From trauma to trafficking: Behavioral pathways linking adverse childhood experiences to sex trafficking risk

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Abstract:

Background: Sex trafficking remains one of the most severe outcomes of chronic childhood adversity, yet mechanisms linking early maltreatment to trafficking vulnerability are poorly understood. Youth at risk may be labeled as "delinquent" for engaging in externalizing behaviors, despite displaying trauma responses.

Objective: This study examines the behavioral pathways through which trauma contributes to the risk of commercial sexual exploitation among youth.

Participants and Setting: We analyzed 145,937 validated trafficking screenings conducted in Texas through Allies Against Slavery's Lighthouse data platform, which included information on youth externalizing behavior, adverse childhood experiences, human trafficking risk, and sociodemographic information.

Methods: Analysis utilized mediation modeling where externalizing behaviors (e.g. running away, truancy, substance use) serve as intermediaries between abuse/neglect and trafficking risk. Analyses were conducted on separate samples from child welfare and juvenile justice agencies, controlling for demographic variables.

Results: Childhood maltreatment significantly increased trafficking risk (Juvenile Justice $\beta=1.226$, $p<0.01$; Child Protective Services $\beta=0.638$, $p<0.01$). This relationship was partially mediated by trauma-induced behavioral responses, with 45% of the ACEs-trafficking relationship for juvenile justice youth and 76% for child protective services youth mediated by externalizing behaviors.

Conclusion: Findings provide empirical evidence that behaviors often perceived as delinquent are maladaptive trauma responses that heighten exploitation exposure. Policy implications include universal trauma-informed screening, cross-system data integration, and decriminalization of trauma-related behaviors. Systems should treat behavioral indicators as early intervention opportunities rather than punishment. Racial and gender disparities necessitate equity-focused strategies addressing structural vulnerability determinants.

Keywords
Child sex trafficking; ACEs; externalizing behaviors; delinquency

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Introduction

Human trafficking, particularly the commercial sexual exploitation of children, represents one of the most severe outcomes of chronic adversity and systemic neglect. Yet the field continues to frame trafficking risk largely through behavioral lenses, focusing on youth conduct rather than the conditions that produce it. Behaviors such as running away, truancy, substance use, and delinquency are often treated as causes of exploitation when, in fact, they are consequences of trauma. Understanding trafficking as a developmental outcome of adversity reframes the narrative: what places children at risk does not start with what they do, but what has been done to them.

A growing body of evidence links Adverse Childhood Experiences (ACEs) such as abuse, neglect, and exposure to violence to elevated vulnerability to sex trafficking. These experiences impair emotional regulation, attachment, and judgment, increasing susceptibility to coercion and exploitation. However, the precise mechanisms connecting early maltreatment to trafficking risk remain underexplored. One plausible pathway is behavioral: trauma-induced externalizing behaviors may mediate the relationship between early adversity and later victimization, acting as survival responses that inadvertently heighten exposure to traffickers.

This study examines that pathway using one of the largest trafficking screening datasets in existence, nearly 200,000 CSE-IT (Commercial Sexual Exploitation–Identification Tool) screenings collected across Texas and analyzed through Allies Against Slavery's Lighthouse Data platform. We hypothesize that: 1) early maltreatment (abuse and neglect) directly increases the likelihood of trafficking risk; 2) early maltreatment also predicts externalizing behaviors such as running away, truancy, or substance use; and 3) these behavioral responses mediate the relationship between early maltreatment and trafficking risk, serving as mechanisms through

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which trauma manifests as vulnerability. To test these hypotheses, we conducted logistic and mediation analyses on separate samples of Juvenile Justice and Child Protective Services screenings, controlling for demographic factors. Results confirm that childhood maltreatment is strongly associated with trafficking risk and that this relationship is significantly mediated by trauma-induced behaviors. These findings clarify the behavioral mechanisms linking adversity to exploitation and underscore the need to reorient systems of care from punitive responses to trauma-informed prevention.

These findings have critical implications for policy, practice, and systems of care. By empirically demonstrating that trauma responses, not delinquent choices, form the behavioral bridge between early abuse and exploitation, this research underscores the need to shift interventions from punitive to protective. Schools, juvenile justice systems, and child welfare agencies can use behavioral indicators as opportunities for trauma-informed engagement rather than grounds for punishment. Further, identifying and interrupting these behavioral pathways early may enable practitioners and policymakers to design prevention strategies that reduce trafficking risk by addressing the root causes of instability, not just its symptoms.

Literature Review

Abuse, Neglect, and the Heightened Risk of Sex Trafficking Victimization

A substantial body of empirical research has demonstrated that childhood abuse and neglect significantly increase vulnerability to sex trafficking victimization (Franchino-Olsen, 2021). Sexual abuse, in particular, has been identified as one of the strongest predictors of commercial sexual exploitation. Multiple studies have documented that trafficking survivors frequently report early, repeated experiences of sexual victimization, often within familial

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contexts (Reid et al., 2013; Smith et al., 2009). Bouché (2018) found that 63% of survivors of juvenile sex trafficking who were surveyed experienced sexual abuse before being trafficked. Another study found that 85% of commercially sexually exploited girls in Los Angeles County had prior reports of abuse or neglect (California Child Welfare Council, 2013).

Large-scale screening data reinforces these findings. In a multi-year analysis of youth screenings in Texas and Louisiana using the validated Commercial Sexual Exploitation Identification Tool (CSE-IT), nearly all youth classified as "Clear Concern" for trafficking risk presented at least one indicator associated with abuse or neglect (Allies Against Slavery, 2024). Studies consistently show that youth who experience maltreatment are overrepresented in systems-involved cohorts, which in turn face heightened exposure to trafficking (Choi, 2015; Gibbs et al., 2015).

