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Research Article

# Exploring the Link among adverse childhood experiences and commercial sexual exploitation☆,☆☆,☆☆☆

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ABSTRACT

*Background:* Youth with involvement in commercial sexual exploitation (CSE) frequently have extensive adverse childhood experiences (ACEs), affecting their mental health outcomes. Expanding ACE research reveals the complex situations of marginalized youth, particularly those in CSE.
*Objective:* To examine ACEs' frequency and severity in youth with and without CSE involvement, enhancing ACEs understanding.
*Participants and Setting:* Marginalized youth ($n$ = 200) referred for trauma/psychological evaluations by the Department of Child Services or juvenile probation were divided into CSE-involved ($n$ = 153) and non-CSE-involved ($n$ = 47) groups. CSE-involved youth were subcategorized according to CSE duration: less than two months ($n$ = 56) or two months or more ($n$ = 97).
*Method:* Trauma/psychological evaluations were used to code ACEs, evaluating their prevalence, diversity, and impact. Two evaluators coded the ACEs, with a third resolving any discrepancies. Differences in the occurrence and frequency of ACEs were compared based on the presence and duration of CSE involvement.
*Findings:* Participants encountered a broad spectrum of ACEs. Those involved in CSE had higher ACE frequencies, notably in family violence (IRR = 1.28, $p$ = 0.02), sexual abuse (IRR = 1.251, $p$ = 0.04), community violence (IRR = 1.469, $p$ = 0.007), and personal ACEs (IRR = 1.224, $p$ = 0.04). Findings revealed a heavier trauma load in CSE-involved youth, intensifying with longer involvement.
*Conclusion:* These findings highlight the extent and diversity of ACEs among youth involved in CSE. Future research is needed to explore possible pathways through which ACEs might contribute to CSE involvement and the ways in which detailed assessment of youths' histories can inform therapeutic programming.

## 1. Introduction

Youth who experience commercial sexual exploitation (CSE) often have a substantial history of adverse childhood experiences (ACEs) (Franchino-Olsen, 2019). Our study expands upon previous ACE research by analyzing a broader array of ACEs, including chronic stressors, deaths, and detailed information regarding child maltreatment. We also compare youth with CSE to those who have faced complex ACEs but do not have a history of CSE.

### 1.1. Occurrence of ACEs

The prevalence of ACEs among youth survivors of CSE is well-documented. For instance, Landers et al. (2020) found high rates of various ACEs, including 85.4% experiencing emotional neglect, 78.7% facing physical neglect, and lower percentages for other specific adversities. Similarly, Reid et al. (2017) and Perry et al. (2022) reported a range of ACEs affecting these populations. Collectively, these studies underscore that youth with CSE endure a multitude of severe ACEs, often involving multiple perpetrators and prolonged exposure (Brandt et al.,

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2018; Chapple & Crawford, 2019; Cohen et al., 2017; Twis, 2020). Categorizing these diverse ACEs for clinical and research purposes poses a significant challenge. Franchino-Olsen (2021) categorized ACEs into ten groups based in a systematic review of the literature, while Turner et al. (2020) organized ACEs into six domains in a study of non-CSE youth. Our research adopts these frameworks to categorize and analyze ACEs within our sample.

### 1.2. Importance of multiple ACEs

The significance of this study lies in the established correlation between an increase in ACEs and adverse psychological outcomes. Briggs et al. (2021) documented the negative impacts of ACEs on various life aspects, highlighting the critical need for prevention in a review of the non-CSE literature. Studies specifically focusing on youth with CSE reveal that cumulative ACEs lead to heightened mental health symptoms (Landers et al., 2020; Perry et al., 2022). Comparisons between youth with CSE and those without show consistently higher rates of mental health and behavioral issues among the former group, despite not all studies measuring cumulative ACEs directly. This pattern suggests that understanding the cumulative impact of ACEs is crucial due to its correlation with increased mental and behavioral symptoms (Chapple & Crawford, 2019; Kenny et al., 2020; Lanctot et al., 2020; Middleton et al., 2018; Palines, Rabbitt, Pan, Nugent, & Ehrman, 2019). Furthermore, accumulated ACEs may facilitate exploiters' access to and exploitation of youth for CSE, using sophisticated psychological strategies (Duran et al., 2021; Raghavan & Doychak, 2015; Reid, 2016). Identifying the full range of ACEs can enhance our understanding of these vulnerabilities. Most previous research relied on surveys, Department of Child Services (DCS) case notes, and specific instruments, with few utilizing trauma interviews directly with affected youth (Landers et al., 2020). A comprehensive trauma evaluation that includes these youths' perspectives is essential for understanding and treating their unique ACE narratives (Cohen et al., 2017).

The purpose of our exploratory study is to inform strategies for comprehensive assessment, program development, and further research on ACE accumulation. Our goals include identifying a broad spectrum of ACEs, categorizing them to assess severity, and comparing youth with CSE to those with multiple ACEs but without CSE. This approach aims to support clinicians in distinguishing between these groups, closely aligning with clinical practice. In addition, because both clinical experience and prior research (e.g., Reid et al., 2018) indicate that the length of time involved in CSE tends to be associated with a greater accumulation of pre-CSE ACEs, we explore potential differences among youth in our sample based on both the presence and duration of CSE involvement.

## 2. Methods

### 2.1. Setting

We conducted this study within a 45-day residential evaluation and community evaluation program located in a large city in the Midwestern United States. The program, which serves both urban and rural areas in the home state and one adjacent state, accepts youth referred by the DCS or juvenile probation. Evaluations were carried out by a team consisting of a social worker and either a licensed psychologist or a clinical psychology doctoral student. The residential program aimed to stabilize and support the youth's adjustment. In the community evaluation program, therapeutic services were provided throughout the evaluation period, either by our team or in collaboration with other agencies.

