

# Predictors of Online Child Sexual Abuse in a U.S. National Sample

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## Abstract

As technology has become increasingly integrated into the everyday lives of young people and social interactions have moved online, so too have the opportunities for child sexual abuse. However, the risk factors for online sexual abuse, and their similarities or differences with those of offline sexual abuse have not been clarified, making it difficult to design prevention strategies. Using a nationally representative online survey panel of young adults ages 18 to 28, the current study sought to identify risk factors for online childhood sexual abuse and compare their relevance and strength in predicting offline sexual abuse. The 2,639 participants, ages 18 to 28, were sampled from the Ipsos KnowledgePanel and were asked questions about 11 different kinds of technology-facilitated online sexual abuse that occurred in childhood, follow-up questions about their dynamics and offenders, and a variety of potential risk factors. Results indicated that: (1) being cisgender female, nonheterosexual, and having parents with less than a high school education emerged as important demographic predictors of online child sexual abuse (OCSA); and (2) early offline sexual abuse was the strongest predictor of OCSA, when considering both its direct and indirect effects through online risky behavior. Findings suggest that prevention programs directed at reducing risk of sexual abuse, in general, are likely to be effective against online sexual abuse, provided they also incorporate efforts to educate youth on the need to avoid risky online behaviors.

## Keywords

sexortion, solicitation, sexting, image-based sexual abuse, internet crime

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## **Introduction**

There continues to be substantial safety concerns associated with youth's increased access and use of digital and mobile technology and their potential vulnerability to exploitation and harm through its (mis)use. Given their high rates of smart phone use and "ubiquitous" access to social media platforms, adolescents' lives are becoming increasingly digitalized (Anderson & Jiang, 2018). As technology has become integrated into the everyday lives of young people, so too have their social interactions, including those involved in sexual development, sexual expression, and intimate romantic relationships (Cooper et al., 2016). However, as interpersonal interactions have migrated to digital environments, technology-facilitated criminal activities have also increased. Some of the digital crimes most alarming to the public are the ones involving online sexual offenses against children.

Much of the attention to these crimes has developed in a fragmented way. The media have introduced new terms like online grooming, online solicitation, sexting, sextortion, and revenge porn. The scientific literature addressing technology facilitated victimization also encompasses a wide variety of conceptualizations and labels. But, like their offline parallels, these offenses are interrelated (Finkelhor et al., 2021) and they need to be conceptualized and addressed in a more integrated way. In previous work (Finkelhor, Turner, & Coburn, 2022), we helped to advance this goal by developing the definition and operationalization of the more integrated concept of "online child sexual abuse" (OCSA), a more comprehensive concept that incorporates nonconsensual image taking or sharing, forced image recruitment, threatened sharing of sexual pictures, unwanted sexual talk, questions, or sexual act requests by adults, and commercial sexual exploitation, involving sex talk, images, or other sexual activity. In a recent study (Finkelhor, Turner, & Colburn, 2022), we found the lifetime prevalence of OCSA in a national sample of young adults was over 16%. The experiences were varied, occurring across the age spectrum of youth and adolescence, and involving both peer and adult perpetrators who were intimate partners, offline friends, and acquaintances, as well as unknown persons met online (Finkelhor, Turner, & Colburn, 2022).

Like other forms of childhood sexual victimization (Collin-Vézina et al., 2013; Hailes et al., 2019; Maniglio, 2010; Noll, 2021) OCSA has a variety of negative psychological outcomes, including PTSD, suicidality, depression, anxiety, and general psychopathology (Bates, 2016; Eaton et al., 2017; Gámez-Guadix et al., 2022; Gassó et al., 2021; Henry et al., 2017; Nilsson et al., 2019). Given the substantial and growing prevalence of this problem, its prevention remains a crucial objective. For prevention strategies to be developed, research that identifies risk factors for online sexual abuse is needed. Better

prediction of online sexual abuse would allow clinicians, educators, and child advocates to identify which youth are at greatest risk and to better understand what types of strategies are needed to reduce risk. Based on existing studies and related victimization literature, the following factors represent potential candidates for increasing risk online sexual abuse among juveniles.