There are several psychological and neurological mechanisms that create trafficking vulnerabilities among abused and neglected youth (Felitti et al., 1998; De Bellis & Zisk, 2014). Abuse and neglect diminishes self-worth and agency and fosters chronic attachment insecurity, the need for belonging, and emotional vulnerability, all of which are factors traffickers use to recruit and control victims (Borum Chatman et al., 2022; Cole & Sprang, 2015; Hom & Woods, 2013; Lalor & McElvaney, 2010).

Overall, the empirical literature converges on a clear finding: abuse and neglect are significant antecedents to sex trafficking victimization. These early adversities create a cascade of vulnerabilities that traffickers exploit. Based on this evidence, we arrive at our first hypothesis:

H1: Children who experience early maltreatment (e.g., abuse or neglect) will have a higher likelihood of sex trafficking victimization compared to those who do not experience such harms.

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Maltreatment and Behavioral Pathways to Sex Trafficking Risk

While childhood abuse and neglect directly increases risk of sex trafficking victimization among youth, it also contributes to a range of externalizing behaviors that further heighten that risk. These behavioral responses, such as running away from home, truancy, delinquency, substance use, and eventual system involvement, are often misinterpreted as willful defiance rather than maladaptive survival strategies developed in the context of trauma (Shonk & Cicchetti, 2001; Ford et al., 2006). In reality, these "risk behaviors" reflect coping mechanisms shaped by chronic exposure to harm and instability.

Maltreated children are significantly more likely to run away from home, often seeking to escape abusive environments or unmet basic needs (Tyler & Bersani, 2008). Running away has been consistently identified as a primary risk factor for sex trafficking, particularly among youth who lack access to safe shelter and supportive adults (Choi, 2015; Fedina et al., 2019; Reid, 2016; Tyler and Johnson, 2006). For instance, a study by Reid (2012) found that over 80% of commercially sexually exploited youth had histories of running away, often as a direct response to familial abuse or neglect.

Truancy and school disengagement are also common behavioral responses to maltreatment. Children who have experienced abuse or neglect often struggle with concentration, emotional regulation, and attachment to authority figures, difficulties that manifest in school refusal or absenteeism (Herrenkohl et al., 2001; Perfect et al., 2016). These youth may be misidentified as "problem students" and pushed out of school settings, increasing the likelihood of unsupervised time and exposure to exploitative adults (Halpern-Meekin et al., 2013). Truancy thus becomes a pathway through which maltreated children are disconnected from protective systems and made vulnerable to grooming and exploitation (Barnert et al., 2017).

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Another key behavioral response linked to early abuse is involvement with child welfare and juvenile justice systems. Children with maltreatment histories are overrepresented in both, and system involvement itself has been shown to increase trafficking risk due to institutional instability, frequent placements, and limited oversight (Gibbs et al., 2015; Rostad et al., 2020). A national study of adjudicated youth found that over 70% of girls involved in the juvenile justice system had experienced sexual or physical abuse, and those with multiple adverse childhood experiences were significantly more likely to engage in survival behaviors such as trading sex for food, shelter, or safety (Dierkhising et al., 2013; Saewyc et al., 2013; Widom and Kuhns, 1996). A study of sex trafficking screenings among vulnerable youth found that nearly all youth flagged as "Clear Concern" for sex trafficking had behavioral markers strongly associated with early maltreatment such as running away, substance use, or self-harm (Allies Against Slavery, 2024).

These behavioral outcomes can be understood through developmental psychopathology frameworks, which emphasize how early adversity alters regulatory systems related to emotion, decision-making, and risk perception (Cicchetti & Toth, 2005). Maltreated children often exhibit heightened impulsivity, low distress tolerance, and difficulty assessing danger, traits that make them vulnerable to coercion and false promises of safety or belonging (De Bellis & Zisk, 2014; Ford et al., 2006; Ijadi-Maghsoodi et al., 2016; Moore et al., 2020).

In sum, early abuse and neglect is a direct pathway to sex trafficking vulnerability and also a direct pathway to behavioral responses that further heighten vulnerability to sex trafficking victimization. This lead to our second hypothesis:

H2: Children who experience early maltreatment will be more likely to exhibit behavioral responses associated with trafficking risk (e.g., running away, truancy, system involvement) compared to children without such experiences.

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Mediated Pathways: Behavioral Responses as the Mechanism Linking Early Maltreatment to Sex Trafficking Victimization

While early maltreatment is a direct predictor of both sex trafficking victimization and various behaviors that are linked to sex trafficking victimization, a growing body of research suggests that trauma-induced behavioral responses, such as running away, truancy, early sexual activity, and delinquency, significantly mediate the relationship between childhood maltreatment and sex trafficking victimization. These behaviors serve as critical mechanisms that bridge early adversity to trafficking risk, particularly in the absence of stabilizing protective systems (Choi, 2015; Moore et al., 2020). Maltreatment sets in motion a behavioral chain of survival-based actions (e.g., running away, survival sex, etc.) that quickly places youth in high-risk, unprotected contexts traffickers actively exploit.

These behavioral adaptations are not simply coincidental or co-occurring with trafficking victimization; they are foundational to the victimization process itself. Dierkhising et al. (2013) emphasize that complex trauma leads to dysregulation in cognitive and affective systems, which undercuts self-protective decision-making and increases risk-seeking behavior. In a study of incarcerated girls, 93% of whom had experienced sexual abuse, Kerig and Ford (2014) found that trauma-induced behaviors such as substance use, truancy, and aggression functioned as mediating variables between abuse exposure and later commercial sexual exploitation.

Moreover, studies employing path analysis and structural equation modeling have begun to empirically validate behavioral mediation models. For instance, Reid et al. (2017) found that the association between childhood sexual abuse and sex trafficking involvement was significantly mediated by early initiation into survival sex and substance use, both of which are frequently downstream effects of trauma. Similarly, Franchino-Olsen et al. (2021) reported that

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maltreatment's effect on sex trafficking risk was substantially explained by intermediary behaviors like chronic truancy and system involvement, especially for girls of color disproportionately affected by both trauma and criminalization.

