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Changing profiles of youth referred for commercial sexual exploitation before and since the onset of COVID-19 in the United States

Kafafian, M.; Vries, I. de; Farrell, A.; Asiedu, C.; Bouchard, E.

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Changing Profiles of Youth Referred for Commercial Sexual Exploitation before and since the Onset of COVID-19 in the United States

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Matthew Kafafian¹ , Ieke de Vries², Amy Farrell³, Christen Asiedu⁴, and Elizabeth Bouchard⁵

Abstract

We examined profiles of young people who have been referred to a state child serving agency concerned with identifying commercial sexual exploitation of children (CSE) in the Northeast of the United States before and since the onset of the COVID-19 pandemic. Using comprehensive data from this state child serving agency, our study used latent class analyses and regression analyses to explore changing profiles of young people referred for concerns of CSE since the pandemic. A profile of referred minors whose social settings included CSE-involved people was significantly less common since the onset of the pandemic compared to before the onset of the pandemic. Conversely, a profile of young people with risky online experiences (e.g., sharing sexually explicit media) was significantly more common among CSE referrals since the pandemic began. While extant literature warns of CSE risk in online settings, fewer cases of CSE were identified since the onset of the pandemic. Given the growing importance of online settings and experiences during childhood, supplemental screening practices are needed to better assess the risk of CSE among young people in online settings.

Keywords

commercial sexual exploitation of children (CSE), victimization risk, COVID-19, youth profiles

Introduction

To date, little is known about the COVID-19 pandemic's lasting impact on victimization, particularly for crimes, such as commercial sexual exploitation (CSE) that engage public space *and* manifest through interpersonal relations. CSE of children is defined by U.S. law as a form of sex trafficking regardless of evidence of force, fraud, and coercion (TVPA, 2000; P.L. 106–386). Additional laws have expanded the definition of sex trafficking to include a broader range of sexual abuse types that involve children (e.g., pornography, child sexual abuse materials, or sex tourism, see JvTA, 2015). Over the last few decades, laws and policies have also been implemented at the federal and state levels, making CSE a key priority and responsibility for providers concerned with protecting children from harm (Reid et al., 2019).

Leading up to the pandemic, researchers had started to untangle the various risks and vulnerabilities to CSE, which informed prevention and identification efforts. These studies largely focused on individual- and family-level risk factors, such as experiences of childhood abuse, homelessness, drug addictions, or experiencing or witnessing domestic abuse in

the family household (see, for systematic reviews and a meta analysis, Choi, 2015; de Vries & Goggin, 2020; Franchino-Olsen, 2021; Laird et al., 2020). The broader victimology literature demonstrates that such adverse experiences may indeed reduce resilience to future victimization or signal a person's repeated exposure to potentially harmful situations (Reid et al., 2017).

¹School of Criminology and Criminal Justice, University of Nebraska at Omaha, Omaha, NE, USA

²Institute of Criminal Law and Criminology, Leiden University, Leiden, The Netherlands

³School of Criminology and Criminal Justice, Northeastern University, Boston, MA, USA

⁴College of Law, Florida State University, Tallahassee, FL, USA

⁵Children's Advocacy Center of Suffolk County, SEEN Support to End Exploitation Now, Boston, MA, USA

Corresponding Author:

Matthew Kafafian, School of Criminology and Criminal Justice, University of Nebraska at Omaha, 6001 Dodge Street, 218 CPACS, Omaha, NE 68182, USA.

Email: mkafafian@unomaha.edu

Although early work has suggested that the pandemic may have exacerbated a number of these known risks for CSE victimization (Todres & Diaz, 2021) and other forms of human trafficking (Greenbaum et al., 2020), the literature still lacks a rigorous empirical understanding of if and how the profile of young people identified as at risk for CSE may have changed since the pandemic began. In particular, the unique risk for CSE exacerbated by the pandemic, particularly in terms of online exposure and experiences (e.g., online grooming and exchanging sexually explicit images online), is often discussed in the literature but lacks a more rigorous empirical foundation. Against the background of these and other changing conditions since the onset of the pandemic, this article explores changes in referral patterns of CSE child victimization before and since the pandemic to help direct research, policy, and practice to the changing nature of identifying people at risk for CSE victimization.

Using unique data about 955 minors referred to a CSE-specific agency in the Northeast United States during 2015–2022, we investigated whether and how profiles of young people referred to this agency have changed since the onset of the pandemic compared to before the pandemic. Because the pandemic may have lasting consequences on public health, safety, and (online) social settings, our findings can inform changes in practices to identify and prevent CSE under such new conditions. Before further introducing our empirical approach, we discuss previous literature on risk factors of CSE victimization among young people, some of which may have been altered by the pandemic.

Vulnerability to CSE before the Pandemic

Before the pandemic, much progress was made related to our understanding of vulnerability to CSE. Prior abuse in the form of sexual abuse, physical abuse, and emotional abuse have been some of the most-cited factors associated with increased risk of CSE victimization (see Choi, 2015; de Vries & Goggin, 2020; Franchino-Olsen, 2021 for reviews). A recent meta-analysis indicated that sexual abuse – rather than emotional or physical abuse – considerably increases the risk of CSE victimization (de Vries & Goggin, 2020). Moreover, experiencing multiple forms of these abuses together has been found to increase the risk of CSE victimization (e.g., Kisiel et al., 2009; Landers et al., 2017). In addition to histories of abuse, factors such as substance misuse, running away, homelessness, and mental health have been found to be some of the most influential risk factors for CSE victimization (Edwards et al., 2006; Reid, 2011; Reid & Piquero, 2014, 2016; Roe-Sepowitz, 2012). Beyond individual-level characteristics, family, caregiver, or parental factors have been found to contribute to the risk of CSE victimization. In particular, research has found that compromised parenting or unstable home life, such as caregiver substance abuse, daily strains, and exposure to family violence, increased risk for CSE

victimization (Reid, 2011; Reid & Piquero, 2014, 2016; see also Franchino-Olsen, 2021 for a review).

Although there is a plethora of research that has highlighted the importance of these individual-level or family-oriented risk factors that most commonly populate screening and assessment instruments used by youth serving agencies (see for reviews Choi, 2015; de Vries & Goggin, 2020; Franchino-Olsen, 2021; Laird et al., 2020), recent studies have begun to scrutinize the focus on these traditional risk factors at the cost of only a minimal focus on other types of risk factors for CSE. For example, Reid (2018) have deepened our understanding of the complexities in risk and vulnerability to CSE by uncovering various risk profiles for juvenile human trafficking. According to their findings, most trafficked youths did not meet the common victim narrative of youths with extensive childhood adversities, such as previous abuse, missing from care, or residing in unstable and unsafe family settings. Their findings underscored the importance of recognizing heterogeneity in risk profiles across different groups of young people. Similarly, recent research by de Vries and colleagues (2019) stressed the importance of looking beyond the risk items that populate most screening and assessment instruments, specifically to consider exposure to potential harm in the social contexts in which young people may routinely find themselves. Through novel machine learning methods, they uncovered that different risk items than those commonly included on screening instruments were predictive of CSE victimization among a group of at-risk youth, such as out-of-state travel, reports of sexual assault, having multiple sexual partners, and situational factors, such as being approached to engage in CSE, spending time with other youth engaged in CSE, and being found in areas of suspected commercial sex for at-risk youth. This research has elevated the importance of the proximal conditions and social contexts that youth may be in during the period preceding their victimization. More recently, de Vries et al. (2024) also demonstrated the importance of social contexts and increased CSE risk due to exposure to crime and delinquency within peer groups.