### *Risk Factors for Online Sexual Abuse*

*Demographic factors.* Just as female youth are at greater risk of offline or “traditional” sexual abuse (Assink et al., 2019), some studies find that girls are also more likely to experience online sexual solicitation (De Santisteban & Gámez-Guadix, 2018; Mitchell et al., 2014; Montiel et al., 2016; Sklenarova et al., 2018). In contrast, a few recent studies found no gender difference in image-based sexual abuse victimization (Pedersen et al., 2022; Scott et al., 2022). Sexual minority adolescents have also been found to more often be victims of sexual victimization in general (Pedersen et al., 2022; Toomey & Russell, 2016), which may include online sexual abuse (Sklenarova et al., 2018; Van Ouytsel et al., 2019).

Parental socioeconomic status (SES) may also influence risk for online sexual abuse. On the one hand, a recent study found that image-based sexual abuse victims (without in-person victimization) were more often from high SES backgrounds (Pedersen et al., 2022), perhaps because of more frequent internet usage among higher SES adolescents (Sklenarova et al., 2018). On the other hand, low parental SES is a marker of disadvantage, that may be associated with reduced social and economic resources, lower parental involvement and monitoring, greater family adversity, less effective parenting practices, and lower academic achievement (Bøe et al., 2014; Kalil & Ryan, 2020; Kotchick & Forehand, 2002; Roubinov & Boyce, 2017) that, in turn, could increase risk for online sexual abuse. This is consistent with research finding that low income and low maternal education is associated with increased risk of sexual assault between the ages of 13 and 17 (Butler, 2013).

Finally, we might expect there to be cohort differences in the risk of having experienced online sexual abuse. As the use of technology, like smart phones, has increased and the number of online platforms available has proliferated over the past 10 years, we might expect that risk of online sexual abuse has also increased for more recent cohorts. On the other hand, awareness of the potential dangers of the internet and associated internet safety prevention programs directed at youth likely have also increased over time, reducing or offsetting risk associated with greater technology access and use.

*Victimization and adversity.* Studies have demonstrated that online victimization tends not to occur in isolation from victimizations that occur offline (Mitchell, Finkelhor, & Becker-Blease, 2007). In fact, there is some suggestion that certain offline victimizations can place youth at risk for subsequent online victimization. For example, one study found that, controlling for demographic and Internet use characteristics, youth who were victims of aggressive sexual solicitation were almost 2.5 times as likely to have also experienced physical or sexual abuse (Mitchell, Finkelhor, & Wolak, 2007; Wells & Mitchell, 2008). In a longitudinal study, Turner et al. (2020) found that experiencing emotional bullying at baseline was associated with increased risk of experiencing Internet harassment at follow-up. A recent study also found that victims of nonconsensual or “abusive” texting more often had a history of neglect, emotional abuse, or sexual abuse than non-victims (Barroso et al., 2021). In addition to linkages between offline victimization and risk of online victimization, high levels of non-victimization adversity at a young age may also create risk for later victimization. Although child sexual abuse has been found to be a particularly potent predictor of later sexual revictimization (Ports et al., 2016), a more general process of stress proliferation suggests that cumulative early adversity of any kind can increase the risk for later adversity (Nurius et al., 2015). Thus, we may find that early non-victimization stress exposure also increases risk of online sexual abuse.

*Early puberty.* Early puberty has been linked to adolescent risk-taking behavior, including alcohol and drug use, sex initiation, and unprotected sex before the age of 16 (Downing & Bellis, 2009). Girls who experience early pubertal development have also been found to be at increased risk for sexual harassment by peers (Goldstein et al., 2007; Skoog & Bayram Özdemir, 2016), as well as dating abuse and intimate partner violence in adolescence (Chen et al., 2017; Foster et al., 2004). Given these findings, early puberty may also represent a risk factor for online sexual abuse.