We argue that the pathway from maltreatment to trafficking victimization is not direct but is significantly mediated by trauma-induced behaviors. These behaviors, often dismissed or punished, are the very mechanisms that increase a child's visibility to traffickers and their exposure to exploitative environments.

H3: The relationship between early maltreatment and sex trafficking victimization will be mediated by behavioral responses, such that early maltreatment increases risky behaviors, which in turn elevate the likelihood of trafficking exploitation.

Methods

Dataset

In order to investigate the extent to which child behavioral responses mediate the relationship between early maltreatment and subsequent risk of sex trafficking, we use CSE-IT screening data collected by Allies Against Slavery from agencies across Texas and maintained in the Lighthouse Data platform. The CSE-IT is a screening tool that helps identify youth who are commercially sexually exploited. The tool was developed and validated by West Coast Children's Clinic (WCCC) for youth between the ages of 10 and 24 (Bassen, 2017). The tool consists of 46 indicators divided into 8 sections: (1) Housing & Caregiving; (2) Prior Abuse & Trauma; (3) Physical Health & Appearance; (4) Environment & Exposure; (5) Relationships & Personal Belongings; (6) Signs of Current Trauma; (7) Coercion; and (8) Exploitation. Direct service providers, such as advocates or juvenile probation officers, complete the tool based on their knowledge of the youth, scoring each indicator as *No Information*, *No Concern*, *Possible*

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Concern, or *Clear Concern*. Each section is scored according to its distinct logic, and these section scores collectively determine the youth's overall CSE-IT score (*No Concern, Possible Concern, Clear Concern*) (Haley et al., 2017).

The Child Sex Trafficking Team (CSTT) of the Texas Governor's Office funds and oversees the implementation of the CSE-IT screening tool across the state. As a result, the CSE-IT has become the primary screening instrument for identifying youth at risk of commercial sexual exploitation in Texas and is widely adopted by agencies statewide. As of May 1, 2025, a total of 196,080 screenings had been completed by 264 distinct agencies in Texas, spanning 14 organizational categories (Adult Victim Advocacy Agencies, Child Advocacy Centers (CAC), CASA, Commercial Sexually Exploited Youth (CSEY) Advocacy Agencies, Department of Family and Protective Services (DFPS), Direct Service Agencies, Emergency Shelters, Schools, Juvenile Justice Agencies, Long Term Residential Agencies, Medical Agencies, Mental Health Services, Therapy/Counseling, and Other.). In Texas, a youth who receives a *Clear Concern* score on the CSE-IT is classified by CSTT as a "presumed victim of trafficking," which initiates response protocols, most notably, referrals to Commercially Sexually Exploited Youth (CSEY) Advocacy agencies (Office of the Texas Governor - Child Sex Trafficking Team, 2024).It is important to note that the CSE-IT is not a diagnostic tool and cannot confirm trafficking victimization. Instead, confirmation requires the application of professional judgement. In our analysis, we use a Clear Concern score on the CSE-IT as an indicator of elevated risk for sex trafficking.

The analytic sample used in this study includes two subsets of the broader screening dataset. The first consists of 143,103 screenings completed by 135 County Juvenile Probation Departments (JPDs) in Texas between December 26, 2017 and March 3, 2025, submitted

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through the Texas Department of Juvenile Justice (TJJD). The second includes 3,156 screenings completed by the Texas Department of Family and Protective Services (DFPS) between March 5, 2019, and August 23, 2024.

To evaluate our hypotheses regarding the relationship between early maltreatment, behavioral responses, and trafficking risk, we identified seven CSE-IT indicators that align with established domains of Adverse Childhood Experiences (ACEs) to construct an ACE index. The ACE Index includes indicators of homelessness, inadequate adult supervision, sexual abuse, physical abuse, emotional abuse, domestic violence, and health problems related to poor nutrition. In parallel, six indicators that capture behavioral responses were selected to construct a Response Index. This includes indicators of runaway, truancy, substance use, sexual activity, inappropriate romantic relationship, and risk-taking behaviors. The ACE Index and Response Index are outlined in Table 1 and Table 2, and form the basis for the mediation analysis conducted in this study.

[Insert Tables 1 & 2 About Here]

Data Preparation

Allies Against Slavery receives CSE-IT screening data from TJJD on a monthly basis through a controlled-access secure data sharing platform and from Texas DFPS annually through requests submitted via the the Texas Open Information Request Portal. Both datasets include individual scores for each CSE-IT indicator, the overall concern level, and demographic information such as age, gender (at birth), race, and the date of screening. Additionally, location data is available for Juvenile Justice screenings but not for Child Protective Services (CPS) screenings. Upon receipt, all records are standardized and de-identified to align with Lighthouse Data's table structure for the screening data and is ingested into the database (Allies Against

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Slavery, 2024). The Vanderbilt University Institutional Review Board approved the use of this data for secondary analysis and all research adheres to international research ethic standards.

The subset of data used in this analysis was further cleaned to ensure uniformity across key indicators and demographic fields. The dependent variable, representing overall risk of sex trafficking victimization, was coded as a binary measure: screenings with an overall score of *Clear Concern* were coded as 1, while *No Concern* and *Possible Concern* were coded as 0. All screenings that result in *No Information* are dropped from the dataset.

For the ACE Index and Response Index, each individual CSE-IT indicator comprising these indices (as represented in Tables 1 and 2) is originally determined to be *No Information*, *No Concern, Possible Concern*, or *Clear Concern* by the relevant care professional administering the survey. For data analysis, we dropped observations with *No Information,* and converted each indicator to a binary variable comparing those with *Clear Concern* to all others (no or possible concern). For the ACE Index, the seven indicators were then summed to create a variable ranging from 0 to 7. For the Response index, the six indicators were summed to create a variable ranging from 0 to 6.

