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Risk Profiles of Suicide Attempts Among Girls with Histories of Commercial Sexual Exploitation: A Latent Class Analysis

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Abstract

Background: Girls impacted by commercial sexual exploitation (CSE) in the juvenile legal system are three times more likely to have suicide attempts than girls without histories of exploitation. Yet, research on risk profiles and correlates that contribute to elevated suicide risk among girls with CSE histories remains scant.

Objective: We sought to examine suicide attempts profiles among CSE-impacted girls in the juvenile legal system.

Participants and Setting: We partnered with a specialty court for CSE-impacted youth in Los Angeles County.

Methods: Data were collected from case files of the 360 girls participating in the court from 2012–2016. Latent class analysis was used to identify their profiles of risk indicators.

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Conflict of interest statement

Declarations of Interest: None

Results: Four risk profiles for suicide attempts emerged: (1) Parental Incarceration (PI; 30%), (2) Child Welfare Contact (CWC; 25%), (3) Disruptive Behavior and Sleep Problems (DBS; 25%), and (4) Pervasive Risk (PR; 22%). Among youth in the PI group, 5% had a suicide attempt; however, contrary to our hypothesis, no youth in the CWC group had a suicide attempt. Rates of suicide attempt were significantly higher among youth in the DBS group, as 14% had a suicide attempt. As hypothesized, youth in the PR were associated with higher risk of suicide attempts, with 28% reporting a prior suicide attempt.

Conclusions: Findings underscore the need for standardized suicide screenings and treatment referrals for girls with CSE histories and suggest an important opportunity for multidisciplinary collaboration with courts to improve suicide prevention strategies. The present study also supports the importance of examining risk across the socioecological context.

Keywords

Child sex trafficking; adolescents; judicial system; juvenile legal system; specialty court

Suicide is the second leading cause of death among adolescents and young adults between the ages of 10–24 (Curtin & Hedegaard, 2019). Despite major advances in suicide prevention and intervention efforts (Busby et al., 2020; Calear et al., 2016; Glenn et al., 2019; Robinson et al., 2018), suicide attempts between 2009 and 2019 have significantly increased from 6.3% in 2009 to 8.9% in 2019 among high-school aged youth (14–18 years old; Ivey-Stephenson et al., 2020). In particular, Latinx and Black adolescent girls (i.e., high school age) have high rates of suicide attempts, with reports from the Youth Risk Behavior Surveillance System indicating that 11.9% of Hispanic/Latinx and 15.2% non-Hispanic Black girls reported a suicide attempt in the prior year, compared to 9.4% of non-Hispanic White girls in this age group (Ivey-Stephenson et al., 2020). Youth in the juvenile legal system, who are also disproportionately Black and Latinx (Owen & Wallace, 2020; Sickmund et al., 2019), are at even greater risk of suicide. Indeed, data suggest that youth involved in the juvenile legal system are two to four times more likely to have a suicide attempt than youth in the general population (Gallagher & Dobrin, 2007). More recent data indicate that the prevalence rate of suicide attempts among juvenile legal system involved youth is around 14% (Kemp et al., 2016).

Although there is ample research documenting the high risk of suicide among juvenile legal system involved youth, little is known about youth in the juvenile legal system who have or who are experiencing commercial sexual exploitation (CSE). This is notable as youth with histories of CSE are disproportionately Black and Latinx adolescent girls and CSE exposure is a strong risk factor for suicide attempts. Prior studies have found that the rate of suicide attempts among CSE-impacted youth were four times the national average (48.4% vs. 8–10%; Edinburgh et al., 2015; Sprang & Cole, 2018). Girls impacted by CSE report even higher risk of suicidality than their male counterparts (Chagnon, 2007). Despite this gender disparity, very few studies thus far that have examined gender differences in suicidality among youth affected by CSE. One notable exception is Edinburgh and colleagues (2015), who found that self-harm behaviors (i.e., cutting) and suicide ideation were higher among sexually exploited girls with histories of running away compared to their male counterparts, whereas suicide attempts were slightly higher among boys than girls (57.1% vs. 47.1%,

respectively). These findings, however, are limited by the relatively small sample size of the study (n = 62). Among larger samples (n = 128) of diverse youth and young adults ages 12 to 25 that were impacted by homelessness and CSE, 53% endorsed lifetime suicide ideation, and a striking 84.4% of the youth that endorsed previous lifetime suicide ideation also reported a lifetime suicide attempt (Frey et al., 2018). Findings across heterogenous samples of youth show that the link between CSE and suicide risk is strong (Edinburgh et al., 2015; Le et al., 2018). Still, less is known about the specific factors that contribute to suicide risk among system-involved girls with experiences of CSE.