Vulnerability to CSE since the Onset of the Pandemic

Widespread concerns about how COVID-19 pandemic conditions may have worsened the nature and frequency of a general risk of victimization have prompted scholars to empirically investigate how victimization has changed since the start of the pandemic (Stickle & Felson, 2020; see also Miller & Blumstein, 2020). However, the current body of research presents mixed findings, depending on the type of victimization, providing few leads for developing expectations about how the pandemic may have changed CSE risk. Whereas victimization types that occur in public spaces, such as property crimes and assaults, were less frequently reported during the pandemic (e.g., Regalado et al., 2022), other research warned of increased prevalence of domestic violence

and interpersonal victimization during the pandemic (e.g., Piquero et al., 2021; Regalado et al., 2022).

The COVID-19 pandemic has further complicated our understanding of CSE risk. For example, scholars have suggested that the pandemic may have exacerbated several known risks for CSE victimization, such as homelessness and various forms of abuse (Todres & Diaz, 2021). Other work has highlighted trafficking more generally, suggesting that other known risk factors, such as exposure to family violence, various forms of abuse, and running away, may have been magnified during the pandemic (Greenbaum et al., 2020), potentially because of increased financial strain and lack of contact with mandated reporters, such as schools (Greenbaum et al., 2020; Todres & Diaz, 2021). A broader line of research demonstrates the pandemic's impact on traditional commercial sex markets, especially as it pertains to exacerbated social and economic stressors during lockdowns and the emergence of less visible forms of commercial sex markets in online domains (Benoit & Unsworth, 2022; Coxen et al., 2023).

Although social distancing restrictions have tightened and eased at different points in time during the pandemic and are now virtually everywhere removed, research has warned about structural changes to commercial sex markets due to pandemic conditions, substituting traditional recruitment methods with online forms of recruitment and sex advertising (Azam et al., 2021). Against that background, scholars have raised concerns that changes brought on by the pandemic may also have provided new avenues of risk and vulnerability for CSE. For example, it has been suggested that the increased unmonitored use of the Internet among young people, along with evidence of online grooming and solicitation, has provided a new avenue of risk for CSE victimization (Borlik et al., 2021). However, to date, limited empirical evidence for this claim exists because very few studies have investigated changes in the risk of CSE before and since the pandemic.

Online Exposure as a Specific Driver of Change in Victimization Risk

Some of the changes to the nature and risk of victimization due to pandemic conditions may have waned as communities returned to more traditional in-person interactions, while others remain. Notably, as young people increasingly communicate online and exchange images electronically with peers and others during periods of social isolation, problems associated with online engagement, such as online enticement and sextortion, have increased even well before the pandemic. To illustrate, the National Center for Missing and Exploited Children reports that between 2001 and 2013, online enticement reports increased by over 300%, and sextortion reports are more frequent (National Center for Missing & Exploited Children [NCMEC], n. d.). Social media usage by teens, exacerbated in many ways by pandemic conditions, has also grown in recent years commensurate with increased

device ownership and is likely to remain a persistent aspect of the lives of young people into the future. The Pew Research Center estimates that nearly 95% of teens access and share information through YouTube, and 67% of teens engage on TikTok (Vogels et al., 2022). Recent meta-analyses confirm that approximately one in five youth send sexually explicit images online, one in three receive such images, and for one in seven youth, these images are forwarded without consent (Mori et al., 2022). Practitioners and scholars alike have warned of the potential harms of online exposure (Borlik et al., 2021), and research based on interviews with law enforcement has supported the idea that increased online activity may increase the risk of CSE even for young people who do not have traditional historical or proximal risk factors (O'Brien et al., 2024). However, online risks to CSE are underexplored (see, for notable exceptions, DeMarco et al., 2017; O'Brien & Li, 2020), and robust research unpacking whether profiles of young people referred for CSE concerns since the onset of the pandemic have changed, specifically regarding their online behaviors and experiences, remains in its infancy.

Present Study

Although prior research has made significant progress in our understanding of risk of CSE victimization, little continues to be known about how the COVID-19 pandemic has potentially affected the profiles of young people referred to child welfare agencies concerned with identifying CSE. As mentioned in the previous sections, existing literature suggests the emergence of a new profile of young people who are more frequently exposed to risky behaviors and experiences in online settings (e.g., sharing sexually explicit images online or grooming through social media apps) since the onset of the pandemic compared to before the pandemic. However, robust empirical research unpacking these expected changes in profiles is needed to understand whether screening and assessment instruments need to be redirected toward identifying risk of CSE in online settings.

In the current study, we investigated how profiles of young people referred to a state child serving agency concerned with identifying CSE have changed since the pandemic began, specifically addressing potential changes in online experiences and behaviors. In doing so, we compared profiles of young people before and since the onset of the pandemic, focusing on specific items about online exposure and experiences (e.g., sharing sexually explicit images online), in addition to other experiences that have traditionally been linked to increased risk of CSE, including previous childhood adversities, adverse or unstable family dynamics, and agency involvement. With our findings, we seek to advance our knowledge on emerging profiles of young people who may be at risk of CSE victimization. As the pandemic may have had lasting consequences on public health, safety, and social settings, our findings can further inform the identification and prevention of CSE in the long run. We introduce our empirical approach in the next section.

Data and Methods

Description of Data

The data for this study comprised 955¹ youth who were referred to a specialized CSE program housed within a children's advocacy center (CAC) in the Northeast United States between the years of 2015 and 2022. Data were collected through a case management system that was developed collaboratively with case coordinators and case workers at the CAC and researchers at [deidentified institution] to facilitate the screening and assessment for CSE and guide referral and treatment responses. The case management system included information about youth's demographics, histories, and presenting information known at time of referral. Historical information included concerns about childhood adversities, previous systems involvement, and histories of family-related concerns. Information at time of referral included any information known about allegations within 15 days² of the referral date, specifically regarding referral source, agencies involved at time of referral, concerns of abuse, concerns of youth missing from home or care, the nature of friendships and romantic relationships, and physical, behavioral, and emotional risks. Such information was derived from official case files, which were entered into the case management database by case workers with assistance of researchers at [deidentified institution]. To ensure consistency of data entry into the case management system, a detailed codebook was created to exhaustively define each of the variables and give examples of possible response categories. When ambiguities were raised during the data entry process, meetings took place between case workers and researchers to resolve any inconsistencies. The Institutional Review Board at [deidentified institution] provided approval (approval #15-10-10) for this study's data collection and analysis.