### 2.2. Psychological/trauma evaluations

Trauma-informed clinicians with extensive experience conducted comprehensive psychological/trauma evaluations under clinical supervision. Psychological evaluations typically involved between six and 20 hrs of face-to-face interactions with the youth, their caretakers, and referral sources. Our multimodal assessment strategy included motivational interviewing, review of documentation from DCS and/or juvenile probation, collateral interviews, educational document review, and several ACE inventories, such as the Screen for Adolescent Violence Exposure (Hastings & Kelley, 1997), Severity of Violence Against Women Scale (Marshall, 1992), and the ACEs tool from the Kaiser study (Felitti et al., 1998). These tools were tailored to encourage detailed self-reporting from the youth. Evaluation reports included demographic information, documentation of ACEs, mental health symptoms, behavioral symptoms, and characteristics of the CSE experience.

### 2.3. Sample

We analyzed archival data derived from the psychological evaluation reports of 218 youth referred for psychological/trauma evaluations from 2015 to 2022. The sample comprised 147 youths (67.4%) from a residential treatment center and 71 (32.6%) from the community programs. After reviewing these evaluations, 18 (8.3%) were excluded due to inadequate information, resulting in a final sample of 200 youth. Of these, 147 (73.5%) were from the residential center and 53 (26.5%) were from community settings. The participants ranged in age from 11.7 to 17.9 years (mean age = 15.9 years, standard deviation [SD] = 1.2), with 93.0% female, 3.0% male, and 4.0% transgender or other self-identified genders. The sample was predominantly Caucasian (47.0%), with 25.3% African American, 17.8% biracial or multiracial, 6.9% Latinx, and 3.0% other identities. Regarding sexual orientation, 52.0% identified as heterosexual, 33.2% bisexual, 3.5% lesbian or gay, and 11.4% other. DCS referrals accounted for 74% of the sample, with probation referrals composing the remaining 26%.

### 2.4. Identification of involvement in CSE

We defined CSE involvement according to the Victims of Trafficking and Violence Protection Act of 2000, which states that "Commercial sex exploitation is a commercial sex act induced by force, fraud, or coercion, or in which the person induced to perform such an act has not attained 18 years of age" (United Nations, 2017, p. 42). Following previous research (e.g., Kenny et al., 2020; Reid et al., 2018), we utilized a three-step procedure to enhance the reliability of classifying youth as having experienced CSE. First, evaluation reports were reviewed, and youth were identified as experiencing CSE, not experiencing CSE, or unable to determine based on the report. Second, the researchers reviewed staffing notes from evaluators and therapists to locate additional information not included in the reports. Finally, if the youth could not be classified in the first two steps, the researchers consulted with either a therapist or the clinical supervisor who provided services after the initial evaluation to determine group assignment.

Determining length of involvement in CSE with a high degree of granularity proved difficult based on the imprecise nature of information available. As a result, our initial attempt to discriminate length of CSE involvement into six categories was found to result in unacceptably low interrater reliability. As a result, we collapsed these six categories into the two categories of youth experiencing less than two months of CSE involvement and youth experiencing two or more months of CSE involvement, resulting in acceptable reliability and 47 youths classified as having no CSE involvement, 56 with less than two months, and 97 with two or more months of involvement.

### 2.5. Measurement of ACEs

We developed a coding manual through an iterative process from 2020 to 2022 to systematically code psychological/trauma evaluations. We established interrater reliability in three phases. Initially, the senior researcher analyzed ten reports to identify a preliminary list of variables, expanded this list after reviewing an additional 50 reports, and further

refined the coding manual after coding 100 more evaluations. In total, the senior researcher coded 200 cases. Subsequently, three clinical psychology graduate students each coded approximately 50 evaluations. Their coding was then compared against that of the senior researcher to identify discrepancies. We revised the manual to enhance coding reliability, recoded all reports as necessary, and resolved any discrepancies between the senior researcher and the students' coding. In cases of persistent disagreement, a third, independent coder made the final determination. The coding manual is accessible at https://ascent121.org/.

We identified ACEs based on three criteria: first, ACEs that had been previously identified in research were coded as present if they were reliably documented; second, we included variables that youths themselves reported as distressing or problematic; third, variables noted by evaluators as associated with distress or behavioral issues were also included. For comprehensive analysis, all variables that met any of these criteria were systematically coded as ACEs, ensuring their inclusion if they occurred at any point during the youth's lifetime.

Turner et al. (2020) highlighted the importance of evaluating ACEs in the context of their interconnectedness and cumulative impact on psychological outcomes, recommending the elimination of any ACE whose variance could be accounted for by another variable. In contrast to this statistically focused perspective, our study adopts a broader clinical perspective, asserting that preemptively narrowing the list of ACEs overlooks the individual experiences of youth and potentially misses critical aspects of their trauma narratives. By documenting the total accumulation of ACEs without discarding those with overlapping influences, we aim to provide a more comprehensive understanding of their combined effect. This descriptive approach lays the groundwork for future research to explore the intricate relationships among ACEs.

We categorized ACEs into eight groups, inspired by the frameworks of Franchino-Olsen (2021) and Turner et al. (2020), creating similar categories where applicable. These categories include identity/individual stressors (7 ACEs), family disruption (9 ACEs), family death (6 ACEs), family violence (6 ACEs), chronic stress (6 ACEs), sexual abuse (6 ACEs), community violence (5 ACEs), and personal or other ACEs (8 ACEs), totaling 55 unique ACEs. We scored most ACEs dichotomously, with multiple counts for ACEs affecting multiple individuals, such as parental incarceration or substance abuse. We specifically excluded ACEs that occurred during CSE involvement unless they did not involve exploiter or sex buyer behaviors. This approach ensures that our analysis focuses on ACEs external to the CSE experience, offering a clearer view of the youth's background and potential vulnerabilities. For detailed scoring methods for each ACE category, please refer to Appendix A Table A.1.

### 2.6. Statistical analysis

The analysis proceeded in three steps. First, we used descriptive statistics to examine the prevalence of each ACE. Next, we employed chi-square tests to examine potential group differences for categorical outcomes. Finally, we used negative binomial regression to estimate incidence rate ratios for count outcomes to identify group differences between youth with and without a history of CSE as well as examining ACEs as a function of the presence and extent of CSE involvement (0 = no involvement; 1 = CSE involvement <2 months; 2 = CSE involvement ≥2 months).