Commercial Sexual Exploitation (CSE) Among Girls

The CSE of children can be defined as crimes or activities of sexual nature involving minors (below age 18) in which anything of value is exchanged (IOM & NRC, 2013). CSE may include transactional sex, sexually explicit videos or photos, or performance in sexual venues exchanged for items such as money, drugs, or basic necessities (IOM & NRC, 2013). Given the limitations of available data and difficulty of measuring a crime that is hidden in nature, there are no reliable prevalence estimates of CSE in the United States (Franchino-Olsen et al., 2020; Nemeth & Rizo, 2019). Still, youth are particularly vulnerable, especially those identifying as racial/ethnic and gender minorities (Butler, 2015; Chong, 2014; Fedina et al., 2019; Hammond et al., 2020).

It is well-documented that CSE-impacted girls also frequently endure childhood adversity, including exposure to maltreatment (i.e., neglect, emotional, and sexual abuse) and violence (Bath et al., 2020; Brabant et al., 2014; Bounds et al., 2015; Frey et al., 2018; Godoy et al., 2020; Hopper 2017; Middleton et al., 2018; Sprang & Cole, 2018). Childhood adversities, as well as during their exploitation, is common among CSE-impacted youth. Among a small sample (n = 31) of CSE-impacted youth in the child welfare system, 96.8% experienced sexual assault, 58.1% encountered physical assault, and 90.3% endured health-related problems, such as sexually transmitted infections and unplanned pregnancies (Sprang & Cole, 2018). Additionally, nearly half of these youth (48.4%) reported a previous suicide attempt and 13% reported self-injurious behavior (Sprang & Cole, 2018). The chronic exposure to adverse childhood experiences can increase the risk for developing significant behavioral health problems, such as affective disorders, mood disorders, and problematic substance use (Bath et al., 2020; Le et al., 2018; Reid et al., 2017; Sprang & Cole, 2018), which may increase their risk for suicidality.

Youth experiencing CSE are frequently involved in the child welfare and juvenile legal systems—though many go unidentified (Hammond et al., 2020; Liles et al., 2016; Salisbury et al., 2014). The rate of deaths by suicides among youth in child welfare and juvenile legal systems are 3–4 times higher than the general population (Gallagher & Dobrin, 2007; Farrand et al., 2004). Youth with combined experiences of CSE and juvenile legal and/or child welfare involvement are at significant risk for suicide, highlighting the urgent need to examine key precipitators of suicide risk.

Socioecological Risk Factors for Suicide Attempts

The available literature on predictors of suicide attempts thus far has greatly focused on the examination of individual risk factors (Franklin et al., 2017), with little efforts made to understand the different impacts of risk across contexts. Given the complex experiences of youth involved in child welfare and juvenile legal systems, an examination of risks across multiple systems and contexts is sorely needed to better understand suicidality within this population. The socio-ecological model offers a framework for examining the interaction of multilevel characteristics related to individuals, their environments, and social systems (Bronfenbrenner, 1979).

Although limited, there are studies that examine some of the individual level risk factors impacting suicide risk among CSE youth. For example, among youth with CSE experiences, high symptom levels of depression, anxiety, and posttraumatic stress disorder (PTSD) were strongly associated with recent self-harm and suicide attempts (Kiss et al., 2015). Additionally, child sexual abuse is considered a significant risk factor for suicide, which many youth with CSE histories experience prior and during their CSE. There are also other individual and interpersonal/family level, comorbid factors that may contribute to a history of sexual abuse that can increase a child's risk of suicide and self-injurious behaviors, such as varying biological and psychosocial variables, including serotonin hypoactivity, family history and maltreatment, and certain personality and psychiatric disorders (Maniglio, 2010). Experiencing sexual violence during childhood can contribute to depressive and PTSD symptoms, which together are significant predicators of suicidal ideation. In addition, at the interpersonal/family level, parental psychopathology, including substance use and personality disorders, and family history of suicidal behavior can also increase the likelihood of youth having a suicide attempt (Rutz et al., 2008).

In addition to the previously mentioned individual risk factors, prior research has revealed that marijuana use and sleep problems are a potential risk factor for suicide attempts in adolescents. The literature suggests that using marijuana during adolescence is associated with a greater likelihood of suicide attempts in adolescence and later adulthood (Carvalho et al., 2019). The likelihood of suicide attempts in adolescence further increases when combining alcohol with marijuana use (Sellers et al., 2019). Given the increased risk for suicide attempts in youth populations who engage in marijuana use, it is important to address marijuana in the prevention and assessment of suicidal behaviors in adolescence. There is also a consistent and strong association between sleep disturbances and suicidality in adolescents (Goldstein et al., 2010; Wong et al., 2011). Among adolescents, sleep problems such as insomnia, nightmares, sleep disturbance, and hypersomnia are linked with suicidal thoughts and self-harm/suicidal behaviors, even while controlling for prior suicidality and depressive symptoms (Wong et al., 2011).