We then controlled for a variety of demographic variables. First is age, which is a categorical variable grouped into the following bins: 10–12, 13–14, 15–16, 17–18. Even though the CSE-IT is validated between the ages of 10 and 24, direct service providers often use the tool for other age groups to assess risk of victimization. Due to low counts, individuals in the 0–9, 19–24, and 25+ age groups were excluded from the analysis. In the models, the 15–16 age group was used as the reference age group because it represents both the median age range at which commercial sexual exploitation is most commonly identified and the age group with the highest number of Clear Concern scores across both agencies (Allies Against Slavery, 2024).

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Gender is a categorical variable where 0="Female" and 1="Male". Values marked as "Other" or "Unknown" in the Juvenile Justice and CPS datasets were treated as missing and therefore removed from the analysis. Race is a categorical variable that includes African American or Black, White or Caucasian, Hispanic or LatinX, and Other. All categories with low representation—specifically American Indian or Alaska Native, Asian, Multiracial, Other, and Unknown—were combined into the "Other" category. In the models, the "White or Caucasian" was selected as the reference group for race. The final dataset included 142,816 Juvenile Justice screenings and 3,121 CPS screenings.

Data Analysis

Finally, for our analysis, Juvenile Justice and CPS screenings were analyzed separately for two key reasons. The first is that screening protocols vary significantly between the two agencies. JPDs in Texas, while not unified under a statewide screening protocol, typically follow a practice of universal screening at intake and routine re-screening every 3-6 months. As a result, they are the largest contributors of CSE-IT screenings in Texas. This volume of routine and repeated screening may contribute to lower rates of *Clear Concern* scores compared to other agency types (Allies Against Slavery, 2024). Table 3 reveals that just 4% of all screenings in JPDs result in *Clear Concern*. In addition to screening frequency, these lower rates may also reflect the reality that juvenile probation officers often have incomplete information at the time of screening, especially if the youth has not disclosed experiences of exploitation. By contrast, DFPS does not conduct universal screening. Instead, the agency relies heavily on a "red flag" model, where screenings are initiated based on specific indicators or suspicions of trafficking (Texas Department of Family and Protective Services, 2022). Accordingly, screening volume is much lower, but *Clear Concern* rates are significantly higher, reaching 37% as shown in Table 3.

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[Insert Table 3 About Here]

The second reason we analyze juvenile justice and CPS screenings separately is due to the differences in the populations served, particularly by gender. In the juvenile justice system, males are overrepresented due to their higher involvement in the juvenile justice system overall and also their greater involvement in higher-severity delinquent behavior (e.g., felonies over misdemeanors), which also contributes to longer system involvement and more opportunities for repeated screening (Texas Juvenile Justice Department, 2024). As illustrated in Table 3, 70% of Juvenile Justice screenings are males and 30% are females. In contrast, 64% of CPS screenings involve females and 36% involve males. This is likely due to DFPS' targeted screening strategy which focuses on youth already under investigation for trafficking, youth at risk due to instability in placements, or those recently recovered from missing episodes.

All analyses were conducted in RStudio (RStudio Team, 2023) using the packages tidyverse (v1.3.0, Wickham et al, 2019), sandwich (v3.0-0; Zeileis et al., 2020), lmtest (v0.9-38; Zeileis & Hothorn, 2002), and mediation (v4.5.0; Tingley et al., 2014). We began by calculating summary statistics, then ran logistic regression models separately for the CPS and JPD datasets to examine the relationship between the ACEs Index and the overall Clear Concern score, controlling for race, age, and gender, with White males aged 15–16 as the reference group. We then conducted a second set of logistic regressions to assess the relationship between the Response Index and the Clear Concern score, using the same control variables. To evaluate whether the effect of early maltreatment on sex trafficking risk was mediated by response behaviors, we conducted a mediation analysis using four models for each dataset. A linear regression model was first used to estimate the effect of the ACEs index (sum of ACEs) on the response index (sum of response behaviors), adjusting for demographics. A second model, using

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logistic regression, predicted Clear Concern based on both indices. We then used the mediate() function from the mediation package to estimate the Average Causal Mediation Effect (ACME), Average Direct Effect (ADE), Total Effect, and Proportion Mediated, with all mediation estimates based on nonparametric bootstrapping with 1,000 simulations to calculate confidence intervals.

Results

Descriptive statistics are presented in Table 3. Results confirmed that CPS had a far higher rate of indication of clear concern (37%) when compared to Juvenile Justice (4%), reflecting the varying screening protocols of the agencies. Latinx and Black youth were overrepresented in both systems, making up over 70% of both Juvenile Justice and CPS screenings. Most screenings in the juvenile justice system were of boys (71%), likely due to the higher presence of boys in the justice system. Conversely, most CPS screenings were of girls (64%), perhaps due to the agency's screening only of 'red-flag' cases. The most common age group across both agencies was 15-16-year-olds (52% for Juvenile Justice, 44% for CPS), followed by 13-14-year-olds for Juvenile Justice (28%), and 17-18-year-olds for CPS (31%).

We begin by testing our first hypothesis, that various adverse childhood experiences are highly correlated with a "clear concern" of sex trafficking victimization. Multivariate analysis of the relationship between individual ACEs and "clear concern" results in the CSE-IT screening revealed that ACEs do have a significant impact on a child's likelihood of being screened as clear concern, even after controlling for race, gender, and age (see Table 4). Per Model 1, across youth screened by juvenile justice, each ACE was associated with an elevated likelihood of being screened as clear concern. Being left unsupervised ($\beta=2.354$, $p < 0.01$), being homeless

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(β=2.268, p < 0.01), and receiving inadequate nutrition (β=2.015, p < 0.01) had the largest substantive effect on risk. As revealed in Model 2, for youth involved in the CPS, each ACE was associated with an elevated risk of screening as clear concern, except for physical abuse. Receiving inadequate nutrition (β=2.548, p < 0.01), experiencing homelessness (β=1.243, p < 0.01), and being sexually abused (β=1.061, p < 0.01) had the largest substantive effects, reflecting similar results to those seen in Juvenile Justice. Models 3 and 4 reveal that, when considered together, as the total number of ACEs a youth had experienced increased, so did their likelihood to be considered a clear concern for sex trafficking. Specifically, for Juvenile Justice screenings (Model 3), each ACE increased the likelihood of clear concern by β=1.226 (p < 0.01), while for CPS (Model 4), the likelihood increased by β=0.638 (p < 0.01).