## 3. Theory

The theoretical framework of this study is rooted in the understanding that ACEs encompass a broad range of experiences that extend beyond traditional categorizations. The identification of unique and infrequent ACEs, such as parental rights termination and significant family disruptions, alongside more commonly recognized ACEs like violence exposure and sexual abuse, underscores the complexity of trauma experienced by youth involved in CSE. This complexity suggests that interventions must be equally nuanced, incorporating evidence-based therapies tailored to the individual's experiences, including family therapy and case management services that address both acute traumas and ongoing stressors.

## 4. Results

We observed a broad range of ACEs prevalence across the groups studied, both with and without involvement in CSE. For youth not involved in CSE, ACE prevalence ranged from 0.0% to 83.0%, except for one ACE (death of an adopted father) not occurring in any participant (Table 1). Among youth who experienced CSE, ACE prevalence varied from 0.7% to 92.8%, with two specific ACEs (death of an adopted mother and father) present in 0.7% of these youth.

### 4.1. Total score

The average total ACE scores highlight the widespread presence of ACEs among the participants (see Tables 1 and 2). The group with no CSE involvement had an average Total ACE score of 19.7 (SD = 6.2). Those with less than two months of CSE involvement had a mean score of 22.5 (SD = 7.9), while the group with two or more months of CSE involvement had a mean of 23.8 (SD = 6.9). These findings suggest that the participants can be characterized as having experienced complex ACEs.

### 4.2. Identity

More than half of the youth involved in CSE identified as belonging to a sexual orientation minority (52.9%) or as a racial or cultural minority (52.9%; see Table 1). A smaller proportion were under 15.5 years old (28.1%) or adopted (19.0%). Fewer participants identified as a gender minority (4.6%), were immigrants (3.9%), or had developmental disabilities (2.0%). The range in the number of ACEs in this category was 0–4, with a mean of 1.6 (SD = 1.1) for those involved less than two months and 1.6 (SD = 0.9) for those involved two months or more (see Table 2). Sexual orientation was the only ACE in this category that significantly differentiated between the CSE and non-CSE groups ($X^2$ (1, $N$ = 200) = 6.37; $p < 0.01$). Regression analyses did not find any significant associations between the accumulation of Identity stressors and the presence or extent of CSE involvement (see Tables 3 and 4).

### 4.3. Family disruptions

Several ACEs within the family disruption category were prevalent in over half of the youth involved in CSE, including parental criminal history (57.5%) and parental substance use (84.3%), parental absences (81.7%), multiple caretaker changes (85.0%), prior CPS investigations (87.6%) and sibling removed by CPS (52.3%) (Table 1). Less common ACEs included termination of parental rights (25.5%) and parental mental illness (39.2%). The belief in a different biological parent identity affected a smaller percentage of youth (9.8%). Parental incarceration ($X^2 = 5.33$; $p < 0.02$) and parental substance abuse ($X^2 = 7.57$; $p < 0.01$) were individual ACEs that significantly differentiated the groups. The range of the number of ACEs was 0–15, with means of 7.1 (SD = 3.4) for less than two months of involvement and 6.9 (SD = 2.9) for more than two months (see Table 2). Regression analyses did not find any significant associations between the accumulation of Family Disruption stressors and the presence or extent of CSE involvement (see Tables 3 and 4).

### 4.4. Family death

A minority of youth reported experiencing a family death. The most common were death of a biological father (17.0%) and having a family either perpetrate or be the victim of murder (10.5%; see Table 1). Other less prevalent ACEs included death of a biological or adoptive mother

**Table 1**
Adverse life experiences among youth with and without experiences of commercial sexual exploitation (N = 200).