*Risky online behavior.* Research has identified some behaviors that may increase adolescents’ risk for online victimization, including online sexual abuse. For example, Ybarra et al. (2007) found that interacting online with unknown people, seeking pornography online, and sending rude and insulting messages to others increased the risk of sexual solicitation. Consistent with these findings, Williams et al. (2013) found that meeting strangers online was associated with adolescent experiences of sexual grooming and a recent multinational study found that online harassment victimization was more often experienced by adolescents who engaged in aggressive behavior online (Kaakinen et al., 2021). The use of online dating sites, whereby

individuals meet “strangers” online before meeting them in person, has also been associated with higher rates of online sexual harassment and victimization (Caridade et al., 2019; Castro & Barrada, 2020; Kaakinen et al., 2021). Finally, research has demonstrated that adolescents often experiment with different “identities” on the internet (pretending to have different traits or behaviors) to see how others might react, to overcome shyness, or to facilitate relationships (Valkenburg et al., 2005). Although “identity reconstruction” may sometimes be a harmless process of self-discovery for young people, it may also signal interpersonal vulnerabilities that can place youth at risk for online sexual abuse.

### *Online and Offline Sexual Abuse*

We know from research on bullying and other kinds of youth victimization that online victimization does not typically occur in isolation but is often accompanied by offline victimization (Mitchell, Finkelhor, & Becker-Blease, 2007). As discussed above, in the case of online sexual abuse, there is reason to believe that earlier offline sexual abuse (and other forms of offline victimization and adversity) may represent risk factors for subsequent online sexual abuse. However, it is also important to know if risk factors for offline and online child sexual abuse (CSA) differ. To the extent that they share risk factors, evidence-based prevention programs directed at child sexual abuse and assault should go a long way in addressing online abuse. However, to the extent that risk factors diverge for on- and offline sexual abuse, additional strategies are needed.

### *Objectives of the Study*

The research on risk factors for OCSA remains scarce. Indeed, a substantial portion of the literature cited above was conducted outside of the United States. More research specific to this problem and to the U.S. context is needed. Using a nationally representative sample of young adults, the current study seeks to:

- 1) Identify potential demographic differences in exposure to online sexual abuse before the age of 18.
- 2) Examine the independent effects of several potential risk factors on online sexual abuse before the age of 18. These include (a) demographic factors, (b) victimization before the age of 13 (offline sexual abuse, maltreatment, and bullying/harassment), (c) non-victimization

adversity before the age of 13, (d) early age of puberty, and (e) risky online behavior.

- 3) Determine whether the above risk factors differ for youth who experienced only offline sexual abuse before the age of 18, only online sexual abuse before the age of 18, or both forms of abuse before the age of 18.

## **Methods**

The study was conducted using the nationally representative Ipsos online KnowledgePanel (KP). KP is a sample that Ipsos has recruited by Address Based Sampling, mail addresses gleaned from national universal address data bases. From the mail recruitment, participants have agreed to participate in regular online surveys. Digital devices were provided to any recruited sample members who lacked devices to participate. The KP panelists who were 18- to 28-year old (13,884) were solicited for the current survey. In total, 2,639 panel members participated in the survey by the end of data collection, with an overall participation rate of participation rate of 20%.

For those with multiple victimizations, the survey gathered follow up information on two episodes. Episodes experienced before the age of 18 were prioritized, as well as victimization types that were less common in the sample overall (as determined by a survey pretest). The final sample was slightly older and more female compared to the U.S. population of 18- to 28-year olds. Weights were developed for the sample that adjust for nonresponse and the prioritization of lower base-rate incidents among those with multiple exposures.

The sample used in this study represents the diversity of a nationally representative sample with respect to race and ethnicity, gender, socioeconomic status, and sexual orientation. Although some groups of people are not well represented because of small numbers in the sample, such as Asian Americans and Native Americans, the sample was designed to be largely generalizable to individuals ages 18 to 28 living in the United States. The weighted sample was 48.5% (95% confidence interval [CI] [45.6, 51.4]) male, 49.8% [46.9, 52.6] female, and 1.8% [1.2, 2.7] other gender, 54.0% [51.0, 56.8] non-Hispanic White, 12.6% [10.6, 14.9] non-Hispanic Black, 23.7% [21.3, 26.2] Hispanic, 4.8% [3.7, 6.2] non-Hispanic other, and 5.0% [3.8, 6.4] 2 or more races. Approximately 7.2% [5.6, 9.2] of respondents had less than a high school education, while 31.5% [28.6, 34.6] had a high school diploma, 37.3% [34.6, 40.1] had some college education, and 24.0% [22.2, 25.9] had earned a bachelor's degree or higher. Most respondents had never been married (85.9% [94.1, 87.6]) and had either part or full-time employment (66.7% [63.8, 69.4]).

