84)	Yes	1 (3.7%)	0 (0%)	0.321
Rectal pain (N = 84)	Yes	1 (3.7%)	0 (0%)	0.321
<b>Sexual history, N (%)</b>				
How long sexually active (N = 28)	Never	3 (33.3%)	18 (94.7%)	0.001
	<1 Year	3 (33.3%)	1 (5.3%)	
	≥1 Year	3 (33.3%)	0 (0%)	
	Frequency of condom use (N = 19)	Never	5 (50.0%)	
Rarely	2 (20.0%)	5 (55.6%)		
Sometimes	0 (0%)	3 (33.3%)		
Often/always	3 (30.0%)	1 (11.1%)		
History of STI <sup>5</sup> (N = 59)	Yes	10 (52.6%)	3 (7.5%)	<0.001
Pregnancy (N = 61)	Yes	2 (10.5%)	1 (2.4%)	0.227
Birth control use (N = 57)	Yes	5 (35.7%)	0 (0%)	<0.001
Menstrual problems (N = 69)	Yes	3 (15.0%)	1 (2.0%)	0.070
<b>Other history, N (%)</b>				
History of violence with caregivers (N = 66)	Yes	7 (43.8%)	3 (6.0%)	0.001
History of fractures, LOC <sup>6</sup> , wounds (N = 17)	Yes	2 (40.0%)	7 (58.3%)	0.620
History of violence with sex (N = 66)	Yes	4 (30.8%)	2 (3.8%)	0.012
History drug use (N = 75)	Yes	16 (69.6%)	10 (19.2%)	<0.001
History of multiple drug use (N = 72)	Yes	10 (50.0%)	3 (5.8%)	<0.001
History of running away (N = 83)	Yes	21 (80.8%)	7 (12.3%)	<0.001
CPS <sup>7</sup> history (N = 74)	Yes	9 (47.4%)	7 (12.7%)	0.003
History with police (N = 50)	Yes	12 (75.0%)	4 (11.8%)	<0.001

<sup>1</sup> CSEC, commercial sexual exploitation of children/child sex trafficking.

<sup>2</sup> CSA, child sexual abuse/sexual assault.

<sup>3</sup> Data not available for all patients for all questions.

<sup>4</sup> ASA: acute sexual assault.

<sup>5</sup> STI, sexually transmitted infection.

<sup>6</sup> LOC: loss of consciousness.

<sup>7</sup> CPS: child protective services.

## Discussion

Children are inherently more vulnerable than adults to exploitation and are susceptible to deception and manipulation given their limited life experience, and their tendency toward risk-taking behavior and impulsivity. Studies focusing specifically on child commercial sexual exploitation and sex trafficking in the United States are very limited (Gozdziak & Bump, 2008; Institute of Medicine and National Research Council, 2013). Many combine adolescents and young adults in their study sample, lack a comparison group, and/or focus on a restricted population, such as homeless drug-using youth (Bigelsen & Vuotto, 2013; Chettiar et al., 2010; Cochran et al., 2002). Studies focusing specifically on CSEC youth who present for medical care are lacking. Studies that compare CSEC youth with other high-risk youth are lacking. This dearth of information makes development of an effective CSEC screening tool for health care settings very difficult. The current study attempted to address these issues. Specifically, it targeted victimized youth who presented to one of three emergency departments

or one child protection clinic at a large pediatric facility in the southern United States. It relied on information that was available to medical providers. This is important, as the environment of the emergency department typically precludes very prolonged contact with youth and does not involve repeated contact over time, during which a relationship of trust may be built. Similarly, children and youth referred to a child protection clinic typically attend for one or two visits only. Thus one cannot assume that information available to other professionals operating in different settings may be available to a health care provider. Nonetheless, the study revealed that important historical information related to reproductive history, high-risk behavior, prior violence and contact with medical providers was available and that CSEC youth reported high rates on many variables.

The current study varied from others in that it used a comparison group of age-matched sexually abused/assaulted adolescents to compare with suspected CSEC youth, and it excluded adult patients. In this well-defined group of domestic child sex trafficking/sexual exploitation victims, there were high rates of prior STIs (53%); physical abuse (44%); history of violence with sex (31%), drug/alcohol use (70%), multiple drug use (50%), history of running away from home (81%), prior involvement with child protective services (47%) and with law enforcement (75%). All of these variables were significantly more common among CSEC patients than among the group of sexually abused/assaulted adolescents. While the degree to which the above events and conditions occurred prior to, versus during, CSEC victimization is unknown, the fact that the patients differed significantly on variables that were identifiable at the time of the medical visit is potentially very helpful to the health care provider and suggests that these same variables may be useful in identifying high risk patients. If a clinician asks specific questions about high-risk behavior, past violence and abuse, and sexual history they may uncover CSEC, and if not, they may still receive valuable information to guide them in making appropriate referrals, and providing critical anticipatory guidance and patient education.

There was no statistically significant difference between the groups in prior history of mental health disorders, although it should be noted that the CSEC group had a relatively high rate of 39%. Small sample size and use of a relatively high risk group as a comparison may help explain the lack of significant differences between the groups on this variable. A child suffering from untreated bipolar disorder, schizophrenia, oppositional defiant or other mental health disorder may be at risk for manipulation by traffickers, sexual abusers and other exploiters due to impaired judgment, altered mental status or impulsivity.