[Insert Table 4 About Here]

Further analysis investigates our second hypothesis whether youth who experience early maltreatment will be more likely to exhibit behavioral responses associated with trafficking risk compared to children without such experiences. Specifically, does early childhood maltreatment impact risky behaviors? We test this in the models in Tables 5 for youth screened in Juvenile Justice (Model 1) and CPS (Model 2). We find strong evidence for both groups that the number of ACEs a youth experienced is significantly positively correlated with the number of externalizing behaviors the youth displayed (Juvenile Justice: β=0.489, p < 0.01; CPS: β=0.566, p< 0.01).

[Insert Table 5 About Here]

Finally, we test our third hypothesis that the relationship between ACEs and sex trafficking victimization is mediated by behavioral responses whereby early maltreatment increases risky behaviors, which in turn elevates the likelihood of trafficking exploitation. We

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test this hypothesis by running two sets of models. The first set of models, found in Table 6, examines the direct effect of maladaptive behaviors on a clear concern screening for sex trafficking victimization (without controlling for ACEs). Among youth involved in the Juvenile Justice system (Model 1), all behavioral responses were associated with increased risk of a clear concern screening, with engaging in unhealthy and potentially harmful romantic relationships (β=2.610, $p < 0.01$), potentially harmful sexual exchanges (β=2.419, $p < 0.01$), and using drugs and/or alcohol in a way that interferes with their daily functioning (β=1.881, $p < 0.01$) having the largest substantive effects. Similarly, for youth involved in the CPS system (Model 2), all externalizing behaviors were associated with an increased risk of a clear concern screening. For these youth, involvement in potentially harmful sexual exchanges (β=2.549, $p < 0.01$), engagement in aggressive, self-destructive, or otherwise (non-sexually) risky behavior (β=1.817, $p < 0.01$), and using drugs and/or alcohol in a way that interferes with their daily functioning (β=1.797, $p < 0.01$) had the largest substantive effect size as related to clear concern screening. Models 3 and 4 reveal that as the total number of risky behaviors increased, so did the likelihood to screen as clear concern for youth in juvenile justice in Model 3 (β=1.665, $p<0.01$) and CPS in Model 4 (β=1.382, $p<0.01$).

[Insert Table 6 About Here]

The second set of models testing hypothesis 3 are found in Table 7. We run models that examine the impact of both the ACEs Index and Behavior Index on "Clear Concern" for sex trafficking victimization. The models in Table 7 reveal that both ACEs and externalized behavior significantly predict "clear concern" screening for youth in the Juvenile Justice System and CPS. In other words, the more ACEs a youth experiences and the more externalized behaviors the youth exhibits, the greater likelihood of being screened as "clear concern" for sex trafficking

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victimization. Importantly, however, the coefficient of the behavioral index has a substantively larger effect than the ACEs index for both Juvenile Justice in Model 1 (ACEs Index: $\beta=0.841$, $p < 0.01$; Behavioral Index: $\beta=1.401$, $p < 0.01$) and CPS in Model 2 (ACEs Index: $\beta=0.225$, $p < 0.01$; Behavioral Index: $\beta=1.278$, $p < 0.01$), which is the first major indication that there may be a mediating impact of behavior on the relationship between ACEs and a "Clear Concern" screening.

[Insert Table 7 About Here]

Next, in order to test the portion of the relationship between ACEs and "Clear Concern" that is mediated by behavior, we use non-parametric bootstrap mediation modeling. The results of the mediation tests are found in Table 8. We find that approximately 45% of the relationship between ACEs and "Clear Concern" for youth in the juvenile justice system is mediated by externalizing behaviors. The average direct effect of ACEs was 0.012, while the average mediated (indirect) effect through trauma responses was 0.010. This suggests that nearly half of the impact of early childhood maltreatment on sex trafficking risk operates through disordered conduct. For youth involved in the CPS system, the mediation relationship was even stronger with 76% of the relationship between ACEs and clear concern being mediated by behavioral responses. The average direct effect of ACEs was 0.028, while the average mediated effect through trauma responses was 0.089.

Finally, we run Sobel tests to examine the mediation effect of the Behavioral Index on the relationship between the ACEs Index and a "Clear Concern" screening. For juvenile justice, the Sobel test statistic is 55.72 ($p < 0.01$), and for CPS the Sobel test statistic is 17.02 ($p < 0.01$). All evidence suggests that, for vulnerable youth in both state systems who have been screened for

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sex trafficking risk, externalizing behaviors act as a clear pathway to risk, connecting ACEs to sex trafficking victimization.

[Insert Table 8 About Here]

Documented demographic trends associated with risk for sex trafficking victimization appeared throughout models. When compared to girls, boys consistently had a lower risk of being screened as clear concern, as were youth younger than 15. There was inconsistency in the difference between youth 15-16 and 17-18, suggesting that other factors are more important in determining risk among this age group. Similarly, race did not consistently function as either a risk or protective factor. One possible explanation is that all youth in the sample, regardless of race, are already part of high-risk populations. In this context, race may serve more as a precursor to system involvement, shaping who enters state systems, rather than as a factor that influences risk levels once youth are already within those systems.