## Measures

### *Online Child Sexual Abuse*

A comprehensive measure of OCSA was constructed using 11 screening items: (1) nonconsensual image sharing (“Has someone ever shared with other people a sexual picture or video of you without your permission?”); (2) nonconsensual image taking (“Has someone ever taken or made a sexual picture or video of you without your permission?”); (3) forced imaged recruitment (“Has someone ever threatened, tried to force you, or strongly pressured you to provide sexual pictures or videos online or through a cell phone?”); (4) threatened sharing (“Has someone ever threatened to share a sexual picture or video of you to get you to do something—like take or send other sexual pictures of yourself, have a sexual relationship with them, pay them money, or something else?”); (5) unwanted sexual talk (“Before the age of 18, did anyone ever use the Internet or a cell phone to try to get you to talk about sex when you did not want to?”); (6) unwanted sexual questions (“Before the age of 18, did anyone ever use the Internet or a cell phone to ask you for information about yourself when you did not want to answer those questions? This means very personal questions, like what your body looks like or sexual things you have done?”); (7) unwanted sexual acts (“Before the age of 18, did anyone ever use the Internet or a cell phone to ask you to *do* something sexual that you did not want to?”); (8) older partner consensual sexual interaction (“Before the age of 18, did you have intimate sexual conversations or share sexual pictures or videos (online or through a cell phone), even if you wanted to, with a person who was five or more years older than you?”); and three screeners pertaining to commercial sexual activity including: (9) commercial sex talk (“Sexual talk”), (10) commercial sex images (“Making, sending, or posting sexual pictures or videos of yourself”), or (11) other commercial sex acts (“Any other sexual activity”) which are each asked through the following survey question: “Have you done any of the following things over the Internet or a cell phone (including texting) in exchange for money, drugs, or other valuable items?”. The unwanted solicitation items (5, 6, 7) were counted as OCSA only when the perpetrator was a known or suspected adult. Individuals were considered to have experienced OCSA if they experienced any of these 11 screener items under the age of 18 (16.6%; 95% CI [14.7, 18.7]). For purposes of contrasting with offline sexual abuse victims, participants were designated online-only abuse if they endorsed any of these screener items and had no offline sexual abuse (9.1%; 95% CI [7.7, 10.8]).

### *Offline Sexual Victimization*

Offline child sexual victimization was measured using 2 items available in the survey: “At any time in your life before age 18, did a grown-up you knew touch your private parts when they shouldn’t have or make you touch their private parts? Or did a grown-up you knew force you to have sex?” and “At any time in your life before age 18, did another child or teen make you do sexual things?” Individuals were coded as experiencing offline sexual abuse if they endorsed either of these questions, and offline-only if they did not also report any OCSA (6.0%; 95% CI [4.9, 7.3]). When offline sexual abuse was treated as a risk factor in the logistic regression, it was restricted to victimization before the age of 13 (8.5%; 95% CI [7.1, 10.1]). For analyses comparing risk factors for offline versus online sexual abuse exposure, any offline sexual abuse before the age of 18 was used.

### *Respondent/Family Demographic Characteristics*

Demographic information was obtained from survey items as well as panel data, including the respondent’s age cohort (30.1%; 95% CI [27.8, 32.4]) 16 years before 2012, 29.7% [27.2, 32.3] 16 years between 2012 and 2014, and 40.2% [37.2, 43.3] 16 years between 2015 and 2021), gender (male, 48.5% [45.6, 51.4], female 49.8% [46.9, 52.6], and other, 1.8% [1.2, 2.7]), sexual orientation (heterosexual, 78.1% [75.6, 80.4], and not heterosexual, 21.9% [19.7, 24.4]), and parent education attainment (less than high school, 5.2% [4.1, 6.6], or high school or more, 94.8% [93.4, 95.6]).

### *Non-Victimization Adversities*

The survey included 10 items measuring non-victimization adversity under the age of 13. These items included having a very bad accident or illness, someone close to you having a very bad accident or illness, family homelessness, parental unemployment, being removed from your family, parental incarceration, parental substance use, witnessing parents arguing all the time, someone close to you attempting suicide, and someone close to you away at war. These items were combined to measure overall non-victimization adversity and the top decile were coded as having high adversity (9.5%; 95% CI [8.0, 11.2]).