Outcome measure

CSE victimization at time of referral. Our main outcome measure was included as a dichotomous measure that represents whether or not (1 = "Yes") youth had experienced CSE at time of referral (15.5%, $n = 148$), which was presumed to be the case when they had clear concerns on the items³ (1) "CSE Discovered or Corroborated"; (2) "Youth Disclosed Commercial Sexual Exploitation"; (3) "Survival Sex or Sexual Activity in Exchange for Shelter, Money, or Goods"; and (4) "Youth was Identified in an Advertisement Regarding Sexual Exchange." These items represent factors that meet the legal definition of commercial sex and have been used in prior research (e.g., de Vries et al., 2020; Kafafian et al., 2021).

Potential risk markers

Historical concerns (youth). A total of four items captured concerns about childhood adversities prior to a youth's first

referral, which have been found to be important risk factors for CSE in previous literature (see, for reviews, Choi, 2015; de Vries & Goggin, 2020; Franchino-Olsen, 2021). These items included histories of experiences of abuse, such as neglect, physical abuse, or sexual abuse; histories of running or missing from care; history of concerns related to mental health; and history of concerns related to substance use. All four items were dichotomous; a "1" represented there was a known clear concern, whereas no known concerns were documented as "0."⁴

Historical concerns (family). The current study controlled for four items that tap into concerns related to historical familial adversities, which are known to be important in risk for CSE (see, for a review Franchino-Olsen, 2021). We included items measuring whether immediate family members of the youth experienced abuse (such as domestic violence, neglect, sexual abuse or physical abuse), substance abuse, family separation due to divorce, single parenthood, a parent being incarcerated, or a parent living in another country), and homelessness. All four items were dichotomous (1 = "documented clear concerns," zero = "no known concerns").

Concerns at time of referral. A total of ten items documented at time of first referral were included in the analysis. This included information about: (1) being missing from care at time of referral or upon identification; (2) traveling out of state without caregivers' consent; (3) concerns related to mental health; (4) experiencing sexual assault; (5) substance misuse; (6) having multiple sexual partners; (7) being approached to engage in CSE; (8) spending time with peers involved with CSE; and (9) being found in areas of suspected commercial sex, which all have been found to be important for understanding risk to CSE (e.g., de Vries et al., 2020; Franchino-Olsen, 2021). In order to tap into online risk behaviors, we also included whether youth had clear concerns for electronic exchanges of sexually explicit media. These variables were all dichotomous measures (1 = "clear concern," zero = "no known concern").

Other covariates

Demographic measures. Demographic measures in this study were limited to gender (1 = "female," $n = 862$; 90.26%)⁵ and age at time of first referral to the specialized unit within the CAC (mean = 14.67; SD = 2.13). Because race or ethnicity was not documented for a large proportion of cases ($n = 224$; 23.46%), this demographic information could not be included in any analyses.

Agency variables. Given the importance of both law enforcement and child welfare agencies in identifying CSE victimization, we included four items to gauge whether changes brought on by the pandemic may be linked to changes in who has identified potential CSE victims before and since the pandemic. Two of these items represent whether a referral

for concerns of CSE victimization was made by child welfare agencies or law enforcement. When youths were referred by a child welfare agency (1 = “Yes”), they were referred by either the department of children and families or a child advocacy center. Referrals by law enforcement agencies (1 = “Yes”) entailed youth who were referred by (1) local law enforcement, (2) a local prosecutors office, or (3) probation. Although youth were referred by a broad set of agencies, most of the youth ($n = 608$; 73.61%) were referred by child welfare agencies that are mandated to report suspicions of CSE. We included two other variables indicating if either child welfare agencies or law enforcement were initially involved in identification of a youth referred for concerns of CSE victimization.

COVID-19. To assess the changes brought on by pandemic conditions, we included a dichotomous variable that represented whether a youth was referred since the COVID-19 pandemic (1 = “Yes”). Based on the date the World Health Organization declared the COVID-19 outbreak as a global pandemic, all youth referred on and after March 11, 2020, were considered to be referred since the COVID-19 pandemic ($n = 393$; 41.15%).

Analytic Strategy

To examine whether profiles of young people who were referred due to concerns about potential CSE victimizations changed since the onset of the pandemic as compared to before the pandemic, we conducted several analyses. First, we compared descriptive statistics between two time periods: pre-pandemic and since the onset of the pandemic (Table 1). To test for possible differences across these time periods, chi-square or T-tests for each study variable were conducted.

Furthermore, to investigate changes in referral patterns before and since the onset of the pandemic, latent class analyses (LCA) were conducted using the ‘poLCA’ package in R (Linzer & Lewis, 2011). LCA is an approach that models population heterogeneity to estimate mutually exclusive and exhaustive categories, which has been used as a person-centered approach in social science research (Nylund-Gibson et al., 2019, p. 1). This method has been effectively used in similar research on risk and vulnerability to victimization and human trafficking (e.g., Reid, 2018; Reid et al., 2019). The strength of LCA is that it provides detailed information on the particular factors that distinguish sub-groups within a population (Magidson et al., 2020; Reid et al., 2019, p. 705). To investigate changes in profiles of youth identified for concerns related to CSE victimization since the COVID-19 pandemic, LCA analyses were replicated across: (1) the full sample ($N = 955$), (2) youth referred prior to the pandemic ($n = 562$), and (3) youth referred since the pandemic ($n = 393$). The LCA models presented were estimated controlling for demographics, age, and gender (female)⁶.

Next, to further understand if the pandemic is associated with the emergence of particular profiles of youth identified by LCA analyses, we conducted several logistic regression models that model whether a youth was grouped into a specific latent class (i.e., profile, 1 = “Yes”) as a function of being referred either before or since the onset COVID-19 (1 = “since the onset of COVID-19”), while controlling for the above-mentioned agency variables and demographic information (age and gender). Lastly, we also examined whether the impact of the COVID-19 pandemic on changes in profiles of young people is conditioned by referrals from specific agencies involved in identification, reporting, or referral of youths. To do so, we examined two-way interactions between all agency variables and the variable indicating whether youths were referred since the onset of the COVID-19 pandemic.

Results

Descriptive statistics of all study variables and for the (1) full sample, (2) sample of youth referred before the onset of the COVID-19 pandemic, and (3) sample of youth referred since the onset of the COVID-19 pandemic can be found in Table 1. Results of chi-squared tests investigating statistical differences across study variables are also presented in Table 1. Overall, the analyses presented significant differences between youth referred before and since the onset of the pandemic, specifically regarding history of missing from care, concerns related to mental health at time of referral, experiencing sexual assault at time of referral, spending time with people known to be involved in CSE, being found in areas of suspected of commercial sex, and being indicated as exploited, among other variables (see Table 1 for descriptive statistics for all study variables). For many of the variables related to historical concerns, such as having histories of missing from care, family substance misuse, and history of family separation, the analyses demonstrated a significantly smaller proportion of youth with clear concerns for these items since COVID-19 began. Relatedly, for items presenting at time of referral, there were significantly fewer youth since the onset of COVID-19 with clear concerns for behaviors or experiences, such as running away at time of referral, experiencing sexual assault, having multiple sexual partners, being found in areas suspected of commercial sex, spending time with other youth involved in CSE, and being indicated. Overall, the descriptive analyses indicated that youths with experiences listed as traditional risk items for CSE in previous literature were more frequently referred prior to the pandemic than since the onset of the pandemic.