We summarize the results in Figure 1. ACEs have a significant direct effect on likelihood of a clear concern screening (Hypothesis 1). ACEs also have a significant direct effect on maladaptive behavioral responses (Hypothesis 2). Behavioral responses have a significant direct effect on likelihood of a clear concern screening, even after controlling for ACEs, and tests for mediation reveal that maladaptive behavioral responses significantly mediate the relationship between ACEs and likelihood of clear concern screening for sex trafficking victimization (Hypothesis 3).

[Insert Figure 1 About Here]

Notably, the mediation effect of externalizing behaviors is evident whether screening is administered universally (juvenile justice) or selectively among high-risk groups (CPS), underscoring the robustness of the finding. Furthermore, the persistence of these effects even

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after accounting for commonly cited determinants of trafficking risk, such as age, race, and gender, adds clarity to the complex relationship between demographics, ACEs, and trauma responses. Together, these findings highlight the need for a holistic framework in identifying which children are most vulnerable to exploitation.

Discussion

This study set out to answer the question: to what extent do child behavioral responses mediate the relationship between early maltreatment and subsequent risk of sex trafficking? Drawing from over 145,000 validated trafficking screenings, we found compelling evidence that externalizing behaviors such as running away, truancy, and substance use partially mediate the link between childhood abuse or neglect and later trafficking risk. In other words, maltreatment increases both behavioral dysregulation and vulnerability to exploitation, and these two pathways are intertwined. These findings reveal that the relationship between adversity and exploitation is not linear but operates through trauma-induced behavioral mechanisms that reflect survival, coping, and unmet needs.

The implications of these research findings are profound. The findings reinforce the importance of understanding trafficking of youth as predominantly a developmental consequence of trauma rather than as an isolated criminal or behavioral issue. Youth who run away or act out are not delinquent by nature; they are often signaling distress rooted in earlier harm. Recognizing these behaviors as maladaptive survival strategies reframes intervention from surveillance and punishment to protection and healing. When systems treat these behaviors as disciplinary problems rather than warning signals, they inadvertently reproduce the conditions of instability, disconnection, and lack of trust that traffickers exploit. Interventions that acknowledge this

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trauma-behavior-exploitation continuum can shift the focus from compliance to care, replacing punitive practices with protective and therapeutic ones.

This type of reframe warrants policy- and systems-level changes. First, policy frameworks should redirect resources from reaction to prevention. Current anti-trafficking efforts heavily emphasize prosecution and crisis response. Our findings highlight the need to invest in upstream policies like stable housing, family preservation, trauma-informed education, and community-based behavioral health supports that address the antecedent harms producing trafficking vulnerability. Funding mechanisms should incentivize prevention-oriented programming that strengthens protective factors before system involvement occurs.

Second, policymakers should revisit laws that criminalize youth behaviors stemming from trauma, such as running away, truancy, or survival sex. Decriminalization of these behaviors, paired with expansion of diversion and restorative programs, would better align justice systems with the empirical evidence that these behaviors are trauma responses rather than crimes.

Third, states and localities should institutionalize universal trauma-informed screening and response protocols across child welfare, juvenile justice, and education systems. Universal use of validated screening tools can help detect early indicators of both maltreatment and trafficking risk. Policies should mandate cross-system screening and ensure that positive indicators trigger protective services rather than criminal or punitive consequences.

Fourth, data integration and interagency collaboration are critical. The behavioral and maltreatment indicators identified here are often distributed across fragmented databases like child welfare, probation, schools, and shelters making it difficult to identify cumulative risk. States should invest in secure, ethical data-sharing infrastructures that enable early detection of

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high-risk youth, with governance models that safeguard privacy while allowing for proactive intervention.

Finally, the data also highlight racial and gender disparities in both maltreatment and system involvement, warranting interventions that address the structural conditions disproportionately affecting certain subgroups of vulnerable youth. Policies and programs must therefore incorporate an explicit equity lens ensuring that prevention, screening, and service delivery are culturally responsive, trauma-informed, and designed to reduce the compounded and intersectional effects of racial bias, poverty, and gender-based vulnerability.

While this research provides key evidence for the relationship between early maltreatment, maladaptive behaviors, and sex trafficking vulnerability, there are limitations. First, the CSE-IT is a screening tool, not a diagnostic tool, and therefore cannot confirm trafficking victimization. Second, the cross-sectional nature of the data precludes definitive causal inference. Third, the mediation analyses rely on proxy indicators for ACEs and behaviors rather than direct longitudinal measures. Moreover, incomplete demographic reporting (especially regarding gender identity, sexual orientation, and disability) constrains intersectional analysis. Future research should pursue longitudinal designs, qualitative follow-ups, and integration of cross-system data to trace the full life course from adversity to exploitation. Additionally, future work should explore protective factors, such as supportive adult relationships, school attachment, and community belonging, that may disrupt this trajectory.

Despite these limitations, this study provides rare empirical evidence of a behavioral mechanism linking childhood trauma to trafficking risk. For policy and practice, the findings call for cross-system reforms that integrate trauma-informed care, strengthen protective factors, and decriminalize trauma responses. Interventions must focus on stabilizing housing, ensuring

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consistent caregiving, and building relational trust. Only by addressing the antecedent harms that drive these behaviors can systems move from reaction to prevention and transform the cycle of adversity into a pathway toward safety and recovery.