Although it has been well established that individual level risk factors, like symptoms of psychopathology, contribute to risk of suicide, less is known about system level risk factors (i.e., child welfare involvement). For instance, research has found that at the system/social level, youth involved in child welfare system were four to five times more likely to have been hospitalized for suicide attempts (Vinnerljung, 2006). However, in other studies,

rates of suicide attempts and hospital admissions were higher prior to child welfare entry, but then decreased after youth entered the child welfare system, suggesting that child welfare intervention (i.e., housing placements) decreased risk for suicide (Katz et al., 2011). One study found that out-of-home placements, in particular, were associated with higher depressive symptoms and suicide ideation (Anderson, 2011); however, suicide attempt outcomes were not examined. Within the juvenile legal system, youth experience higher suicidal behaviors than those not involved (Gallagher & Dobrin, 2007).

In terms of the immediate family (i.e., family level) and neighborhood context (i.e., community level), parental incarceration has been linked to suicide plans and behaviors among Black and Latinx adolescents (Banks & Fields, 2020; Davis & Shlafer, 2016; Gifford et al., 2019; McKay et al., 2018). It is postulated that parental incarceration is a risk factor for youth suicide because parental incarceration adversely impacts the home environment by hindering parental monitoring and the provision of a nurturing environment (Quinn et al., 2022). Other risk factors for suicide at the community level or within the neighborhood environment include gang involvement, which was strongly linked to suicide attempts among delinquent Latinx adolescent girls (Cuellar & Curry, 2007).

Current Study

Although we have advanced our understanding of how single risk factors predict suicide attempts across various samples, most studies to date have not focused on samples of girls impacted by CSE. Studies that have examined predictors of suicide among populations affected by CSE, have primarily focused on individual psychopathology without examining interpersonal and system level risk, such as parental incarceration and child welfare referrals (Brabant et al., 2014; Hopper, 2017; Klonsky & Moyer, 2008; Mangilio, 2010; Sprang & Cole, 2018). To address this gap, we use a socio-ecological framework that examines risk factors across individual, interpersonal/family, community, and social/system levels. Further, while prior research has examined gender differences in suicidal behaviors, few studies explore ethnic/racial subgroups for CSE girls. This is relevant given that Black and Latinx adolescent girls not only are disproportionately involved in the child welfare and juvenile legal systems but also have the highest rates of suicide attempts compared to White adolescent girls (Kann et al., 2018). Thus, a person-centered analytic approach, like latent class analysis (LCA) can help bridge this gap by identifying risk profiles that exist across various subgroups. Given previous findings (see Busby et al., 2020; Berona et al., 2017), we hypothesize that various profiles will emerge, and that CSE-impacted girls with multiple risks across individual, family, and system level factors will incur the greatest risk for suicide attempts.

Methods

Study Site and Design

This research was conducted in partnership with the Succeeding Through Achievement and Resilience (STAR) Court, a specialty court in Los Angeles County, California. STAR Court is a voluntary court diversion program designed for youth at-risk or with confirmed histories of CSE in the juvenile legal system. The collaborative court provides participants

with a consistent, multidisciplinary team and utilizes a trauma-informed approach to offer specialized services in a non-adversarial manner. The current study is part of a larger study exploring the efficacy of STAR Court (Bacharach et al., 2020, 2021; Bath et al., 2020).

STAR Court data were longitudinal and captured events prior to youths' court entry, during court participation, and at court termination or study end (whichever came first). For this study, the predictor variables, discussed below, were available at court entry while the outcome variable (i.e., suicide attempts) was available longitudinally. Therefore, we used a longitudinal design to predict risk of suicide among participants enrolled in STAR Court during the study period (2012-2016).

Overview of Procedures

Two researchers trained in document analysis (Bowen, 2009) and familiar with the judicial system, conducted an exhaustive review of all case files of youth participating in the STAR Court. Researchers thoroughly and systematically reviewed hard copies of the case files to capture information across systems and health domains. The process involved a superficial examination (skimming), thorough examination (reading), and interpretation of data to be collected (Bowen, 2009). There were no electronic data available or electronic filing system maintained by the court. The case files included administrative reports from probation officers and social workers, behavioral health records, education reports, and court documents, such as minute orders. Suicide data were available in clinical and psychiatric evaluations, probation reports, and child welfare reports. Girls and their caregivers also reported prior instances of suicide ideation and attempts to their care team, which were documented in the files. Data were stored in the HIPAA-compliant, electronic database REDCap (version 10.6.14). All study procedures, including permission for data collection, were approved by the University of California, Los Angeles Institutional Review Board and the Los Angeles County Superior Court, juvenile division.

Participants

In total, 364 youth were enrolled in STAR Court between January 1, 2012, and December 21, 2016. The overwhelming majority (99%) of participants identified as girls; only four participants identified as boys or transgender. Due to the overrepresentation of girls in the court, boys and transgender youth were excluded from the analysis. Of the total sample (N = 360), most girls identified as Black (70.28%) or Latina (23.06%), and fewer girls identified as White (3.89%), Asian (1.10%), Indigenous/Native American or Hawaiian Native (.54%), or bi-racial (1.11%). Their mean age at court entry was 16.4 years old (SD = 1.18). Positive endorsements of lifetime suicide attempts were reported among 22% of girls and the average number of suicide attempts was 1.78 attempts (SD = .42).