Since the onset of the pandemic, the number of referrals in 2020, 2021, and 2022 were found to stay relatively constant (see Appendix A). Although the number of referrals made for concerns of sexual exploitation did not decrease since the onset of the pandemic, the proportion of youth identified as confirmed CSE victims was significantly lower ($p < .001$)

Table 1. Descriptive Statistics.

		Mean/n	SD/%
COVID-19		393	41.15%
Female		862	90.26%
	COVID	346	88.04%
	Pre-COVID	516	91.81%
Age**		14.66	2.13
	COVID	14.42	2.34
	Pre-COVID	14.84	1.95
History of abuse		672	70.37%
	COVID	278	70.74%
	Pre-COVID	394	70.11%
History of missing from care***		354	37.07%
	COVID	116	29.52%
	Pre-COVID	238	42.35%
History of mental of MH concerns		342	35.81%
	COVID	151	38.42%
	Pre-COVID	191	33.99%
History of substance misuse		182	19.06%
	COVID	71	18.07%
	Pre-COVID	111	19.75%
History of family abuse		263	27.54%
	COVID	105	26.72%
	Pre-COVID	158	28.11%
History of family substance misuse		185	19.37%
	COVID	67	17.05%
	Pre-COVID	118	21.00%
History of family separation***		422	44.19%
	COVID	202	51.40%
	Pre-COVID	220	39.15%
History of family homelessness		43	4.50%
	COVID	18	4.58%
	Pre-COVID	25	4.45%
Travelling out of state at time of referral*		75	7.85%
	COVID	22	5.68%
	Pre-COVID	53	9.43%
Running away		281	29.42%
	COVID	103	26.21%
	Pre-COVID	178	31.67%
Mental health concerns at time of referral*		337	35.29%
	COVID	153	38.93%
	Pre-COVID	184	32.74%
Sexual assault**		244	25.55%
	COVID	84	21.37%
	Pre-COVID	160	28.47%
Substance use		252	26.39%
	COVID	105	26.72%
	Pre-COVID	147	26.16%
Multiple sexual partners***		163	17.07%
	COVID	36	9.16%
	Pre-COVID	127	22.60%
Approached to engage in CSE		120	12.57%
	COVID	41	10.43%
	Pre-COVID	79	14.06%

(continued)

Table 1. (continued)

		Mean/n	SD/%
Spending time with CSE people*		124	12.98%
	COVID	39	9.92%
	Pre-COVID	85	15.12%
Found in areas suspected of commercial sex**		97	10.16%
	COVID	24	6.11%
	Pre-COVID	73	12.99%
Electronic exchange of sexually explicit media		297	31.10%
	COVID	134	34.10%
	Pre-COVID	163	29.00%
Confirmed CSE victim***		148	15.50%
	COVID	30	7.63%
	Pre-COVID	118	21.00%
CJ involved in identification		296	30.99%
	COVID	125	31.81%
	Pre-COVID	171	30.43%
CW Involved in identification		251	26.28%
	COVID	94	23.92%
	Pre-COVID	157	27.94%
Referred by CJ		177	18.53%
	COVID	68	17.30%
	Pre-COVID	109	19.40%
Referred by CW***		689	72.15%
	COVID	312	79.39%
	Pre-COVID	377	67.08%

Note. *** $p < .001$, ** $p < .01$, * $p < .05$.

since the COVID-19 period ($n = 30$; 7.63%) compared to before the COVID-19 pandemic ($n = 118$; 21%).

To further investigate changes in profiles of youths referred for CSE concerns since the pandemic, latent class analyses were conducted across the full sample ($N = 955$), the pre-COVID sample ($n = 562$), and the COVID-19 pandemic sample ($n = 393$). First, five latent classes represented five profiles of youth for CSE in the full sample (see Figure 1). Model fit statistics for two to six class solutions are summarized in a table in Appendix B, in which fit statistics for BIC, ABIC, CAIC, entropy, and minimum class size are all presented. Overall, the fit indices found support for a five-class solution⁷ for the full sample.

The first latent class ($n = 244$) (labeled “Abuse and Running in Figure 1) represented youth with histories of abuse, family separation, and being on the run or missing, both historically and at time of referral. The youth represented by the second latent class ($n = 311$) (labeled “H of Abuse w/ SE Exchange” in Figure 2) were distinct for having shared sexually explicit images and online media. In addition, they had moderately high histories of abuse and family separation, but otherwise low probability of clear concern on other study variables. Latent class three ($n = 88$) (labeled “Proximal Risks and Indicated” in Figure 1) represented youth who were at the greatest risk of CSE victimization and likely to be confirmed CSE victims.

They possessed several situational risk factors, such as being missing at time of identification, and variables that previous studies have identified as proximal risks for CSE, including spending time with other youth involved in CSE, being approached to engage in CSE, and being found in areas of suspected commercial sex. Youth represented in the fourth latent class ($n = 177$) (labeled “Plethora of Adverse Exp (Experiences)” in Figure 2) had a cumulative victimization pattern with clear concerns on most childhood adversities (e.g., histories of abuse, histories of missing from care, histories of concerns related to mental health, histories of substance use, having concerns related to mental health at referral, and substance use at time of referral). Where this latent class diverged from the first latent class (“Abuse and Running”) is that youth in this latent class had a higher probability of having clear concerns at time of referral for items, such as concerns related to mental health, running away, and substance misuse. Finally, the fifth latent class represented ($n = 135$) (labeled “MH Crises and SE Exchange” in Figure 2) youth with historical concerns related to abuse and concerns related to mental health historically, and at time of referral with the highest likelihood of sharing sexually explicit images electronically. This class is unique compared to the others because youth belonging to this class had the highest probability for concerns related to mental health, both

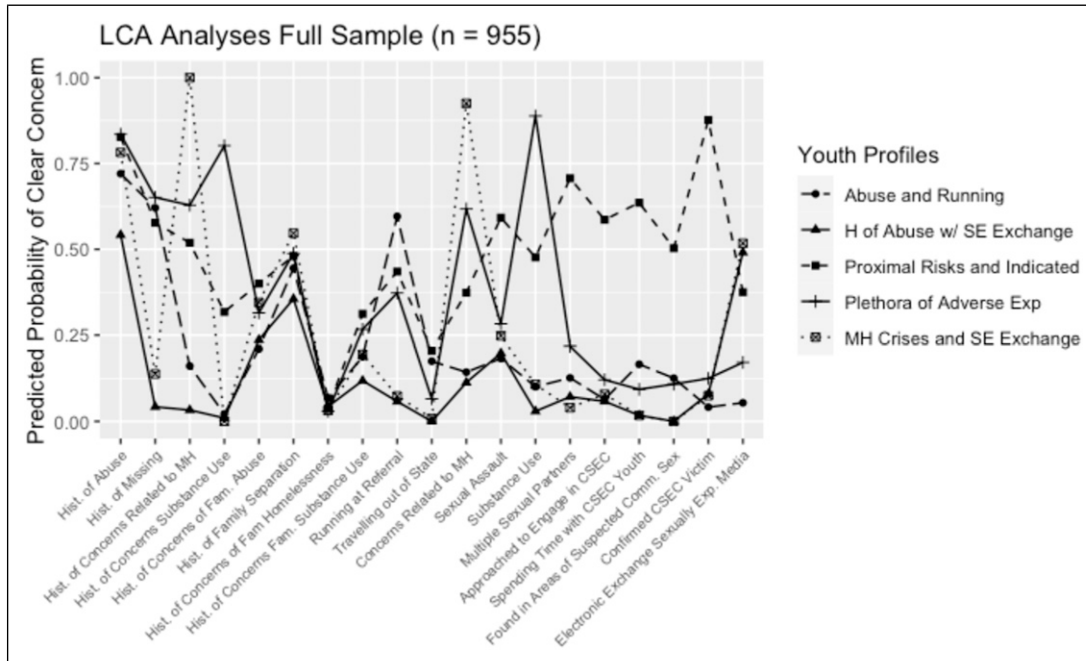


Figure 1. LCA Analyses Full Sample (N = 955).