### *Bullying/Harassment*

Bullying and harassment comprised 3 items from the Juvenile Victimization Questionnaire (JVQ). The JVQ is an inventory of childhood victimization (Hamby et al., 2004) that has demonstrated good test-retest reliability and



construct validity (Finkelhor et al., 2005) in previous national surveys (Finkelhor et al., 2009). Bullying/harassment items included in this survey were verbal sexual harassment (“At any time in your life before age 18, did anyone hurt your feelings by saying or writing something sexual about your body?”), bullying (“At any time in your life before the age of 18, did any kids, even a brother or sister, pick on you repeatedly by chasing you or grabbing you or by making you do something you didn’t want to do?”), and emotional bullying (“At any time in your life, did you get really scared or feel really bad because kids were calling you names, saying mean things to you, or saying they didn’t want you around?”). A binary variable was created to capture those who experienced at least 1 of the 3 items and were under the age of 13 at the time of victimization (19.1%; 95% CI [17.2, 21.3]).

### *Maltreatment*

The survey utilized 3 items from the JVQ to measure child maltreatment including physical maltreatment (“Not including spanking on your bottom, at any point in your life before age 18 did a grown-up in your life hit, beat, kick, or physically hurt you in any way?”), emotional maltreatment (“At any time in your life before age 18, did you get scared or feel really bad because grown-ups in your life called you names, said mean things to you, or said they didn’t want you?”), and neglect (“When someone is neglected, it means that the grown-ups in their life didn’t take care of them the way they should. They might not get enough food, take them to the doctor when they are sick, or make sure they have a safe place to stay. At any time in your life before age 18, were you neglected?”). Respondents who endorsed at least 1 of these 3 items, and reported being under age 13 at first victimization, were coded as having experienced child maltreatment (15.8%; 95% CI [14.0, 17.8]).

### *Early Puberty*

Experiencing early puberty was captured from 1 item in the survey, asking respondents if they went through puberty before, at the same time, or after other kids their age. A binary measure was created to capture those who reported going through puberty before other kids their age (8.9%; 95% CI [7.5, 10.5]).

### *Risky Online Behavior*

Risky online behavior was measured using 4 items available in the survey designed to assess respondent’s online behavior before the age of 18. These items included intentionally visiting an X-rated website, meeting face-to-face

with someone they first met on the internet, pretending on the internet to be a different kind of person than they really were, and sending insulting messages to someone on the internet. These questions were answered on a scale from 1 (“Never”) to 5 (“Most everyday”). The 4 items were combined to measure cumulative online risk, and those scoring in the top decile were considered high risk (9.8%; 95% CI [8.3, 11.5]). The Cronbach’s  $\alpha$  coefficient for this 4-item scale is 0.69.

## **Analysis**

Data were analyzed using Stata/SE version 17.0. Survey weights were applied during all analyses. We first conducted Pearson’s  $\chi^2$  tests to compare rates of OCSA across demographic categories. We then conducted a weighted logistic regression to examine how several risk factors are associated with the odds of OCSA while controlling for respondent demographics. To test for any mediating effect of risky online behavior, we conducted a Sobel-Goodman test for mediation on each risk factor. Last, we conducted a weighted multinomial logistic regression to examine whether certain risk factors more strongly predict exposure to online or offline sexual abuse (or both types of exposure) before the age of 18.

## **Results**

Table 1 presents the percentage of young adults reporting exposure to OCSA across demographic and other potential risk factors. Although there were no cohort differences in exposure to OCSA, clear gender differences emerged. A substantially greater percentage of both cisgender female and nonbinary/transgender individuals (23.9% and 20.3%, respectively) reported OCSA exposure than did cisgender males (8.9%). Significant differences were also evident for sexual orientation, with nonheterosexuals having more than twice the rate as heterosexual individuals (28.9 vs. 14.2%). OCSA exposure was also significantly different across parent education, with children of the least educated respondents (less than a high school) having particularly high rates (47.3%) and those with college educated parents having the lowest rates (17.8%). There were no significant differences across race/ethnicity, region of the United States, or urbanicity.