Measures

Predictor variables were collected at court entry.

Disruptive Behavior Disorder—Data on disruptive behavior disorders were collected from clinical assessments, psychiatric evaluations, and behavioral health reports from the county department of mental health and clinical service providers. These data included

Diagnostic and Statistical Manual of Mental Disorders (DSM) diagnoses, treatment referrals, and prescribed medications. Disruptive behavior disorders, such as oppositional defiant disorder, includes persistent symptoms of negative or hostile behaviors toward authority figures (American Psychiatric Association, 2013). Disruptive behavior disorder was a dichotomous variable (Yes/No), such that girls with a record of a DSM diagnosed disruptive behavior disorder (i.e., conduct disorder, oppositional defiant disorder) were coded as "Yes." About one-fourth (24.72%) of girls were diagnosed with a disruptive behavior disorder. On average, girls were 13.25 years old (*SD* = 2.92) when first diagnosed with a disruptive behavior disorder. Only about 6% of girls were prescribed medication to treat their disruptive behavior disorder.

Mood Disorders—Data on mood disorders were collected from clinical assessments, psychiatric evaluations, and behavioral health reports from the clinical service providers and county department of mental health. Data included DSM diagnoses, treatment referrals, and medications. Mood disorders include symptoms of anxiety and depression (American Psychiatric Association, 2013). Mood disorder was a dichotomous variable (Yes/No), such that girls with a record of a DSM diagnosed mood disorder (i.e., major depression disorder) were coded as "Yes." About 30% of youth received a mood disorder diagnosis. On average, girls were 14.32 years old (*SD* = 2.15) when first diagnosed with a mood disorder. Of the girls diagnosed with a mood disorder, less than half (41.11%) were prescribed medication for mood disorders—of which, about 18% were prescribed two or more medications.

Sleep Problems—Information on sleep problems were collected from clinical assessments, psychiatric evaluations, and health reports from the service providers, including the county department of mental health. These data included DSM diagnoses, treatment referrals, and prescribed medications. Disturbed sleep for reasons such as insomnia and nightmares are commonly reported among girls with histories of sexual abuse and CSE (Petrov et al., 2017) and among girls involved in the juvenile legal system (Conrad et al., 2022). Sleep problems was a dichotomous variable (Yes /No). Almost one-fifth of girls (18.61%) reported sleep problems, including dyssomnia and insomnia. The mean age of first diagnosis for sleep problems was 15.72 years old (*SD* = 1.34). About 97% were prescribed medication, of which about 25% were prescribed two or more medications.

Marijuana Use—Data on substance use were collected from court documentation, such as probation reports of positive drug screening, records of substance use service referrals and treatment, and youths' self-report or caregivers' report. Marijuana use was a dichotomous variable (Yes/No). Overall, about 90% of girls reported substance use of which marijuana was the most common type of substance and was used among about 87% girls. The average age of first use of marijuana was 12.91 years old (*SD* = 1.88); data were available for about 40% of girls.

Parental Incarceration—Familial background, including status of parent incarceration, was collected from probation and child welfare reports as well as narrative reports at court intake. Parent incarceration included data on both their mother and fathers' current status of incarceration. Parent incarceration was coded as a dichotomous variable (Yes/No).

Sexual Abuse—Histories of sexual abuse victimization were recorded in child welfare and probation reports and included disclosure from youth, probation officers, and social workers. Notably, these instances of sexual abuse were documented in youths' court case files but not included as part of prior child welfare referrals or substantiated cases. For example, a youth might have disclosed experiencing sexual abuse in their early childhood involving a person who is no longer alive, therefore, the abuse may have been documented in the court files but never reported to child protective services. Sexual abuse was a dichotomous variable (Yes/No).

Gang Affiliation—Gang involvement data were available in probation, child welfare, and court reports, and included disclosure from youth and their caregivers. Gang affiliation was a dichotomous variable (Yes/No). Data were reported for about 94% of girls. Of which, about 32% had been involved in a gang prior to court entry.

Child Welfare Referrals—Referrals to the child welfare system were documented in official reports from child protective services, including the Los Angeles County Department of Child and Family Services. Child welfare referrals document allegations of childhood maltreatment which leads to (at a minimum) an investigation. Girls were referred to the child welfare system for allegations related to neglect, abuse, and substantial risk. Child welfare referrals was dichotomized such that having 6 or more referrals was considered to be a significant risk whereas having 5 or fewer referrals was not (Bath et al., 2020).

Housing Placements—The girls' histories of housing placements were gathered predominately from child welfare reports. Additional data were also available from probation and court reports. Types of housing placements included long-term, short-term, and emergency housing, such as residential treatment facilities, foster homes, and child welfare headquarters that were outside of their biological caregivers/parents' home. Housing placement was dichotomized such that having at least one placement was considered to be a risk whereas having no placement was not. Housing placement data were missing for three participants. About 76% of girls lived in at least one housing placement prior to court entry and had an average of 4.26 housing placements (SD = 4.93). About one-third (34%) of girls had five or more housing placements prior to court entry.