| ACEs | Presence of CSE | | | | | |
|---|---|---|---|---|---|---|
| | No CSE | | CSE | | | |
| | N | % | N | % | $X^2$ | p |
| Identity/Individual Stressors | | | | | | |
| Under age 15.5 years | 20 | 42.6 | 43 | 28.1 | 3.48 | 0.06 |
| Racial or cultural minority | 24 | 51.1 | 81 | 52.9 | 0.05 | 0.82 |
| Sexual orientation minority | 15 | 31.9 | 81 | 52.9 | 6.37 | 0.01 |
| Gender identity minority | 1 | 2.1 | 7 | 4.6 | 0.56 | 0.45 |
| Adopted | 12 | 25.5 | 29 | 19.0 | 0.95 | 0.33 |
| Immigrant | 3 | 6.4 | 6 | 3.9 | 0.51 | 0.48 |
| Developmental disability | 1 | 2.1 | 3 | 2.0 | 0.01 | 0.94 |
| Family Disruption | | | | | | |
| Any Parental criminal history | 18 | 38.3 | 88 | 57.5 | 5.33 | 0.02 |
| Any Parental substance use | 31 | 66.0 | 129 | 84.3 | 7.57 | 0.01 |
| Any Parental mental illness | 14 | 29.8 | 60 | 39.2 | 1.37 | 0.24 |
| Any Parental termination of parental rights | 15 | 31.9 | 39 | 25.5 | 0.75 | 0.39 |
| Parental absence | 43 | 91.5 | 125 | 81.7 | 2.56 | 0.11 |
| Caretaker changes | 39 | 83.0 | 130 | 85.0 | 0.11 | 0.74 |
| Prior CPS investigation | 39 | 83.0 | 134 | 87.6 | 0.65 | 0.42 |
| Siblings removed by CPS | 18 | 38.3 | 80 | 52.3 | 2.82 | 0.09 |
| Changed beliefs of biological parent | 3 | 6.4 | 15 | 9.8 | 0.51 | 0.47 |
| Family Death | | | | | | |
| Death of biological mother | 2 | 4.3 | 11 | 7.2 | 0.51 | 0.48 |
| Death of biological father | 5 | 10.6 | 26 | 17.0 | 1.11 | 0.29 |
| Death of adoptive mother | 1 | 2.1 | 1 | 0.7 | 0.79 | 0.37 |
| Death of adopted father | 0 | 0.0 | 1 | 0.7 | 0.31 | 0.58 |
| Family death - murder | 4 | 8.5 | 16 | 10.5 | 0.15 | 0.70 |
| Family death - suicide | 2 | 4.3 | 10 | 6.5 | 0.33 | 0.57 |
| Present at suicide | 2 | 4.3 | 12 | 7.8 | 0.71 | 0.40 |
| Family Violence | | | | | | |
| Youth experiencing physical abuse | 29 | 61.7 | 104 | 68.0 | 0.63 | 0.43 |
| Physical abuse by 2+ perpetrators | 9 | 19.1 | 47 | 30.7 | 2.39 | 0.12 |
| Physical abuser primary caretaker | 24 | 51.1 | 95 | 62.1 | 1.81 | 0.18 |
| Youth exposed to DV | 26 | 55.3 | 102 | 66.7 | 2.01 | 0.16 |
| DV victim required treatment | 2 | 4.3 | 13 | 8.5 | 0.93 | 0.33 |
| Primary caretaker DV victim | 22 | 46.8 | 93 | 60.8 | 2.87 | 0.09 |
| Youth emotional abuse | 16 | 34.0 | 77 | 50.3 | 3.83 | 0.05 |
| Youth experienced IPV | 7 | 14.9 | 34 | 22.2 | 1.18 | 0.28 |
| Other Family Stress | | | | | | |
| Immigrant parent | 2 | 4.3 | 10 | 6.5 | 0.33 | 0.57 |
| Parental chronic medical illness | 11 | 23.4 | 28 | 18.3 | 0.60 | 0.44 |
| Five or more residential moves | 21 | 44.7 | 72 | 47.1 | 0.08 | 0.78 |
| Significant neglect | 25 | 53.2 | 101 | 66.0 | 2.54 | 0.11 |
| Homelessness or living in a hotel | 11 | 23.4 | 43 | 28.1 | 0.40 | 0.53 |
| Youth medical incident or chronic illness | 6 | 12.8 | 22 | 14.4 | 0.08 | 0.78 |
| Sexual Abuse (lifetime) | | | | | | |
| Any sexual abuse | 38 | 80.9 | 137 | 89.5 | 2.48 | 0.12 |
| Sexual abuse before age 12 | 23 | 48.9 | 87 | 56.9 | 0.91 | 0.34 |
| Sexual abuse incidents 1 or 2 | 23 | 48.9 | 72 | 47.1 | 0.05 | 0.82 |
| Sexual abuse incident ≥3 | 2 | 4.3 | 16 | 10.5 | 1.69 | 0.19 |
| Sibling experienced sexual abuse | 5 | 10.6 | 29 | 19.0 | 1.76 | 0.18 |
| Betrayal sexual abuse | 12 | 25.5 | 54 | 35.3 | 1.55 | 0.21 |
| Any family involvement with CSE | 6 | 12.8 | 41 | 26.8 | 3.94 | 0.05 |
| Community Violence | | | | | | |
| Exposure to community violence | 25 | 53.2 | 104 | 68.0 | 3.43 | 0.06 |
| Sibling involved in criminal legal system | 7 | 14.9 | 34 | 22.2 | 1.18 | 0.28 |
| Youth experienced bullying | 22 | 46.8 | 88 | 57.5 | 1.67 | 0.20 |
| Any Murder | 4 | 8.5 | 26 | 17.0 | 2.03 | 0.15 |
| Any Death | 2 | 4.3 | 13 | 8.5 | 0.93 | 0.33 |
| Personal or Other | | | | | | |
| School distress | 23 | 48.9 | 90 | 58.8 | 1.43 | 0.23 |
| Any Foster care placements | 29 | 61.7 | 90 | 58.8 | 0.12 | 0.73 |
| Any Residential or correctional placement | 14 | 29.8 | 76 | 49.7 | 5.74 | 0.02 |
| Any Psychiatric hospitalization | 18 | 38.3 | 78 | 51.0 | 2.32 | 0.13 |
| 3+ Emergency shelter or detention | 11 | 23.4 | 29 | 19.0 | 0.45 | 0.51 |
| Youth abortion or miscarriage | 4 | 8.5 | 37 | 24.2 | 5.42 | 0.02 |
| Youth has child | 3 | 6.4 | 8 | 5.2 | 0.09 | 0.76 |

*Note*. All models have 1 degree of freedom. CSE = commercial sexual exploitation; ACE = adverse childhood experience; CPS = Child Protective Services; DV = domestic violence; IPV = intimate partner violence.

**Table 2**
Distribution of ACEs total scores.

| Category | Range | No CSE Involvement | | <2 Months Involvement in CSE | | >2 Months Involvement in CSE | |
|---|---|---|---|---|---|---|---|
| | | Mean | S.D. | Mean | S.D. | Mean | S.D. |
| Identify/Individual stressors | 0–4 | 1.62 | 0.90 | 1.64 | 1.09 | 1.63 | 0.91 |
| Family Disruption | 0–15 | 6.49 | 3.20 | 7.07 | 3.36 | 6.93 | 2.87 |
| Family Death | 0–6 | 0.74 | 0.94 | 1.02 | 1.15 | 1.02 | 1.15 |
| Family Violence | 0–7 | 2.87 | 2.01 | 3.43 | 2.16 | 3.85 | 2.00 |
| Other Family Stress | 0–5 | 1.68 | 1.27 | 1.86 | 1.23 | 1.88 | 1.18 |
| Sexual Abuse | 0–7 | 2.36 | 1.72 | 2.75 | 1.78 | 3.07 | 1.72 |
| Community Violence | 0–13 | 1.36 | 1.11 | 1.68 | 1.36 | 2.19 | 1.69 |
| Personal or other | 1–10 | 1.36 | 1.11 | 1.68 | 1.36 | 2.19 | 1.69 |
| Total score | 0–67 | 19.74 | 6.22 | 22.55 | 7.9 | 23.85 | 6.94 |

*Note*. CSE = commercial sexual exploitation; ACE = adverse childhood experience.