Significant differences in OCSA also emerged across a variety of other factors. Specifically, a substantially greater percentage of individuals who had experienced victimization and high levels of non-victimization adversity before the age of 13 reported online sexual abuse. A particularly high percentage who experienced early in-person sexual abuse (54.2%) also reported

**Table 1.** Online Child Sexual Abuse Rate by Risk Factors, With  $\chi^2$  ( $n=2,639$ ).

Risk Factors	Weighted % of Category Experienced Online Child Sexual Abuse
<b>Respondent demographics</b>	
<b>Cohort</b>	
Age 16 during 2011 or earlier ( $n=1,268$ )	17.3
Age 16 between 2012 and 2014 ( $n=823$ )	19.3
Age 16 after 2015 ( $n=548$ )	14.1
<b>Gender</b>	
Male ( $n=820$ )	8.9***
Female ( $n=1,762$ )	23.9***
Other ( $n=57$ )	20.3***
<b>Sexual orientation</b>	
Heterosexual ( $n=1,894$ )	14.2***
Nonheterosexual ( $n=617$ )	28.9***
<b>Parent education</b>	
Less than high school ( $n=130$ )	47.3***
High school ( $n=299$ )	26.6***
Some college ( $n=288$ )	23.2***
College degree ( $n=783$ )	17.8***
Graduate degree ( $n=416$ )	22.6***
<b>Race</b>	
Non-Hispanic White ( $n=1,638$ )	15.3
Non-Hispanic Black ( $n=230$ )	19.8
Non-Hispanic Other ( $n=120$ )	10.3
Hispanic ( $n=537$ )	17.8
2+ Races ( $n=114$ )	23.0
<b>Region</b>	
Northeast ( $n=446$ )	11.8
Midwest ( $n=673$ )	18.2
South ( $n=928$ )	15.7
West ( $n=592$ )	19.7
<b>Metro</b>	
Metro ( $n=2,334$ )	16.3
Nonmetro ( $n=305$ )	18.7
<b>Adversities</b>	
<b>Non-victimization adversity (age 12 and under)</b>	
High ( $\geq 4$ ) ( $n=274$ )	44.6***
Not high ( $n=2,365$ )	13.6***

(continued)

**Table 1. (continued)**

Risk Factors	Weighted % of Category Experienced Online Child Sexual Abuse
Sexual abuse (age 12 and under)	
Any ( <i>n</i> = 266)	54.2***
None ( <i>n</i> = 2,373)	13.1***
Bullying (age 12 and under)	
Any ( <i>n</i> = 650)	35.1***
None ( <i>n</i> = 1,989)	12.2***
Maltreatment (age 12 and under)	
Any ( <i>n</i> = 514)	40.3***
None ( <i>n</i> = 2,125)	12.1***
Online behavior	
Risky online behavior	
High risk ( <i>n</i> = 289)	46.6***
Not high risk ( <i>n</i> = 2,350)	13.3***
Sexual risk	
Puberty	
Before other kids your age ( <i>n</i> = 289)	34.0***
Same, after, or don't know ( <i>n</i> = 2,350)	14.9***

\*\*\**p* < .001.

subsequent OCSA, although rates of OCSA were also elevated among those who experienced child maltreatment (40.3%) and bullying/harassment (35.1%). Those who experienced four or more non-victimization adversities before the age of 13 also had high rates of OCSA (44.6%). Those who engaged in high levels of risky online behavior before the age of 18 and individuals who reported that they entered puberty at a young age relative to other kids also had elevated rates of OCSA (46.6 and 34.0%, respectively).

Because many of the risk factors that emerged in the analyses above may co-occur, Table 2 examines their independent effects on exposure to OCSA. In Model 1, with all other demographic factors controlled, cisgender females had 3 times the odds of exposure to OCSA relative to cisgender males, nonheterosexuals had over 2 times the odds of exposure relative to heterosexuals and individuals whose parents had less than a high school education were 4 times more likely to be exposed than individuals with a high school education or greater.