Outcome variable was collected at court entry.

Suicide Attempts—Lifetime endorsements of suicide attempts prior to court entry were coded from all data files and court reports available. Total number of suicide attempts were coded and then dichotomized (Yes/No) for our main outcome, such that girls with at least one previous suicide attempt were coded as "Yes" and girls without any reported suicide attempts in their cases files were coded as "No."

Analytic Plan

To eliminate bias when identifying subgroups with similar exposure risks, we followed the inclusive latent class analysis method recommended by Bray, Lanza, and Tan (2015). That is, at Step 1, we fit a series of models with one to five latent classes using the nine risk indicators listed above. All LCA models were fitted with 100 different sets of random

starting values. If they consistently converged to the same solution, we could be confident that a maximum likelihood solution was achieved (see Collins & Lanza, 2010). Next, we relied on various fit indices including the G^2 statistic (and corresponding degrees of freedom), information criteria (AIC, BIC, and sample size-adjusted BIC), and the Bootstrap Likelihood Ratio Test (BLRT) to narrow down the set of plausible models. Finally, we took into consideration how well a solution could be interpreted (i.e., whether the latent subgroups in a solution showed meaningful patterns, were distinct from the other subgroups, and could readily be labeled) to select the optimal model.

At Step 2, we refit the optimal model with other variables of interest—racial identity as Black/African American, ethnic identity as Latinx, and number of suicidal attempts—added as covariates to produce unbiased posterior probabilities. At Step 3, we used the maximum-probability assignment method to classify youth into their most likely latent classes. At Step 4, we examined the number of lifetime suicidal attempts in relation to latent risk classes.

We used Stata 15 for all descriptive analyses (Stata Corp. 2017) and the LCA Stata Plugin Version 1.2 to estimate all LCA models (Lanza et al., 2015). To aid with model selection, we also used the LCA Bootstrap Stata function (see Huang et al., 2016) to perform the BLRT.

Results

Preliminary Analyses

We had complete data for most of the variables included in our analyses, except for parental incarceration (61% missing) and gang affiliation (6% missing). The LCA Stata Plugin Version 1.2 allows missing values for risk indicators when fitting a simple LCA model (i.e., LCA with no covariates) during Step 1, but when fitting an inclusive LCA model during Step 2, records with missing data for the covariates (racial identity as Black/African American, ethnic identity as Latinx) and number of suicidal attempts, were eliminated listwise from the analysis. Table 1 displays youth racial/ethnic categories, suicide attempts, and the frequencies of risk indicators. The most common risk experienced by girls in our sample was marijuana (87%), followed by placements (76%), child welfare referrals (51%), gang affiliation (30%), and mood disorder (30%). Overall, 12% of the girls reported experiencing either no risk or only one risk and 2% of girls experienced 8 or all 9 risks.

Table 2 displays information relevant for model selection. Because of large degrees of freedom, we relied heavily on the information criteria (AIC, BIC, and sample size-adjusted BIC) and BLRT (see Nylund et al., 2007 for description of this test) to guide model selection. For all information criteria, a smaller value represents a more optimal balance of model fit and parsimony, so that a model with the minimum AIC, BIC, or sample size-adjusted BIC should be selected. Simulation studies have found BIC to be sensitive to a sample size smaller than 500 (Nylund et al., 2007) whereas sample size-adjusted BIC (aBIC; Sclove, 1987) is found to be superior (i.e., most accurate and consistent) to other information criteria statistics for studies with smaller sample sizes or with relatively unequal class sizes (Yang & Yang, 2007; Tofighi & Enders, 2007; Chen et al., 2017). In our case, the model with four latent classes was considered the optimal model, given that it had the smallest aBIC. Furthermore, after conducting 999 bootstrap replications to reduce the

random variability of the *p*-value, as recommended by Huang et al. (2016), we found that the BLRT for the five-class model was non-significant ($p = .56$), again indicating that the four-class model is optimal. Finally, the Entropy value—or classification error with higher value (ranging from 0 to 1) indicating better classification (Celeux & Soromenho, 1996)—for the four-class model was 0.68, considered medium-high by current recommended standards (Clark, 2010).

Key Findings

Four profiles of suicidal risk identified.—Results from the inclusive LCA model (presented in Table 3) reveal that 27% of the sample was estimated to be in Class 1. Since girls in this class had a high probability of marijuana use, experiencing housing placements, and having multiple child welfare referrals, we designated them as the Child Welfare Contact group due to their notable child welfare system-involved feature. Next, girls in Class 2, which included 30% of the sample, were likely to experience risks related to marijuana use and parental incarceration. Since parental incarceration is the defining characteristic of girls in this group, we labeled them the Parental Incarceration group. Next, those in Class 3, which included 21% of the sample, had a high probability of reporting marijuana use, housing placements, and disruptive disorder; they were also the most likely to experience sleep disturbance/problems. For those reasons, we labeled this class as the Disruptive Behavior and Sleep Problems group. Finally, Class 4 included 22% of the sample. Given high probabilities of experiencing a wider variety of risks, except for disruptive disorder and sleep, we designated girls in this class as the Pervasive Risk group.