Notably, 46% of CSEC victims in the current study had been to a medical provider within the past 2 months. This is consistent with prior studies documenting that 88% of adult and adolescent trafficking survivors sought medical care during their period of exploitation (Lederer & Wetzel, 2014) and more than 75% of CSEC youth had contact with health care providers within the past 6 months (Curtis et al., 2008). While the data in the current study does not allow determination of whether the visits occurred during the period of exploitation, it is likely that the youth were at least at very high risk for exploitation at the time of their visits. If the medical providers treating them were aware of the increased incidence of the several characteristics identified in this study they may have asked related questions of the adolescents that led to consideration of possible commercial sexual exploitation. Whether or not the child was actively being victimized at the time of that visit, anticipatory guidance on topics such as condom use, STIs, other forms of contraception, and/or safety tips when living on the streets may have benefited the youth. Anticipatory guidance on CSEC prevention may have altered the youth's outcome.

This study provides quantitative data to suggest reproductive, behavioral, and historical features that distinguish CSEC victims from youth experiencing child sexual abuse/sexual assault. While both of these populations have experienced significant trauma, these results suggest significant differences between the two groups. Further research is needed to explore these differences. For example, there may be variations between the populations in conditions under which drugs/alcohol are used (self-medication, social events, response to peer pressure), how frequently they are used, and how they are obtained. While results did not show a significant difference in the incidence of recent health visits between the groups, there may be difference in the reasons for seeking health care, or the places where health care was sought.

Additional research is needed to differentiate significant events/conditions that occurred prior to exploitation from those that occurred during the period of exploitation, as this will help determine risk factors to aid in prevention efforts. Identification of risk factors may prompt health care providers to engage in specific anticipatory guidance or CSEC prevention discussions that could lead to important changes in a youth's life.

Future research is needed to use variables identified in this study to develop and validate a screening tool that will identify CSEC victims and those at high risk of CSEC in the medical setting. Such a tool may take the form of a brief set of written questions that a patient completes prior to the exam. The provider may review the answers and follow up positive responses with additional questions. Or, the screening questions may be incorporated into the routine questions used for obtaining a medical history. Key to the success of a tool is choosing variables that are easily identified in children and youth presenting in a variety of medical settings beyond the emergency department and child protection clinic. Future research may also use alternative comparison groups (for example, non-CSEC youth presenting to an urban teen clinic), which may provide information useful to medical professionals working with very specific populations. Ultimately, it will be desirable to compare CSEC victims with adolescents in the general population, as the screening tool validated under these conditions will be the most widely applicable. The results of the current study provide important initial information to guide future study design.

## Limitations

This study has a number of limitations. The sample size is small. Victims of CSEC are very difficult to identify due to the numerous factors inhibiting disclosure of exploitation. In addition, local law enforcement has only recently received general training on CSEC so that victim identification by officers is only slowly increasing and they are an important source of patients. This reliance on law enforcement referrals highlights another limitation. There may well be a large population of CSEC victims who do not come to the attention of law enforcement for runaway behavior, minor offences or other reasons. If they do not self-identify and are not referred to the study's medical facility by others, they would not be included in the CSEC group. Their characteristics may or may not be similar to those identified in the current study population. Thus, findings cannot be generalized to the total CSEC population.

Although the study involved patients presenting to three emergency departments and one child protection clinic, the sites are all part of a single institution, a pediatric facility within a large city in the southern United States. Generalizations cannot be made to other medical settings, to rural communities or to other urban centers in the United States or elsewhere. There were no boys or international victims in the CSEC group. Boys are often underrepresented in studies related to sexual exploitation, and are often viewed as offenders instead of victims (Dennis, 2008; ECPAT USA, 2013). Thus the lack of male patients in the CSEC group in the current study is not surprising. The lack of international CSEC victims in the study may be due to a number of factors. It is possible that providers in the emergency department failed to identify international victims due to difficulties with language barriers, time constraints, or simply a lack of awareness. It is also possible that international victims are not seeking care at pediatric health care facilities.

Legal confirmation of sexual abuse/assault or commercial sexual exploitation was not required for this study. It is possible that some patients in the control group were not actually abused/assaulted or that they had been involved in CSEC activity but did not disclose. In the latter situation this would tend to minimize the differences between the two groups, and thus our results may be viewed as conservative. It is also possible that youth in the CSEC group had not been commercially sexually exploited. However, to be included in the group there had to be evidence in the medical record that made exploitation highly likely. When there was doubt about victim status, the patient was excluded from the group.

Given that this was a retrospective cross-sectional study, no assumptions can be made as to causal factors. In some of the cases there was limited data available in the medical record, although in general the social worker notes were invaluable sources of historical data. Finally, the control group does not consist of the general adolescent population and further research is necessary to determine the differences between CSEC victims and that much larger group.

## Conclusions

This study demonstrates that female youth aged 12–18 years who are suspected victims of CSEC significantly vary from victims of alleged sexual abuse/sexual assault on a number of reproductive, behavioral, and historical factors. This comparative study provides quantitative support for the existence of multiple identifiable characteristics that may be useful in design of a screening tool for victims of commercial sexual exploitation.

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