**Table 3**
IRR between adverse life experiences and CSE involvement.

| | IRR | 95% CI | | *p* |
|---|---|---|---|---|
| Identity/Individual Stressors Total | 1.010 | 0.782 | 1.306 | 0.94 |
| Family Disruption | 1.076 | 0.924 | 1.253 | 0.35 |
| Family Death | 1.220 | 0.832 | 1.788 | 0.31 |
| Family Violence | 1.286 | 1.043 | 1.585 | 0.02 |
| Other Family Stress | 1.112 | 0.867 | 1.427 | 0.40 |
| Sexual Abuse (lifetime) | 1.251 | 1.009 | 1.551 | 0.04 |
| Community Violence | 1.469 | 1.109 | 1.945 | 0.007 |
| Personal or Other | 1.224 | 1.014 | 1.477 | 0.04 |
| Total number of ACEs | 1.178 | 1.054 | 1.316 | 0.004 |

*Note*. CSE = commercial sexual exploitation; IRR = incidence rate ratio. IRRs reflect the association between the presence of commercial sexual exploitation and the counts of adverse childhood experiences. Youth with no history of commercial sexual exploitation serve as the reference.

and presence at family suicide. Among those experiencing CSE, 40.5% had encountered at least one form of family death. The range of the number of ACEs was 0–6, with a mean of 1.0 (SD = 1.2) for both less than two months and more than two months of CSE involvement (Table 2). Regression analyses did not find any significant associations between the accumulation of Family Death experiences and the presence or extent of CSE involvement (see Tables 3 and 4).

### 4.5. Family violence

This category grouped various acts of violence where the perpetrator had a significant emotional connection to the youth. Notable findings include that 68.0% of youth were exposed to physical abuse, 66.7% to domestic violence, and 60.8% had a primary caretaker who was a victim of domestic violence (see Table 1). The range of the number of ACEs was 0–7, with a mean of 3.4 (SD = 2.2) for less than two months of involvement and 3.9 (SD = 2.0) for more than two months (see Table 2). The accumulation of Family Violence experiences was significantly higher among those involved in CSE compared to those not involved (IRR = 1.286, $p < 0.02$ see Table 3), and the length of time involved in CSE was also significantly associated with Family Violence experiences (IRR = 1.339, $p < 0.009$, see Table 4).

### 4.6. Other Family Stress

Neglect was identified in half of the youth, while five or more residential moves were reported by 66.0%. Parental chronic medical illness (18.3%), homelessness (28.1%), and youth medical incidents or chronic illness (14.4%) were less common (see Table 1). Only 6.5% of participants had an immigrant parent. The range in the number of ACEs was

**Table 4**
IRR between adverse childhood experiences and levels of CSE involvement.

| | IRR | 95% CI | | *p* |
|---|---|---|---|---|
| Identity/Individual Stressors Total | | | | |
| No CSE (reference) | | | | |
| <2 months CSE | 1.016 | 0.750 | 1.377 | 0.92 |
| ≥2 months CSE | 1.007 | 0.766 | 1.324 | 0.96 |
| Family Disruption | | | | |
| No CSE (reference) | | | | |
| <2 months CSE | 1.090 | 0.911 | 1.304 | 0.35 |
| ≥2 months CSE | 1.068 | 0.908 | 1.255 | 0.43 |
| Family Death | | | | |
| No CSE (reference) | | | | |
| <2 months CSE | 1.367 | 0.886 | 2.110 | 0.16 |
| ≥2 months CSE | 1.135 | 0.756 | 1.705 | 0.54 |
| Family Violence | | | | |
| No CSE (reference) | | | | |
| <2 months CSE | 1.194 | 0.934 | 1.525 | 0.16 |
| ≥2 months CSE | 1.339 | 1.075 | 1.667 | 0.009 |
| Other Family Stress | | | | |
| No CSE (reference) | | | | |
| <2 months CSE | 1.105 | 0.825 | 1.480 | 0.50 |
| ≥2 months CSE | 1.116 | 0.857 | 1.454 | 0.41 |
| Sexual Abuse (lifetime) | | | | |
| No CSE (reference) | | | | |
| <2 months CSE | 1.164 | 0.905 | 1.498 | 0.24 |
| ≥2 months CSE | 1.301 | 1.039 | 1.629 | 0.02 |
| Community Violence | | | | |
| No CSE (reference) | | | | |
| <2 months CSE | 1.233 | 0.887 | 1.713 | 0.21 |
| ≥2 months CSE | 1.605 | 1.201 | 2.145 | 0.001 |
| Personal or Other | | | | |
| No CSE (reference) | | | | |
| <2 months CSE | 1.154 | 0.925 | 1.439 | 0.20 |
| ≥2 months CSE | 1.265 | 1.038 | 1.541 | 0.02 |
| Total number of ACEs | | | | |
| No CSE (reference) | | | | |
| <2 months CSE | 1.138 | 0.999 | 1.297 | 0.05 |
| ≥2 months CSE | 1.201 | 1.068 | 1.350 | 0.002 |

*Note*. CSE = commercial sexual exploitation; IRR = incidence rate ratio. IRRs reflect the association between the presence of commercial sexual exploitation and the counts of adverse childhood experiences. Youth with no history of commercial sexual exploitation serve as the reference.

0–5, with a mean of 1.9 (SD = 1.2) for less than two months of CSE involvement and 1.9 (SD = 1.2) for more than two months (Table 2). Regression analyses did not find any significant associations between the accumulation of Family Stress and the presence or extent of CSE involvement (see Tables 3 and 4).