Based on posterior probabilities produced from the inclusive LCA model, we used the maximum-probability assignment method to classify participants into risk groups. Results from the class assignment step also agree with the class prevalence estimated by the LCA model with the Parental Incarceration being the most prevalent class (33%), followed by the Child Welfare Contact class (29%), the Pervasive Risk class (20%), and the Disruptive Behavior and Sleep Problems class (18%).

Associations among risk profiles and suicidal attempts.—Results from cross-tabulations showing the frequencies of suicidal attempts across the four identified risk groups are summarized in Table 4. Girls in the Child Welfare Contact group had no suicide attempts endorsed. Among girls in the Parental Incarceration group, 5% had one suicide attempt and 3% had multiple attempts. For those in the Disruptive Behavior and Sleep Problems group, 14% had one suicide attempt while 9% had multiple attempts. Finally, girls in the Pervasive Risk were associated with higher risk of suicide attempts, with 32% reporting suicide attempts (18% once; 14% twice or more).

Discussion

Previous studies indicate that adolescent girls who are involved in the child welfare and/or juvenile legal systems are at increased risk for suicide attempts when compared to non-systems involved girls (Gallagher & Dobrin, 2007; Kemp et al., 2016). Despite their elevated risk, very little is known about what confers this elevated risk, and crucially, less is known about the various risk profiles that exist. To date, there are no studies focusing specifically

on Black and Latinx girls that have histories of CSE, and currently, no study has employed a person-centered approach, specifically one that considers intersectionality (Crenshaw, 1991) to identify different social and personal identifiers which may potentiate risk profiles for this under-investigated but high-risk group. To bridge this gap, we examined whether various suicide attempt risk profiles exist among a large sample of court-involved CSE-impacted girls.

A total of 13% of girls in our sample reported a previous suicide attempt, a rate comparable to other studies of adolescent girls without histories of CSE (Kann et al., 2018; Ivey-Stephenson et al., 2020). However, previous studies that have utilized samples of systems involved adolescents have reported rates of suicide attempt as high as 48.4% (Sprang & Cole, 2018). One possible explanation for this difference in reported rates of suicide attempt could be the fact the few studies of systems involved youth that have reported significantly higher rates of suicide attempts, included small sample sizes between 30 and 60 participants (Edinburgh et al., 2015; Sprang & Cole, 2018). Another likely explanation for the differences in the rates of suicide attempt could be partially explained by the fact that our data was collected retrospectively and relied on youths' self-reporting, which likely underestimated our reported rates.

Nevertheless, our latent class analyses revealed four different profiles, with one profile that had very low risk for suicide attempts (i.e., nobody in this profile reported a previous suicide attempt). This low-risk group was characterized by primarily system level risk factors (i.e., child welfare referrals and housing placements) and lower rates of psychopathology (i.e., mood and disruptive behavior disorders). Notably, we also cannot conclude that girls in this profile experienced more child maltreatment or if they were more visible to the child welfare system for other reasons, such as school attendance or access to healthcare treatment, which could be viewed as protective factors. Still, this finding is in line with previous studies that indicate that risk for suicide attempts decreases in years after entry into care than in two years before entry into care (Katz et al., 2011). One possible interpretation for this finding could be because child welfare placements aim to remove CSE girls from potentially risky environments and place them into environments that may provide caregiver monitoring and more access to treatment (Leslie et al., 2000). Other studies report that child welfare involvement is associated with higher odds of being hospitalized for suicide attempts (Vinnerljung, 2006), which indicate a potentially appropriate and therapeutic response to the attempt. These heterogenous findings underscore the need to closely examine if and how child welfare involvement, for example placement type, are associated with suicide risk because this system can help assess and thus disrupt pathways to suicide for these youth.

Our findings also point to a high-risk group (i.e., 18% of youth in this group endorsed one previous suicide attempt and 14% reported multiple suicide attempts) that had a profile characterized by the endorsement of risk factors across all contexts (i.e., individual, family, and systems level). Although very few studies have examined risk factors for suicide across socio-ecological context, one recent study of adolescents that utilized latent class analysis uncovered risk profiles for suicide that varied across eight risk factors, and notably found that youth placed in the "highest suicide risk" class were characterized by co-occurrence of marijuana use, aggression, and sexual abuse (King et al., 2020). Our findings also

indicate that the profile of adolescent girls with the highest risk for suicide were also characterized by high prevalence rates of mood disorders, sleep problems, sexual abuse, and gang affiliation, all of which are well established risk factors for suicide attempts among adolescents (Cuellar & Curry, 2007; Gili et al., 2019; Gomez et al., 2017; Wong et al., 2016). Still, 87% of our sample reported previous marijuana use, with elevated rates of marijuana use reported across all four groups. Elevated rates of marijuana reported in this study are comparable, but still higher, to other studies examining marijuana use among justice-involved girls (55%; Tolou-Shams et al., 2019). We believe this discrepancy could be explained by our operationalization of marijuana use, which did not consider severity (i.e., marijuana use frequency), and could explain why the "low suicide risk group" also had elevations of marijuana use. Our findings are also partially in line with previous studies that have found that marijuana use is a risk factor for suicide attempts among adolescents (Carvalho et al., 2019; Sellers et al., 2019), indicating the importance of addressing a substance (i.e., marijuana) that is often viewed by youth as not harmful.