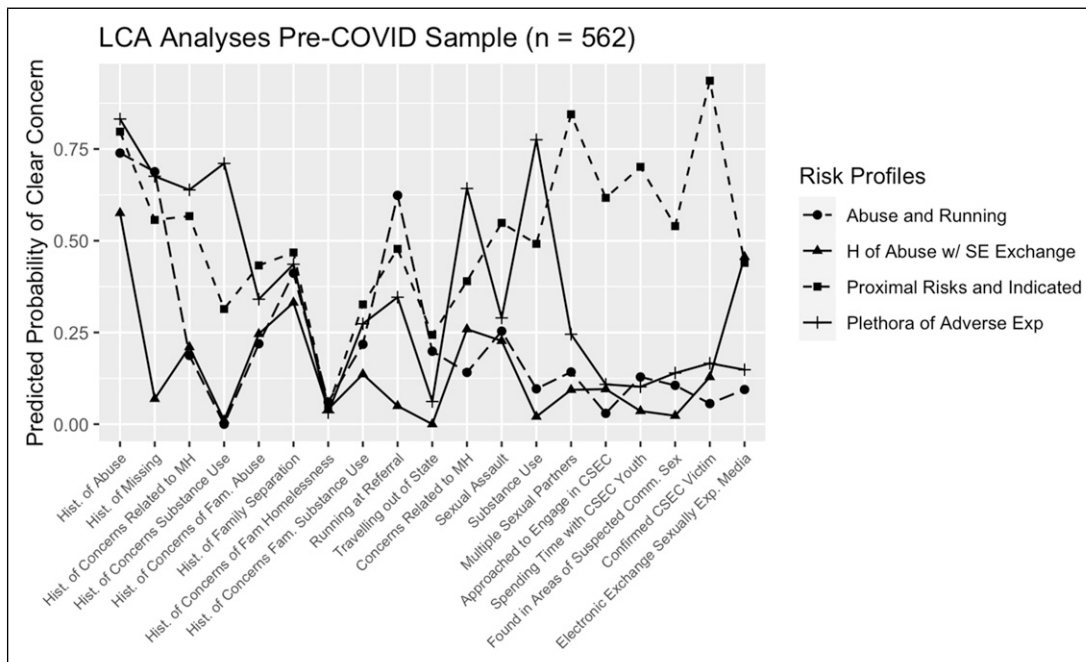


Figure 2. LCA Analyses Pre-COVID Sample (n = 562).

historically and at time of referral, in addition to having electronically exchanged sexually explicit media.

Furthermore, these analyses were replicated (Figure 2) across the sample of youth who were referred prior to the onset of the COVID-19 pandemic ($n = 562$). Based on fit statistics⁸ (see Appendix C), it was determined that a four-class solution best fit the data. Specifically, four of the five latent classes were

present in the data prior to the COVID-19 pandemic, such as (1) “Abuse and Running,” (2) “H of Abuse w/ SE Exchange,” (3) “Proximal Risks and Indicated,” and (4) “Plethora of Adverse Exp.” Overall, the results of this latent class analysis were similar to the results of the full sample, with the exception of one clear difference: the fifth latent class presented in the full sample—labelled “MH Crises and SE Exchange”—

did not comprise a separate latent class in the sample prior to the onset of the pandemic. In other words, the combination of these concerns may have emerged since the onset of the pandemic (see below), more so than before the pandemic.

Finally, to further investigate changes in profiles since the onset of the COVID-19 pandemic, latent class analyses were replicated across the sample of youth referred after the start of the COVID-19 pandemic ($n = 393$) (Figure 3). Again, various fit statistics were used to determine that a three-class solution best fit the data⁹ (see Appendix D). These three latent classes represented three profiles of youth (see also Figure 4), labeled (1) “H of Abuse w/ SE Exchange,” (2) “Plethora of Adverse Exp,” and (3) “MH Crises and SE Exchange.” It follows from these findings that there were two clear divergences in latent classes identified compared to the sample of youth referred prior to the COVID-19 pandemic. First, the latent class representing concerns related to histories of abuse, mental health (historically and at time of referral), and electronic sharing of sexually explicit images (latent class five in the full sample, labelled “MH Crises and SE Exchange”) indeed emerged since the pandemic more so than before the pandemic. Second, one latent class that was not present in the data since the onset of the pandemic is the latent class including youth who were the most likely to be confirmed as having experienced CSE (i.e., third latent class identified for the full sample, labelled “Proximal Risks and Indicated”).

Although both our descriptive analyses and our latent class analyses already suggested that CSE and proximal risk to CSE were less frequently identified since the onset of the pandemic

compared to before the pandemic, we conducted a series of logistic regression analyses to examine whether youth grouped within a specific latent class (using the five-class solution of the full sample) was indeed dependent on youth being referred since the start of the pandemic (compared to before COVID). As shown in Table 2 (Model 3), there was a 65% decrease in the odds ($OR = .350$) that youth referred since the pandemic were grouped in the latent class related to being high risk and being indicated of CSE victimization. Relatedly, referrals since the pandemic had a 110% increase in the odds ($OR = 2.098$) to be grouped in the latent class associated with mental health concerns and sexually explicit media exchange (Table 2; Model 5). Overall, the logistic regression analyses confirmed the results of the LCA and the differences seen in profiles before and since the onset of the COVID-19 pandemic.

While the pandemic was significantly associated with being grouped in two of the latent classes, we also conducted analyses to explore whether agencies involved in the identification process or referral process were associated with any of the latent classes. As shown in Table 2, Models 1 through 5, only law enforcement involvement in identification was significantly associated with the latent class “MH Crises and SE Exchange” ($p < .05$). Overall, these results suggested that agencies involved in the referral or identification of youth did not report different profiles of youth before versus since the onset of the pandemic and, therefore, the conditions brought on by the pandemic impacted the types of profiles of youth being identified and referred for concerns of CSE.