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Table 1. Indicators Chosen for the Adverse Childhood Experience Index

CSE-IT Section	CSE-IT Indicator
Section 1: Housing & Caregiving. The youth experiences housing or caregiving instability for any reason.	c. Youth experiences periods of homelessness, e.g. living on the street or couch surfing
	e. Parent/caregiver is unable to provide adequate supervision
Section 2: Prior Abuse & Trauma. The youth has experienced trauma (not including exploitation).	a. Youth has been sexually abused
	b. Youth has been physically abused
	c. Youth has been emotionally abused
	d. Youth has witnessed domestic violence
Section 3: Physical Health & Appearance. The youth experiences notable changes in health and appearance.	f. Youth has health problems or complaints related to poor nutrition or irregular access to meals

Table 2. Indicators Chosen for the Response Behaviors Index

CSE-IT Section	CSE-IT Indicator
Section 1: Housing & Caregiving. The youth experiences housing or caregiving instability for any reason.	a. Youth runs away or frequently leaves their residence for extended periods of time (overnight, days, weeks)
	f. Youth has highly irregular school attendance, including frequent or prolonged tardiness or absences
Section 3: Physical Health & Appearance. The youth experiences notable changes in health and appearance.	g. Youth's substance use impacts their health or interferes with their ability to function
Section 4: Environment & Exposure. The youth's environment and activities place them at risk for exploitation.	a. Youth engages in sexual activities that cause harm or place them at risk of victimization
Section 5: Relationships & Belongings. The	a. Youth has unhealthy, inappropriate or

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youth's relationships and personal belongings are not consistent with their age or circumstances, suggesting possible recruitment.	romantic relationships, including (but not limited to) with someone older/an adult
Section 6: Signs of Current Trauma. The youth exhibits signs that may result from exposure to any trauma.	c. Youth engages in self-destructive, aggressive, or risk-taking behaviors

Table 3. Descriptive Statistics Across Both Screening Agencies

	Juvenile Justice Screenings N (%)	**Child Protective Services Screenings N (%)**
Total	142,816 (100%)	3,121 (100%)
Clear Concern	5,513 (4%)	1,154 (37%)
Race		
Caucasian or White	26,815 (19%)	564 (18%)
African American or Black	38,689 (27%)	1,158 (37%)
Hispanic or Latino	64,829 (45%)	1,128 (36%)
Other/Unknown	12,483 (9%)	271 (9%)
Gender		
Female	41,959 (29%)	1,997 (64%)
Male	100,857 (71%)	1,124 (36%)
Age		
10-12	11,900 (8%)	170 (5%)
13-14	40,161 (28%)	601 (19%)
15-16	74,275 (52%)	1,384 (44%)
17-18	16,480 (12%)	966 (31%)

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Table 4. Multinomial logit regression models of ACEs indicators predicting clear concern, controlling for demographic factors

	Model 1: Juvenile Justice Screenings	Model 2: CPS Screenings	Model 3: Juvenile Justice Screenings	Model 4: CPS Screenings
ACEs Indicators				
Experienced homelessness	2.268 (0.092)***	1.243 (0.133)***	—	—
Received inadequate supervision	2.354 (0.057)***	0.645 (0.139)***	—	—
Been sexually abused	1.893 (0.052)***	1.061 (0.128)***	—	—
Been physically abused	0.406 (0.084)***	-0.255 (0.176)	—	—
Been emotionally abused	0.788 (0.084)***	0.417 (0.180)**	—	—
Witnessed domestic violence	0.842 (0.064)***	0.668 (0.156)***	—	—
Received inadequate nutrition	2.015 (0.307)***	2.548 (0.632)***	—	—
ACEs Index (0-7)	—	—	1.226 (0.017)***	0.638 (0.040)***
Race				
African American or Black	-0.128 (0.065)**	0.262 (0.157)*	-0.001 (0.063)	0.262 (0.153)*
Hispanic or Latino	-0.183 (0.059)***	-0.354 (0.159)**	-0.063 (0.057)	-0.316 (0.155)**
White or Caucasian	(reference group)	(reference group)	(reference group)	(reference group)
Other/Unknown	-0.368 (0.090)***	0.199 (0.226)	-0.375 (0.089)***	0.146 (0.219)
Age				
10-12	-0.915 (0.118)***	-0.333 (0.256)	-1.078 (0.117)***	-0.597 (0.253)**

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13-14	-0.304 (0.053)***	-0.280 (0.151)*	-0.331 (0.051)***	-0.359 (0.147)**
15-16	(reference group)	(reference group)	(reference group)	(reference group)
17-18	0.026 (0.075)	0.007 (0.126)	0.002 (0.074)	-0.042 (0.123)
Gender				
Male	-1.844 (0.053)***	-0.811 (0.125)***	-1.896 (0.049)***	-0.949 (0.119)***
Female	(reference group)	(reference group)	(reference group)	(reference group)
Constant	-3.492 (0.060)***	-1.329 (0.163)***	-3.338 (0.057)***	-1.141 (0.156)
Observations	115,268	2,128	115,268	2,128
Log Likelihood (Adjusted R2)	-8,436.780	-1,043.950	-8,987.002	-1,090.444
Akaike Inf. Crit.	16,903.560	2,117.901	17,992.000	2,198.887

*p < 0.10; **p < 0.05; ***p < 0.01

Table 5. OLS models of ACEs index predicting behavioral index

	Model 1: OLS of ACEs Index predicting Behavioral Index (Juvenile Justice)	**Model 2: OLS of ACEs Index predicting Behavioral Index (CPS)**
ACEs Index	0.489 (0.003)***	0.566 (0.022)***
Race		
African American or Black	0.064 (0.006)***	0.194 (0.091)*
Hispanic or Latino	0.042 (0.005)***	-0.047 (0.089)
White	(reference group)	(reference group)

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Other/Unknown	0.071 (0.008)***	0.013 (0.134)
Age		
10-12	-0.135 (0.007)***	-0.630 (0.133)***
13-14	-0.065 (0.004)***	-0.368 (0.085)***
15-16	(reference group)	(reference group)
17-18	-0.051 (0.006)***	-0.071 (0.074)
Gender		
Male	-0.075 (0.004)***	-0.452 (0.066)***
Female	(reference group)	(reference group)
Constant	0.194 (0.006)***	1.051 (0.093)***
Observations	104,071	2,018
Adjusted R^2	0.207	0.313

*p < 0.10; **p < 0.05; ***p < 0.01

Table 6. Multinomial logit regression models of behavioral indicators predicting clear concern, controlling for demographic factors