### 4.7. Sexual abuse

Most of the youth (89.5%) experienced some form of sexual abuse, with 56.9% experiencing it before the age of 12. Most encountered one or two incidents (47.1%), while a smaller group faced three or more incidents (10.5%). Incidents involving multiple occurrences or perpetrators were categorized accordingly. Betrayal sexual abuse, defined as abuse by a family member or caregiver, occurred in 35.3% of cases, while 19.0% had a sibling who experienced sexual abuse. Family member involvement in CSE (victim, exploiter, or sex buyer) was noted in 26.8% of cases and significantly differentiated those with CSE experience from those without ($X^2 = 3.94$; p = 0.05, see Table 1). The range in the number of ACEs was 0–7, with a mean of 2.8 (SD = 1.8) for less than two months and 3.1 (SD = 1.7) for more than two months of CSE involvement (Table 2). Those involved in CSE were found to have significantly higher levels of pre-CSE Sexual Abuse compared to those with no CSE involvement (IRR = 1.251, $p = 0.04$). Interestingly, this difference was driven solely by youth with at least two months of CSE involvement, who had significantly higher rates of pre-CSE Sexual Abuse compared to youth not involved in CSE (IRR = 1.301, $p = 0.02$), whereas no significant difference emerged between uninvolved youth and those involved for less than two months (IRR = 1.164, $p = 0.24$) (see Tables 3 and 4).

### 4.8. Community violence

More than half of the youth were exposed to community violence (68.0%) and had experienced bullying (57.5%). A minority were related to siblings involved in the legal system (22.2%) or knew someone who was murdered (17.0%), with the least frequent occurrence being knowledge of an individual who died in the community by accident or suicide (8.5%). No individual ACE distinguished the CSE group from the comparison group (Table 1). The range in the number of ACEs was 0–13, with means of 1.7 (SD = 1.4) for less than two months and 2.2 (SD = 1.7) for more than two months of CSE involvement (Table 2). Relative to youth with no CSE involvement, those with any involvement were found to have significantly higher rates of exposure to Community Violence (IRR = 1.469, $p = 0.007$). This effect appears to be driven by those with more extensive CSE involvement, as those with less than two months of CSE involvement did not differ from those with no involvement, whereas those with two or more months of CSE involvement had significantly higher rates of exposure to Community Violence (IRR = 1.605, $p = 0.001$). (see Tables 3 and 4).

### 4.9. Personal or other

Over half of the youth experienced school distress (58.8%), foster care placement (58.8%), and psychiatric hospitalization (51.0%), while nearly half had been in residential or correctional placement (49.7%). A significant minority had more than three emergency shelter or detention placements (19.0%) or experienced an abortion or miscarriage (24.2%). Only 5.2% had a child (see Table 1). Distinctive ACEs for the CSE group included residential or correctional placement ($X^2 = 5.74$; $p < 0.02$) and experiencing an abortion or miscarriage ($X^2 = 5.42$; $p < 0.02$). The range in the number of ACEs was 1–10, with means of 1.7 (SD = 1.4) for less than two months and 2.2 (SD = 1.7) for more than two months of CSE involvement (Table 2). Consistent with several other categories, the significant differences in rates of Personal or Other adverse experiences between youth involved in CSE versus uninvolved youth (1.224, $p = 0.04$) was driven primarily by the elevated rates of Personal or Other adverse experiences among youth involved in CSE for at least two months compared to uninvolved youth (IRR = 1.265, $p = 0.02$). However, no differences were observed between uninvolved youth and those involved in CSE for less than two months (IRR = 1.154, $p = 0.20$) (see Tables 3 and 4).

### 4.10. Total ACEs

Significantly higher rates of ACEs were observed among youth involved in CSE compared to their uninvolved but highly marginalized counterparts (IRR = 1.178, $p = 0.004$), supporting the contention that youth CSE survivors tend to endure distinctively high rates of adverse childhood experiences. Although youth involved in CSE for less than two months were found to have marginally higher rates of ACEs than those uninvolved (IRR = 1.138, $p = 0.05$), results find that longer duration of CSE is associated with particularly high levels of ACEs, with those involved for at least two months showing significantly higher rates of ACEs compared to their uninvolved counterparts (IRR = 1.201, $p = 0.002$).

## 5. Discussion

This study found that the participating youth encountered numerous ACEs, although the psychological consequences of these experiences were not directly measured. The variety and frequency of ACEs observed offer essential baseline data about the potential for mental and behavioral symptoms, informing content and strategies for intervention programs. There is a clear need for further research to explore how the

accumulation of ACEs translates into specific psychological symptoms.

### 5.1. Identity

Identity significantly influences the lived experiences of youth and their reactions to stressors. Our findings align with Bryant and Malebranche (2023), Twis (2020), and Franchino-Olsen (2021), indicating that youth of color are overrepresented in our sample. Similar to observations by Bryant and Malebranche (2023) and Greeson et al. (2019), youth identifying with a minority sexual orientation also appear disproportionately. This factor was notably distinct among youth involved in CSE compared to their counterparts. The discussion by Bryant and Malebranche (2023) on trafficking within marginalized communities highlights the urgent need for practitioners to acknowledge how prejudice and systemic inequities affect these groups and to tailor services accordingly. For instance, female African American youth face the dual challenges of objectification and "adultification" (Epstein et al., 2017), while minority sexual orientation youth reported distress leading to homelessness and estrangement from family due to rejection (Greeson et al., 2019). Unlike previous studies, our research identifies adoption as a significant concern among the sample, suggesting it may constitute an ACE due to reported distress over restricted contact with biological parents, confusion about the child welfare system, and often drastic changes in cultural environments. Though less common, youth with developmental delays, immigration backgrounds, and those identifying with a gender minority present with unique needs not significantly differentiating them from their peers without CSE experiences.