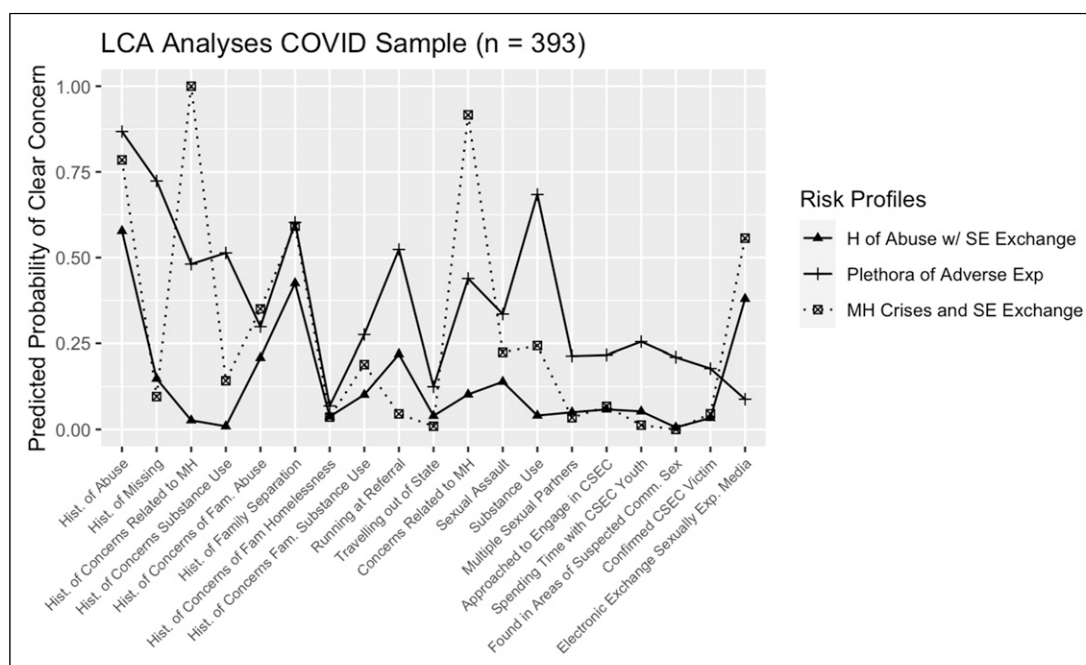


Figure 3. LCA Analyses COVID Sample ($n = 393$).

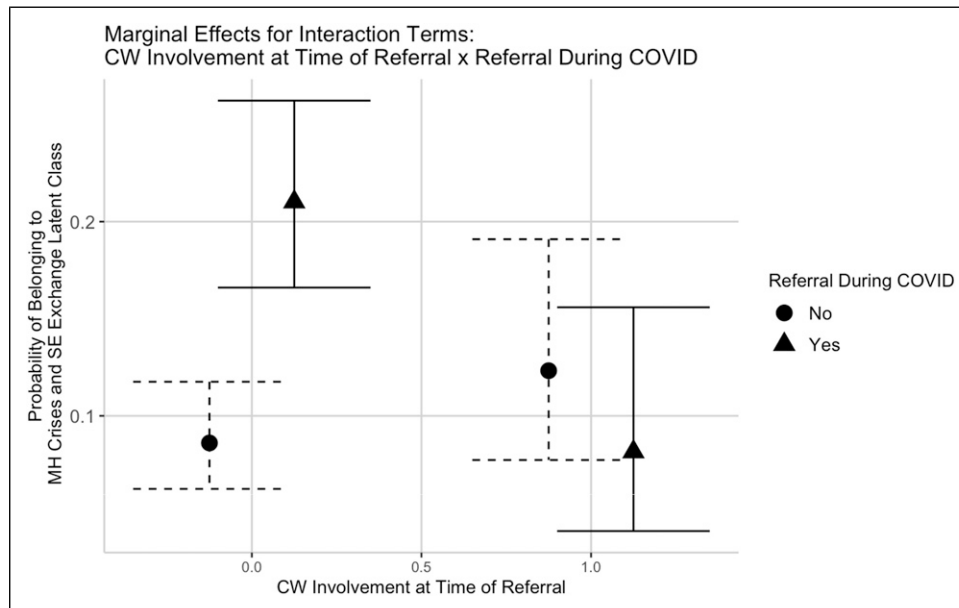


Figure 4. Interaction plot.

Lastly, interactions were stepped into the models to explore whether the pandemic conditioned the relationship for agency variables on the latent classes. Figure 4¹⁰ presents the marginal effects of the single interaction term that is significant (Table 2; Model 6). These analyses indicated that youth grouped in the latent class related to mental health crises and sexually explicit exchange of images were significantly more likely to be identified since the pandemic when child welfare agencies were *not* involved at time of referral.

Discussion

Commercial sexual exploitation of children is a unique form of victimization in that it is both interpersonal in nature while often being dependent upon public space and public engagement for its operation (e.g., strolls, hotel in-calls, online advertisement). This study investigated how profiles of young people referred to a state child serving agency concerned with identifying CSE have changed since the onset of the pandemic. We found that CSE profiles of youth identified since the pandemic significantly diverged from profiles of young people identified prior to the pandemic in three important ways.

First, we found that the proportion of referred youth who were confirmed victims of CSE was significantly higher in the pre-pandemic period (21%) compared to those youth referred since the onset of the pandemic (7.63%). Second, the LCA analyses uncovered a dominant profile during the pre-pandemic period in which young people had a high probability of traveling out of state, being found in areas of commercial sex, spending time with other youth engaged in CSE, being approached to engage in CSE, and being confirmed as trafficked. The items present in this profile represented the

proximal risk factors that previous literature has deemed most important in predicting CSE victimization (de Vries et al., 2019). However, this important proximal risk profile, which represented youth at immediate risk of CSE victimization (see de Vries et al., 2019), was no longer a dominant risk profile of young people identified for concerns of CSE since the onset of the pandemic. Third, a new profile emerged among youth referred for concerns of CSE since the pandemic, which involved young people with mental health concerns (historically and at time of referral) who were identified as having exchanged sexually explicit media electronically.

This profile of young people since the onset of the pandemic differs substantially from profiles identified in earlier research that tend to focus on experiences and behaviors in physical, not online, settings (see e.g. Reid, 2018). Importance of exposure and experiences in online settings supports the concerns raised in recent research: the pandemic, and its association with remote school, limited social engagements, and increased unmonitored time spent online, has provided new avenues of risk for CSE on the Internet (Boothe, 2020; Borlik et al., 2021; Greenbaum et al., 2020). Recent research has also suggested that the dramatic increase in social media usage by teens has been accompanied by increases in sextortion reports (NCMEC, n. d.) and the sharing of sexually explicit images online (Mori et al., 2022; Vogels et al., 2022). Research has raised particular concerns about increased risk of CSE due to online exposure to potential harm and involvement in risky behaviors like sharing sexually explicit images online (Borlick et al., 2021; O'Brien et al., 2024).

While this emerging profile was the most dominant profile of young people referred for CSE concerns since the pandemic and the literature has underscored risk of CSE among this group, it is not clear that all youth with an electronically

Table 2. Logistic Regressions Exploring the Association of a COVID Referral and Latent Classes.