	Model 1: Juvenile Justice Screenings	**Model 2: CPS Screenings**	**Model 3: Juvenile Justice Screenings**	**Model 4: CPS Screenings**
Behavioral Indicators				
Runaway	1.804 (0.056)***	1.081 (0.148)***	—	—

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Irregular school attendance	0.879 (0.058)***	0.577 (0.151)***	—	—
Substance use	1.881 (0.086)***	1.797 (0.332)***	—	—
Sexual activity that causes harm	2.419 (0.105)***	2.549 (0.239)***	—	—
Unhealthy romantic relationships	2.610 (0.083)***	1.772 (0.244)***	—	—
Self-destructive or risk-taking behaviors	1.631 (0.056)***	1.817 (0.151)***	—	—
Behavioral Index (0-6)	—	—	1.665 (0.020)***	1.382 (0.057)***
Race				
African American or Black	-0.340 (0.065)***	-0.076 (0.186)	-0.402 (0.069)***	-0.117 (0.180)***
Hispanic or Latino	-0.257 (0.065)***	-0.518 (0.189)***	-0.326 (0.063)***	-0.596 (0.181)***
White or Caucasian	(reference group)	(reference group)	(reference group)	(reference group)
Other/Unknown	-0.527 (0.104)***	0.243 (0.272)	-0.678 (0.099)***	0.273 (0.260)
Age				
10-12	-0.555 (0.120)***	-0.318 (0.338)	-0.436 (0.116)***	0.046 (0.306)
13-14	-0.247 (0.058)***	-0.382 (0.190)**	-0.210 (0.056)***	-0.219 (0.178)
15-16	(reference group)	(reference group)	(reference group)	(reference group)
17-18	0.266 (0.080)***	-0.008 (0.152)	0.290 (0.078)***	-0.091 (0.146)
Gender				
Male	-2.108 (0.056)***	-0.965 (0.150)***	-2.262 (0.054)***	-0.995 (0.141)***
Female	(reference group)	(reference group)	(reference group)	(reference group)

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Constant	-3.624 (0.064)***	-2.158 (0.194)***	-3.613 (0.062)***	-2.319 (0.189)***
Observations	112,228	2,506	112,228	2,506
Log Likelihood	-7,105.012	-755.763	-7,334.962	-812.505
Akaike Inf. Crit.	14,238.020	1,539.526	14,687.920	1,643.010

*p < 0.10; **p < 0.05; ***p < 0.01

Table 7. Multinomial logit regression models assessing the behavioral index as a mediator of ACEs index and clear concern

	Model 1: Juvenile Justice Screenings	**Model 2: CPS Screenings**
ACEs Index	0.841 (0.023)***	0.225 (0.054)***
Behavioral Index	1.401 (0.024)***	1.278 (0.064)***
Race		
African American or Black	-0.328 (0.083)***	0.099 (0.200)
Hispanic or Latino	-0.205 (0.075)***	-0.412 (0.200)**
White	(reference group)	(reference group)
Other/Unknown	-0.556 (0.114)***	0.210 (0.295)
Age		
10-12	-0.473 (0.142)***	0.249 (0.266323
13-14	-0.157 (0.067)***	-0.041 (0.194)

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15-16	(reference group)	(reference group)
17-18	0.240 (0.095)***	0.039 (0.161)
Gender		
Male	-1.943 (0.063)***	-0.700 (0.153)***
Female	(reference group)	(reference group)
Constant	-4.328 (0.078)***	-2.827 (0.225)
Observations	104,071	2,018
Log Likelihood	-5.220.808	-672.718
Akaike Inf. Crit.	10.461.620	1,365.437

*p < 0.10; **p < 0.05; ***p < 0.01

Table 8. Assessing the relationship between ACEs index and clear concern, as mediated by behavioral index

	Model 1: Juvenile Justice Screenings	**Model 2: CPS Screenings**
ACME (control)	0.006 (0.000)***	0.087 (0.005)***
ACME (treated)	0.013 (0.000)***	0.092 (0.005)***
ADE (control)	0.008 (0.000)***	0.025 (0.006)***
ADE (treated)	0.015 (0.001)***	0.030 (0.007)***
Total Effect	0.022 (0.001)***	0.117 (0.007)***

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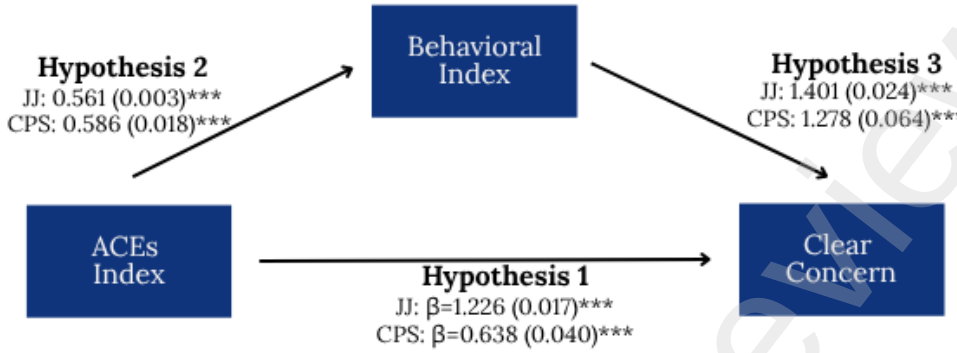
Prop. Mediated (control)	0.290 (0.010)***	0.741 (0.054)***
Prop. Mediated (treated)	0.615 (0.009)***	0.786 (0.045)***
ACME (average)	0.010 (0.000)***	0.089 (0.005)***
ADE (average)	0.012 (0.000)***	0.028 (0.007)***
Prop. Mediated (average)	0.453 (0.009)***	0.764 (0.049)***
Observations	104071	2018

*p < 0.10; **p < 0.05; ***p < 0.01
Simulations: 1000

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Figure 1. Summary of hypotheses and findings [intended for black-and-white in print]



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