In Model 2, when adversities occurring prior to the age of 13 were added to the equation, all showed independent associations, while the demographic

**Table 2.** Logistic Regression Analyses: Online Child Sexual Abuse on Demographics and Risk Factors (*n* = 2,510).

	Model 1	Model 2	Model 3	Model 4
	Odds Ratios			
Cohort (ref = age 16 before 2011)				
Age 16 between 2012 and -2014	1.2	1.2	1.2	1.2
Age 16 after 2015	0.7	0.8	0.8	0.8
Gender (ref = male)				
Female	3.0***	2.7***	2.5***	3.0***
Other	1.6	1.0	0.9	0.9
Sexual orientation (ref = heterosexual)				
Nonheterosexual	2.1***	1.6**	1.6**	1.4*
Parent education (ref = more than high school)				
Parent didn't finish high school	4.0***	3.1**	3.2**	3.3**
Non-victimization adversities (ref = not high)				
High	—	2.1**	2.0**	2.0**
Sexual abuse (ref = none)				
Any	—	2.7***	2.8***	2.4***
Bullying (ref = none)				
Any	—	1.5*	1.5*	1.3
Maltreatment (ref = none)				
Any	—	1.7*	1.7*	1.5
Puberty (ref = not early)				
Before other kids your age	—	—	1.8**	1.6
Risky online behavior (ref = not high risk)				
High risk	—	—	—	4.2***

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

risk factors remained significant. Those who experienced early sexual abuse were 2.7 times more likely to experience subsequent online sexual abuse than those without sexual abuse exposure. Individuals who experienced early maltreatment and early bullying/harassment were 70 and 50% more likely (respectively) to experience online sexual abuse than individuals without these victimization experiences. High levels of early non-victimization adversity also substantially increased the likelihood of OCSA exposure, with individual having four or more adverse experiences before the age of 13 over twice as likely to report OCSA. When early puberty was added to the equation (Model 3), it also significantly predicted OCSA. Those who reported entering puberty at an early age relative to their peers were 80% more likely to experience OCSA with the other predictors remaining largely unchanged.

Finally, risky online behavior was added to the equation in Model 4. Those who engaged in high levels of online risky behavior before the age of 18,

**Table 3.** Direct and Indirect Effects of Risk Factors on Online Child Sexual Mediated by Online Risky Behavior.

	Non-Victimization				
	Adversities	Sexual Abuse	Bullying	Maltreatment	Early Puberty
	Coefficient (SE)				
Total effect	0.12** (0.04)	0.22*** (0.05)	0.06* (0.03)	0.09* (0.04)	0.09* (0.04)
Direct effect	0.11** (0.04)	0.19*** (0.05)	0.05 (0.03)	0.07 (0.04)	0.07 (0.04)
Indirect effect	0.01 (0.01)	0.03* (0.01)	0.02* (0.01)	0.02* (0.01)	0.02* (0.01)
Proportion of total effect that is mediated	0.07	0.14	0.27	0.24	0.21

Note. SE = standard error.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

were over four times more likely to experience OCSA. When this factor was accounted for, preadolescent maltreatment, preadolescent bullying/harassment, and early puberty were no longer significant, while the demographic predictors, non-victimization adversity and preadolescent sexual abuse remained significant risk factors.

Given that risky online behavior appears to be an important proximal predictor of online sexual abuse that may, in part, account for associations between earlier adversity experiences and OCSA, Table 3 presents analyses that formally test the mediating effects of risky online behavior. Consistent with observations in Table 2, the indirect effects of sexual abuse, bullying/harassment, maltreatment, and early puberty through online risky behavior are statistically significant, accounting for 14, 27, 24, and 21% of the total effects of these factors, respectively. Moreover, when the mediator is accounted for, the direct effects of preadolescent maltreatment, preadolescent bullying/harassment, and early puberty are no longer significant. Sexual abuse before the age of 13 also has significant direct effects on OCSA after accounting for the mediating influence of risking online behavior. Online risking behavior does not explain any of the total effect of non-victimization adversity on OCSA.

Table 4 presents multinomial regressions that assess potential differences in risk factors associated with exposure to only online sexual abuse (OCSA) before the age of 18, only offline sexual abuse before the age of 18, and exposure to both types. The overall pattern shows a larger number of significant predictors of (and/or stronger associations with) offline child sexual abuse only or exposure to both on- and offline, than is evident for online only. Although the relative risk ratios (RRR) presented in Table 4

**Table 4.** Multinomial Logistic Regression: Types of Childhood Sexual Abuse on Demographics and Risk Factors (n = 2,510).