### 5.2. Family disruptions

Compromised parenting and caregiver strain are consistently reported as ACEs among youth experiencing CSE (Franchino-Olsen, 2019), a finding our study corroborates. Notably distressing and disruptive ACEs included termination of parental rights, affecting 25.5% of participants, and changes in the perceived identity of biological parents, affecting 9.8%. While parental incarceration and substance abuse specifically differentiated those with more extended periods of CSE involvement, the average total of over six family disruptions underscores the ubiquity of such experiences. Incorporating therapeutic support for families is essential, especially in assisting parents to overcome their challenges, with case management services playing a crucial role in stabilizing family dynamics and enhancing engagement with supportive services, particularly concerning mental health issues and substance abuse. Despite two ACEs being more prevalent among youth with longer durations of CSE involvement, family disruption remains a consistent aspect in the lives of those encountering multiple ACEs.

### 5.3. Family death

Family deaths, although not widely covered in the CSE literature, were reported by 40.5% of the youth in this study, with some witnessing up to six such events, including the suicide of a family member. Family death occurred in all the groups. These findings emphasize the need for comprehensive assessments of complicated bereavement and the implementation of grief interventions tailored to the needs of youth experiencing complex ACEs whether experiencing or not experiencing CSE.

### 5.4. Family violence

Research has highlighted family violence, including physical abuse, domestic violence, emotional abuse, and intimate partner violence, as a crucial ACE for these youth (Franchino-Olsen, 2019; Perry et al., 2022). Physical abuse is assessed with two severity measures: incidents involving two or more perpetrators and abuse by a primary caretaker, indicating exposure to widespread violence and betrayal trauma. Domestic violence severity is gauged by the need for victim treatment and when the victim is a primary caretaker, underscoring betrayal and protection failure. Over half of the youth experienced five of these ACEs, with average occurrences exceeding two for the under two-month youth and three for the over two-month youth. Emotional abuse alone differentiated between duration groups, echoing findings from Franchino-Olsen (2021). This category's total significantly raised the likelihood of CSE involvement compared to the comparison group, emphasizing the importance of thoroughly assessing family violence for occurrence frequency and severity. Clinical interventions should address family violence history, including shared experiences during domestic violence and themes that normalize violence, highlighting the widespread nature of violence within the homes of many participating youth.

### 5.5. Other family stress

The ACEs related to chronic stress, such as neglect and homelessness, are prevalent among youth experiencing CSE (Franchino-Olsen, 2019), a finding this study confirms. Additional ACEs indicate that while chronic medical issues for youth and their parents are less common, they occur in a significant minority and were included only when causing distress or exacerbating parenting challenges. For instance, early onset puberty led to bodily discomfort and harassment among peers for several participants. Nearly half of the youth experienced residential instability, underscoring that these chronic stresses, while common among youth with complex trauma, are not necessarily more frequent among those with CSE involvement. Assessing basic needs and providing case management for housing stability, medical service engagement, and meeting unmet needs are critical for the long-term stability of youth with complex ACEs, including those experiencing CSE.

### 5.6. Sexual abuse

Sexual abuse remains a focal issue in the literature (Franchino-Olsen, 2019; Perry et al., 2022). Unlike prior studies, this research delves deeper into the nuances of sexual abuse by examining unique measures previously underexplored, such as sexual abuse occurring before age 12, the frequency of incidents (ranging from one to two and three or more), and instances of betrayal abuse. Our analysis extends to assessing the safety of the family environment, highlighting factors like sibling sexual abuse and family involvement with CSE. Notably, "Any family involvement with CSE" emerged as a distinct determinant for youth with CSE involvement. Furthermore, our findings indicate that the cumulative score in the sexual abuse category significantly elevates the likelihood of CSE involvement, underscoring that a thorough evaluation incorporating both severity measures and the context of the family environment is critical for accurate identification. Our secondary analysis revealed that these distinctions were particularly marked among youth involved for more than two months. Given the high prevalence of sexual abuse (80.9% among those without CSE experience and 89.5% among those with), simply verifying the presence of sexual abuse falls short of providing a comprehensive assessment for CSE involvement. Instead, evaluations should encompass severity measures, family dynamics, and sexual values. Wolf et al. (2023) developed an instrument to assess the severity of betrayal trauma in adult survivors, highlighting the potential for applying similar methodologies to adolescent populations. Clinicians might also consider family involvement in CSE and the severity of sexual abuse as indicators of CSE involvement.

### 5.7. Community violence

Previous studies have recognized community violence as a significant ACE (Franchino-Olsen, 2019; Perry et al., 2022). Although no single ACE within this category distinguished between groups, several factors were notably prevalent. Exposure to community violence was reported by 68% of participants, and 57.5% experienced bullying, affecting over half of the youth. Less common but still indicative of severity were murder(s)

and death(s). The involvement of a sibling in the criminal justice system, reported by 22.2% of participants, highlighted exposure to community violence through family connections. The widespread nature of this exposure and the results regarding the IRR underscore the significance of community violence severity as a differentiating factor for youth involved in CSE, especially those with more than two months of involvement. Assessments should meticulously gauge exposure to community violence, and research aimed at identifying effective and comprehensive measurement strategies is essential. Understanding the role of community violence in identifying youth at risk for or involved in CSE is crucial, as is exploring whether reducing community violence could potentially decrease CSE involvement.

### 5.8. Personal or other

This category encompasses recognized ACEs such as foster care placements and school distress (Franchino-Olsen, 2019), among others not typically highlighted. Factors like school distress, foster care, residential placements, and psychiatric hospitalizations reflect the intervention history of these youth, often occurring frequently and repetitively. Residential placement was more common among the CSE group compared to the comparison group. Caution should be used in interpreting this finding as there are subgroups of youth with previous residential placement. Only one youth had previous treatment for experiencing CSE in a residential facility. In this case, the youth ran from the facility and reexperienced CSE. Another group of youth eloped from a previous facility and experienced CSE while on the elopement consistent with challenges noted with effectively treating these youth in residential placement (Gevers et al., 2022). Another smaller group of youth were placed for issues not identified as CSE but additional information resulted in a referral to the present facility for further assessments. Another small group of youth engaged in CSE before and after previous residential placement without detection. Previous residential placement should be assessed carefully and considered an indicator of possible involvement rather than assuming residential placement is a risk for CSE involvement. Careful assessment of previous reasons for placement and effectiveness of previous residential treatments is critical to understanding the meaning of previous residential placements and CSE experiences.