Limitations

Our findings should be interpreted considering a few limitations. First, our findings are limited to the experiences of justice-involved girls participating in a specialty court in Los Angeles County. Therefore, these findings are not representative of all girls or generalizable to all youth with diverse gender identities (e.g., boys, transgender, non-binary) impacted by CSE in the juvenile legal system. Second, given that the specialty court does not conduct clinical interviews or standardized assessments related to suicide ideation or attempts, these constructs were not available longitudinally or systematically within the case files. Thus, our study was limited to cross-sectional data which cannot draw conclusions on directionality and may not have captured the full scope or prevalence of suicide attempts. Another limitation in our operationalization of study variables, was our "narrow" measure of childhood maltreatment. Although child maltreatment, in all of its forms (neglect, verbal, physical and sexual abuse), increase the risk for youth suicide, we solely focused on sexual abuse, as for girls, sexual abuse has among the highest association with suicide risk, as well as for future system involvement, CSE exposure and risk, and PTSD (Bergen et al., 2003; Brokke et al., 2022; Conrad et al., 2014; Lopez-Castroman et al., 2013; Reid, 2014). Histories of child sexual abuse confer suicide risk for girls regardless of system contact/involvement, and increases the risk for suicidal behavior for girls who are involved in child welfare, juvenile legal system and, as we found, in girls with histories of CSE. Future studies should examine other forms of childhood maltreatment, as they may be differentially associated with suicide risk and other forms of self-injurious behaviors.

In addition, a few limitations pertaining to our analytic approach should be noted. First, because the results of our LCA model depend heavily on the risk indicators included in our investigation, other researchers may find different risk profiles when different risk factors are chosen. Replication with risk profiles, including additional risk indicators relevant to suicidality across multiple samples, is a priority. Second, although we found that suicide attempts were different across risk profiles—with higher risk groups linked with more attempts—we did not study the underlying mechanisms linking these associations. In addition, since we looked at risk factors at intake, we are not able to make causal inferences

about the associations found. More research is needed to comprehensively understand how different risk profiles may predict suicide attempts. Third, the use of posterior probabilities to assign girls into their most likely latent risk profiles may introduce potential biases (Bolck et al., 2004). Such biases may arise from assigning girls to a specific class based on their (maximum) probability of belonging to each class, as opposed to having statistically determined class assignment for each girl. To mitigate such bias, we followed current techniques for inclusive LCA modeling (Bray et al., 2015). Despite these limitations, this analysis offers important insight on suicide attempts among CSE adolescent girls.

Clinical Implications and Future Studies

Our study—to our knowledge the first study measuring suicide risk profiles on a large sample of court-involved girls with CSE histories—documents a clear risk of suicidality among the sample, with 1 in 8 girls reporting at least one suicide attempt. The sample was predominantly comprised of Black and Latinx adolescent girls, indicating a potential intersectionality between CSE, system involvement, and racial/ethnic marginalization. Taken together, the findings indicate an urgent need for providers caring for girls with CSE histories, especially in carceral settings, to conduct thorough suicide risk assessments. It cannot be assumed that if in a community foster care or group home placement or in a correctional facility, that suicide risks and attempts will abate. On the contrary, it is crucial that clinicians are watchful, and that juvenile corrections and child welfare systems develop and implement adequate screening protocols for suicide assessment and for suicide prevention.

Findings from our LCA also suggest a need for suicide interventions to address the social ecology of the developing adolescent. The link between child welfare contact and suicide risk for the CSE-impacted girls, as suggested above, warrants mechanistic exploration. Child welfare placements are not homogenous (i.e., therapeutic, foster care, residential, and kinship placements), and future work should distill how different types of child welfare placement are associated with suicide risk. However, for all clinicians who care for girls with CSE histories who touch the foster care system—as many of them do—it is critical to assess for suicide warning signs, while earning girls' trust and without being traumatized or retraumatized, as many are likely to have past trauma. Currently, there are no randomized controlled trials of suicide interventions targeting girls in the child welfare system. Future studies should focus on the feasibility and acceptability of both screening for suicide risk and delivering evidence-based suicide interventions within the heterogeneity of child welfare settings.