	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
	Abuse and Running			H of Abuse W/SE Exchange			Proximal Risks and Indicated			Plethora of Adverse Experiences			MH Crises and SE Exchange			MH Crises and SE Exchange		
	Coef. (SE)	Odds Ratio		Coef. (SE)	Odds Ratio		Coef. (SE)	Odds Ratio		Coef. (SE)	Odds Ratio		Coef. (SE)	Odds Ratio		Coef. (SE)	Odds Ratio	
COVID-19	-.282 (.158)	.754		.016 (.148)	1.016		-1.050*** (.289)	.350***		.115 (.175)	1.122		.741*** (.195)	2.098***		1.039*** (.223)	2.826***	
CW Involved in Ident.	.064 (.175)	1.066		-.230 (.173)	.795		.303 (.257)	1.353		.323 (.191)	1.381		-.313 (.245)	0.731		.401 (.322)	1.493	
CJ involved in Ident.	.146 (.162)	1.158		-.125 (.158)	.882		.391 (.242)	1.478		.001 (.183)	1.001		-.461* (.222)	.630*		-.509* (.224)	.601*	
Referred by CW	.112 (.247)	1.119		.157 (.249)	1.171		-.511 (.319)	.600		-.045 (.269)	.956		.415 (.373)	1.514		.508 (.374)	1.662	
Referred by CJ	.208 (.275)	1.231		.328 (.277)	1.388		-.411 (.369)	.663		-.2831 (.311)	.753		.026 (.423)	1.026		.042 (.420)	1.043	
Female	.307 (.278)	1.359		-.159 (.239)	.853		.175 (.450)	1.192		.139 (.300)	1.149		-.318 (.288)	0.728		-.288 (.290)	.750	
Age	.158*** (.038)	1.171***		-.276*** (.037)	.759***		.299*** (.060)	1.348***		.198*** (.043)	1.218***		-.165*** (.044)	.848***		-.163*** (.044)	.849***	
COVID X CW																		
Involved in Ident.																		
Constant	-3.762*** (.685)	.023***		3.333*** (.625)	28.009***		-6.473*** (1.083)	.002***		-4.612*** (.771)	.010***		.374 (.762)	1.453		.073 (.775)	1.076	
Observations		955			955			955			955			955			955	
Pseudo R2		.024			.039			.080			.027			.045			.074	

Note. *** $p < .001$, ** $p < .01$, * $p < .05$.

exchanged sexually explicit media profile were victims of CSE. In fact, our analyses presented substantially fewer cases of confirmed CSE since the onset of the pandemic. Moreover, there was not enough information in the data to parse out whether the exchange of sexually explicit images falls within the legal definition of CSE victimization. In some cases, youth may have been exchanging explicit images in ways that fall under the legal classifications of child pornography or child sexual abuse materials, an element of human trafficking under the federal definition since 2015. In other cases, images may have been exchanged privately and voluntarily with trusted peers, which concerns a grayer area in the legal definition of child pornography and child sexual abuse materials and CSE. While sharing sexually explicit images does not have to result in increased risk of CSE victimization, it may also be the case that agencies lack the expertise to identify CSE in online settings.

Simultaneously, it is possible that traditional proximal risks, such as previous abuse, and increased risk of CSE exacerbated during the pandemic (Greenbaum et al., 2020; Todres & Díaz, 2021) but remained undetected since the pandemic period. For example, mechanisms of identifying or confirming victimization, such as securing evidence of commercial sex acts or obtaining survivor disclosure of exploitation, were more difficult during the pandemic period when screening and other services were commonly facilitated online or through telehealth systems. Future research should explore how our observed changes in profiles of young people referred to a child serving agency for CSE relate to actual changes in CSE risk in the post-pandemic period, with a focus on online environments as potential new settings where young people are at increased risk of CSE.

Furthermore, we explored whether changes in child welfare or law enforcement as a source of referrals conditioned the likelihood of identifying youth with particular profiles since the onset of the COVID-19 pandemic. Youth grouped in the latent class related to mental health crises and sexually explicit exchange of images were significantly more likely to be identified since the pandemic when child welfare agencies were *not* involved at time of referral. This finding suggests that child welfare agencies, as a traditional referral mechanism of CSE youth, were not central in referring youth in the newly emergent profile. It is possible that a focus on traditional risk items populating most screening and assessment instruments (see for reviews Choi, 2015; de Vries & Goggin, 2020; Franchino-Olsen, 2021; Laird et al., 2020) has impeded the identification of young people with different profiles. This may be particularly true for young people with online exposure to harm, given the little clarity from the literature about how online domains provide new avenues of risk for CSE victimization (see, for exceptions, DeMarco et al., 2017; O'Brien & Li, 2020).

Limitations

While our research provides important information about patterns of CSE risk that existed before and since the onset of the pandemic, there is always caution that research relying on data about referred youth misses the experiences and characteristics of those youth that are unidentified or do not come in contact with child serving agencies. This problem may have been exacerbated during the height of the pandemic. To address this limitation, we encourage the use of different methodologies to identify and gather information about the experiences of young people at risk for CSE victimization who may not have been formally identified. This could include the use of chain referral mechanisms to identify at-risk youth who are not engaged with service delivery. In addition, the quantitative nature of this study limits insights into the mechanisms explaining why and under which circumstances online settings pose significant risk for CSE victimization among youth. Therefore, qualitative approaches are needed to help us understand the experiences of youth that may place them at risk for CSE since the pandemic. Supplementing quantitative research designs with in-depth qualitative approaches would help gather information about the circumstances that changed for young people since and beyond this period i.e. critical to any effort to understand and prevent risk of CSE.

Implications for Future Research

Several of our findings highlight the need for further research. In particular, continued research is needed to monitor if the group of youth at risk of CSE due to traditional proximal conditions (e.g., traveling out of state, hanging out with other CSE-involved youth) has re-emerged as in-person engagements return to pre-pandemic levels. Because youth referred for concerns of CSE since the pandemic were more likely to have reports of child abuse and maltreatment than youth referred prior to the pandemic, it is critical to understand the pandemic's impact of child abuse histories on CSE risk, particularly related to the exchange of sexually explicit media, which was the dominant risk profile identified since the pandemic. Previous research has found that while child abuse history is not particularly predictive of CSE when proximal risks are considered among a group of at-risk youths (de Vries et al., 2019), such histories do predict re-referral for CSE concerns (Kafafian et al., 2021) and animate public and provider perceptions about youth who are most at risk compared to a general population of youth.

Furthermore, our findings indicate that pandemic conditions may have shifted the profiles of young people referred for CSE concerns. However, it is not yet clear whether young people with proximal risk factors for exploitation are actually at lower risk (e.g., because there was less opportunity to engage in person with peers or adults who were CSE involved, less ability to interact with exploiters in person, and less ability

to travel), or whether these youth remained at risk but were under-identified since the pandemic (e.g., because lockdowns, reduced in-person screening, and youth disengagement with services impeded their recognition). To illustrate, previous research has shown that many law enforcement agencies scaled back arrests for low-level offenses (Lum et al., 2020a, 2020b; Miller & Blumstein, 2020) since the pandemic. Similarly, studies have also demonstrated that pandemic restrictions negatively impacted service delivery (Wright et al., 2022). As a result, child welfare and other victim advocacy agencies may have been less likely to identify young people who were involved in situations that previously would have required mandatory reporting of CSE.