Abortions, miscarriages, and having a child were additional ACEs identified, with the first ACE distinguishing the CSE group. Abortions, although rare, were reported under coercion, highlighting severe distress. Disputes often surrounded miscarriages, based on youth and caretaker reports, and having a child introduced significant challenges, exacerbating family disruptions. These experiences are pivotal in the life narratives of youth, reflecting profound distress. Assessments for youth experiencing CSE should sensitively address these themes, considering their integration into the youths' life stories and the resultant implications.

## 6. Group differences

### 6.1. Length of CSE experience

The data concerning length of involvement in CSE resulted in no categories with a statistically significant difference between the comparison group and the less than two months group. Four categories had significant IRR that were larger than the comparison between all youth involved in CSE and the comparison group. The IRR are modest but suggests that youth with longer involvement had more ACEs related to family violence, sexual abuse, community violence, and personal or other ACEs. The modest results may reflect a modest relationship, or methodological issues related to choosing the 2-month criteria. The relationship may have been more robust if youth involved for longer periods such as six month could have been reliably categorized. This modest increase may reflect individual and social context factors. For instance, the youth may have psychological symptoms that impedes leaving CSE. Social context lengthening factors may include exploiters utilizer their ACEs history to maintain control, lack of parental supervision resulting in earlier involvement, and/or alienation from family resulting in an absence of parental searching for the youth. These results raise the possibility that a history of ACEs or simultaneously occurring ACEs might modestly increase length of involvement.

### 6.2. Differences between the comparison and CSE group

Differences between the comparison and CSE group were modest and only occurred among a few single ACEs and categories. The results suggest that among youth with complex trauma, the existence of any specific ACE or category of ACEs would not differentiate among the youth. These results are consistent with Reid et al. (2017) conclusions that screening items based on historical factors may not be effective in screening instruments. This research reinforces Reid et al. (2017) recommends that "universal screening tools for human trafficking (i.e., screening for exploitive experiences rather than victim characteristics) should be considered the gold standard (page 511)."

## 7. Limitations

This study had several critical limitations that necessitate caution in generalizing its findings to broader populations of youth involved in CSE. The participants predominantly consist of marginalized youth referred by DCS, which may not accurately represent the experiences of all youth involved in CSE, especially those not from marginalized communities. The referral process itself could influence the characteristics of the sample, given the variability in policies and procedures across agencies (Halter, 2010; Nichols et al., 2022). Moreover, differences in the types of trafficking and exploiter strategies employed can introduce biases in detection and referral practices. The number of ACEs and statistical tests resulted in multiple comparisons that increased the probability of false-positive findings.

Furthermore, youth who have encountered numerous ACEs might face challenges in recognizing and articulating their own ACEs. This includes difficulties in developing trust to disclose such experiences, as well as challenges in recalling all their ACEs accurately. Although this study highlights a broad and frequent occurrence of ACEs among the participants, it is possible that not all ACEs were fully reported. There may be additional ACEs that went unreported, undocumented, or unidentified during the assessment process, suggesting that the actual prevalence of ACEs could be higher than recorded.

The comparison group included youth who were at-risk for involvement in CSE including some who may have undetected CSE experiences. This problem is noted in other research articles (Kenney, 2020; Reid, 2017). The evaluation team sought to minimize this probability through a robust evaluation process including multiple interviews with the youth, caretakers, and referral sources and a review of record to maximize the information available. The evaluators were highly trained trauma specialists with additional training concerning CSE utilizing multiple interviews to establish a supportive and open relationship with each youth. The evaluators also utilized in-house screening instruments that review common indicators of CSE involvement including such indicators as having unexplained cash, branding, social media history, peer and family involvement in CSE, out of state elopements, and being found in an area known for commercial sexual exploitation. Additional information was provided through a staffing at the end of the evaluation including the youth's therapist.

## 8. Conclusions

The study's findings underscore the complex nature of ACEs among youth experiencing CSE. Our research reinforces the importance of adopting a holistic approach to trauma-informed care, which recognizes the cumulative effects of ACEs and the intricate interplay of personal,

familial, and community stressors. Such an approach demands providers possess a broad skill set, emphasizing cultural sensitivity and awareness of the influences of social prejudices, particularly when caring for youth from marginalized populations. Moreover, the research expands our understanding of the prevalence and diversity of ACEs, highlighting the need for comprehensive assessments that encompass the full spectrum of potential ACEs. This is especially pertinent for youth involved in contexts of CSE, who face multifaceted challenges. Our findings indicate the critical need for service providers to employ a multifaceted approach to intervention, tailored to address the complex needs of these individuals. This highlights the urgency for future research to explore the variety and impacts of ACEs more deeply, aiming to unravel the pathways to CSE involvement and to identify effective interventions.

Furthermore, the identification of family and community violence as pivotal factors in the trajectory towards CSE involvement signals a call for theoretical advancement. A conceptual framework that integrates the pervasive nature of violence and its influence on belief systems, which may predispose youth to exploitation, is essential. Such a framework will be instrumental in identifying at-risk youth and developing targeted interventions, thereby emphasizing the necessity to consider the broader context of a youth's life experiences in trauma-informed care practices.

In conclusion, this study advocates for a significant shift towards a more nuanced, culturally competent, and comprehensive approach to understanding and addressing the impacts of ACEs. It lays the foundation for further research and theoretical development that prioritizes the multifaceted nature of trauma, the critical role of family and community dynamics, and the development of effective, context-sensitive interventions.

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## CRediT authorship contribution statement

**Hugh Hanlin:** Conceptualization, Data curation, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Aaron Kivisto:** Conceptualization, Formal analysis, Software, Supervision, Writing – review & editing. **Chelsea Gold:** Project administration, Writing – original draft, Writing – review & editing.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.chipro.2024.100042.

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