Conclusion

Our study highlights the need for suicide risk studies to consider transdisciplinary approaches that examine the interplay between socioecological theory and intersectionality theory. The finding that the profile with pervasive risk across contexts conveyed the highest risk for suicide attempts underscores the importance of considering of family and neighborhood context, including of relatives of the girl that may not be in current physical contact with, when assessing suicide risk. Structural intersectionality may be a particularly appropriate theoretical framework for guiding the examination of suicide risk among CSE

youth with juvenile legal system and/or child welfare involvement (Homan et al., 2021). Structural intersectionality builds upon Crenshaw's seminal theory of centering the ways in which marginalized identities (e.g., race/ethnicity, gender) overlap or intersect with system level risk factors and structures that also potentiate risk (child welfare, criminal-legal). It is important to note that many individuals with marginalized identities (such as youth with CSE history) are also in structures that increase their marginalization. Thus, structural intersectionality refers to these intersecting dimensions of oppression and marginalization across personal, social and system level risk factors and highlight how they may impact suicide risk and potentiate health inequities among girls impacted by CSE.

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Table 1

Ethnicity, Suicidality, and Risk Indicators

	N	%	% Missing
Ethnicity			
Black/African American	253	70%	0%
Latinx	83	23%	0%
Suicide Attempts			
0	312	87%	--
1	28	8%	--
2+	20	5%	--
Risk Indicators			
Disruptive Behavior Disorder	89	25%	0%
Mood Disorder	107	30%	0%
Sleep Problems	67	19%	0%
Marijuana	312	87%	0%
Parent Incarceration	65	18%	61%
Sexual Abuse	80	22%	0%
Gang Affiliation	106	30%	6%
Child Welfare Referrals	184	51%	0%
Housing Placements	271	76%	0%
Number of Risks			
0	15	4%	--
1	29	8%	--
2	61	17%	--
3	75	21%	--
4	69	19%	--
5	59	16%	--
6	35	10%	--
7	11	3%	--
8	4	1%	--
9	2	1%	--

Table 2

Summary of Information for Selecting Number of Latent Classes of Risk ($N = 360$)

Number of Latent Classes	Number of Parameters Estimated	G^2	d*f*	AIC	BIC	aBIC	*Entropy*	l	*BLRT p-value*
1	9	462.9	502	480.9	515.9	487.3	1.00	−1679.1	-
2	19	285.5	492	323.5	397.4	337.1	.65	−1590.4	0.001
3	29	248.9	482	306.9	419.6	327.6	.70	−1572.1	0.001
4	**39**	**209.2**	**472**	**287.2**	**438.8**	**315.0**	**.68**	**−1552.2**	**0.002**
5	49	192.7	462	290.7	481.2	325.7	.71	−1544.0	0.557

Note: BLRT tested whether an LCA model with ($k + 1$)-class is more adequate than the *k*-class model in describing the population which a particular sample came from. For example, the significant *p*-value indicated that the four-class model describes the population better than the three-class model. Because no difference is detected between the four-class and five-class models, we can select the four-class model as the optimal model due to its parsimony.

Table 3

Four Latent-Class Model of Suicidal Risk and Class Assignment (N = 360)

Latent Class Indicator	**Class 1**		**Class 2**		**Class 3**		**Class 4**	
Latent Class Prevalence	**(27%)**		**(30%)**		**(21%)**		**(22%)**	
Label	**Child Welfare Contact**		**Parental Incarceration**		**Disruptive Behavior and Sleep Problems**		**Pervasive Risk**	
Item-response probabilities corresponding to a YES response [a]								
Disruptive Behavior Disorder	0.18		0.00		**0.51**		0.42	
Mood Disorder	0.14		0.03		0.42		**0.74**	
Sleep Problems	0.00		0.00		0.49		0.37	
Marijuana	**0.83**		**0.73**		**0.98**		**1.00**	
Parent Incarceration	0.31		**0.51**		0.32		**0.73**	
Sexual Abuse	0.31		0.07		0.01		**0.52**	
Gang Affiliation	0.26		0.27		0.17		**0.57**	
Child Welfare Referrals	**0.99**		0.01		0.32		**0.81**	
Housing Placements	**0.84**		0.33		**0.86**		**0.94**	
Class Assignment using Posterior Probability	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
STAR Youth (N = 360)	106	29%	117	33%	65	18%	72	20%

Notes:

[a] Item-response probabilities > .5 in bold to facilitate interpretation.

Table 4

Suicidal Attempts across Risk Profiles ($N = 360$)

Risk Profiles	*N*	*%*
Child Welfare Contact		
No Attempt	106	100%
One Attempt	0	0%
Multiple Attempts	0	0%
Parental Incarceration		
No Attempt	107	91%
One Attempt	6	5%
Multiple Attempts	4	3%
Disruptive Behavior and Sleep Problems		
No Attempt	50	76%
One Attempt	9	14%
Multiple Attempts	6	9%
Pervasive Risk		
No Attempt	49	69%
One Attempt	13	18%
Multiple Attempts	10	14%