Finally, as more youth were flagged for potential exploitation as a result of electronic image exchanges, additional research is needed to understand under what conditions exchanges of sexual images are harmful to youth and subsequently should be classified as forms of child pornography, child sexual abuse materials, or CSE. Such research requires a deeper understanding of the role of the Internet in increasing the risks of CSE victimization.

Implications for Practice and Policy

Our findings support various implications for policy and practice. First, the finding that referral patterns since the pandemic resulted in fewer youth being confirmed as CSE victims may suggest that identification of the most vulnerable youth may have lapsed since the pandemic. This finding should encourage frontline practitioners to proactively screen for changing patterns in traditional risk markers. In particular, the role of child abuse history in CSE screening needs continued evaluation, especially considering recent work suggesting that the pandemic has worsened life circumstances for some young people, leaving them in less secure housing situations and resulting in decreased connections for youth to systems of support and programming. Moreover, although it is unclear whether CSE-specific proximal risks have been exacerbated since the pandemic, there is a growing body of research confirming that young people, in general, have experienced disruptions and disconnection since the pandemic that resulted in more loneliness, isolation, depression, and anxiety—all factors that not only exacerbate vulnerability for recruitment into commercial sex, but also lower chances of being identified due to being disconnected from official and informal support systems (Junewicz et al., 2022). By extension, it is critical for frontline practitioners, especially within youth-serving agencies, to expand outreach to ensure there is engagement with youth who experience more traditional proximal risks, such as child abuse, traveling out of state, spending time with others engaged in commercial sex, and being approached for CSE activity, to determine if these youth are experiencing or are at heightened risk for CSE.

Simultaneously, as the pandemic changed many of our routines, frontline practitioners should be increasingly alert

to changes associated with work, friendships, and communication becoming more reliant on the Internet. As some types of CSE victimization have transitioned to the online space, youth-serving agencies must adapt their practices to better identify and respond to these different forms of victimization. For example, child serving practitioners must document more information about these online encounters and monitor whether exchanges of sexually explicit images are used in ways that harm minors. Other frontline practitioners, such as police officers and practitioners within community agencies, should proactively screen for risky online behaviors within the youth populations they encounter and identify and report CSE risk within behaviors that have become increasingly normalized among young people. By extension, stakeholder training related to CSE, including training for police, school officials, medical professionals, child welfare agencies, children's advocacy centers, and parents/caregivers, should include information about the vulnerabilities that exist when youth exchange sexually explicit images, and markers of online activity that would raise suspicion about illicit image exchanges or dangerous online communication indicative of grooming.

Broader policy changes are needed to minimize harm among those youth who experience an increased risk of exploitation through electronic exchanges. Unmonitored online communication will likely continue as a staple of young people's social exchanges. Educating young people and parents about the potential risks associated with electronic images and media exchanges must become routine. Furthermore, policymakers should address questions like: "Are exchanges of sexually explicit images forms of revenge porn or nonconsensual pornography or are they child sexual abuse materials?" (Bates, 2017; Goldstein, 2020), and "Do sexually explicit image exchanges lead to further CSE vulnerability, either through coercion around making images public, sometimes known as sextortion?" (Wolak & Finkelhor, 2011), or "through increased exchanges between minors and those who may coerce entry into CSE situations?" (Mitchell et al., 2007; Rice et al., 2012). Answers to such questions could inform the development or adaptation of CSE screening instruments to include indications of image exchange and online connections that cause harm and increase young people's risk of CSE.

Altogether, our findings should alert frontline practitioners and policymakers to changes in the profiles of youth at risk of CSE. This study illuminates the need for continuous reflection and a flexible attitude to adapt screening and assessment, prevention, and protection methods to better identify those young people with profiles representing more traditional proximal risk markers that have been under-identified since the pandemic. At the same time, practitioners must develop more appropriate screening and responses to new, emerging profiles associated with sexually explicit media exchange.

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ORCID iD

Matthew Kafafian  <https://orcid.org/0000-0002-5405-0092>

Supplemental Material

Supplemental material for this article is available online.

Notes

1. The initial sample included 995 youth. However, data about approximately 4% ($n = 40$) of respondents was missing information regarding age, leading to the final analytic sample of 955 youth. Sensitivity analyses were conducted using imputation; however, the results remain unchanged.
2. In order to create consistency in data entry, a 15-day timeline was used to ensure that information about youth is being captured in the same time window.
3. These items were used to measure whether or not a youth is a confirmed victim of CSE. These items are not mutually exclusive, and a youth could have clear concern for more than one of these items. For example, the third item related to survival sex is different from the items 1 and 2 such that it is explicitly concerned with whether or not youth engaged in survival sex. In circumstances in which youth were found to have engaged in survival sex, also have clear concern on one or both of the first items as well (depending on how these concerns were corroborated).
4. In the data cleaning process, we decided to collapse youth with “possible concern” response category into the no known concern. In circumstances in which possible concern was selected there was no tangible evidence or information about these concerns. Rather, when possible concern was selected, these concerns were based on unsubstantiated suspicions and not facts. Therefore, only in circumstances of clear concern was there evidence for these concerns.
5. Of the 955 youth in the sample, only about 1.50% of youth referred identified as transgender ($n = 14$).
6. Because race or ethnicity was not documented for a large proportion of cases ($n = 224$; 23.46%), this demographic

information was not included as a control in the estimation of the LCA models.

7. The lowest BIC value corresponded to a five-class solution. Furthermore, Lo-Mendell-Rubin ad-hoc adjusted likelihood ratio tests were used to compare a four and five class solution, in addition to a five and six class solution. The results suggested the model fit is significantly better for a five-class solution compared to four class solution ($p < .001$). Moreover, the likelihood ratio test also found that a six-class solution is not significantly better than a five-class solution, confirming a five-class solution best fits the data. Lastly, relative entropy value suggested sufficient class separation.
8. The lowest BIC values correspond to a four-class solution, providing support for a four-class solution. While a lo-Mendell-Rubin ad-hoc adjusted likelihood ratio does not confirm a four-class solution best fits the data, a five-class solution produces a class with only 36 observations, which falls below the recommended criteria of 50 observations (Muthén & Muthén, 2000). Therefore, a four-class solution was selected.
9. For the sample of youth referred since the onset of the pandemic, the lowest BIC values correspond to a three-class solution. A Lo-Mendell-Rubin ad-hoc adjusted likelihood ratio fails to confirm that a three-class solution best fit the data compared to a four-class solution. Overall, the analyses presented showed that the patterns remain unchanged, and the “Proximal Risks and Indicated” profile did not exist in the data (which was also supported by the subsequent logistic regression analyses presented in Table 2). The inability for the likelihood ratio test to confirm the three-class solution may be related to the fact that likelihood ratio tests cannot always be used to determine best class size, as they cannot account for complex data (Weller et al., 2020). Thus, a three-class solution corresponded to the lowest BIC value—suggesting the overall best model fit for the data—thus, the three-class solution was selected.
10. A series of interactions between agency variables and the COVID-19 pandemic were stepped in across a series of models (available upon request). Results showed that none of the interaction terms were significantly associated with youth being grouped within the latent class associated with being “Proximal Risks and Indicated” latent class. The single interaction term that was significant for the “MH and SE Exchange” latent class is presented in Table 2.

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