	None (n = 1,920)			Online CSA Only (n = 274)			Offline CSA Only (n = 210)			Both CSA Types (n = 235)		
	RRR	SE	95% CI	RRR	SE	95% CI	RRR	SE	95% CI	RRR	SE	95% CI
Cohort (ref = 16 before 2012)												
16 between 2012 and 2014	1.1	0.2	[0.7, 1.6]	0.9	0.3	[0.5, 1.5]	1.6	0.4	[0.9, 2.6]			
16 between 2015 and 2021	0.8	0.2	[0.5, 1.2]	0.9	0.3	[0.5, 1.6]	1.5	0.4	[0.8, 2.6]			
Gender (ref = male)												
Female	3.0***	0.7	[1.9, 4.6]	3.5***	1.0	[2.0, 6.1]	6.6***	2.2	[3.4, 12.8]			
Other	0.9	0.5	[0.3, 2.7]	4.1*	2.5	[1.2, 13.8]	1.7	1.1	[0.5, 5.9]			
Sexual orientation (ref = heterosexual)												
Nonheterosexual	1.2	0.3	[0.7, 1.9]	1.0	0.3	[0.6, 1.7]	1.9**	0.5	[1.2, 3.1]			
Parent education (ref = high school or more)												
Didn't finish high school	4.3***	1.6	[2.1, 9.1]	2.6*	1.0	[1.2, 5.5]	4.2**	1.9	[1.7, 10.2]			
Non-victimization adversities (ref = not high)												
High	1.9*	0.6	[1.0, 3.6]	3.7***	1.2	[1.9, 7.0]	6.0***	2.0	[3.2, 11.4]			
Bullying (ref = none)												
Any	1.4	0.4	[0.9, 2.3]	2.4**	0.8	[1.3, 4.5]	2.2**	0.6	[1.3, 3.7]			
Maltreatment (ref = none)												
Any	1.5	0.4	[0.8, 2.6]	3.6***	1.2	[1.9, 7.1]	3.8***	1.1	[2.1, 6.7]			
Early puberty (ref = not early)												
Before peers	1.2	0.3	[0.7, 2.1]	1.1	0.3	[0.6, 2.0]	2.1*	0.7	[1.1, 3.9]			
Risky online behavior (ref = not high)												
High	4.0***	1.3	[2.1, 7.7]	2.4*	0.9	[1.2, 4.8]	7.7***	2.8	[3.8, 15.8]			

Note. RRR = relative risk ratios; CI = confidence interval; SE = standard error; \*p < .05. \*\*p < .01. \*\*\*p < .001.

compare each exposure condition with no exposure to any type of CSA, we will note additional analyses (not shown) that tested for significant differences across specific exposure categories.

With respect to gender, the relative risk of exposure to both online and offline CSA (relative to no CSA) was 6.6 times greater for cisgender females than for cisgender males, while the relative risks of offline only and online only were 3.5 and 3.0, respectively. The risk of exposure to both types of CSA, relative to offline only, is also significantly greater for females than for males. The risk of offline only CSA versus no CSA was over 4 times greater for nonbinary/transgender individuals than cisgender males and the risk of offline only CSA for this group was also significantly greater relative to online-only CSA. Nonheterosexuals had almost twice the risk as heterosexual individuals of experiencing both off and online CSA, relative to those with no CSA, and this risk was also significantly greater than the risk of offline-only CSA.

High levels of non-victimization adversity before age 13 significantly increased the relative risk of all types of CSA exposure (relative to no exposure), with the strongest effects on the relative risk of experiencing both forms of exposure (RRR=6.0). However, the effect of high non-victimization adversity was also significantly greater for offline-only and exposure to both types, than for online only. A similar pattern emerged for the victimization predictors. Preadolescent bullying and harassment was associated with 3.7 times the risk of offline-only CSA and 6 times the risk of exposure to both offline and online CSA, relative to individuals with no CSA exposure. Although bully/harassment also significantly increased risk of online CSA (RRR=1.9), the magnitude of risk for online-only CSA was significantly lower than for the other two CSA exposure categories. Preadolescent maltreatment increased risk for offline-only CSA and exposure to both types of CSA but was unrelated to online-only CSA. Early puberty increased risk for exposure to both forms of CSA but did not independently influence risk for offline-only or online-only CSA.

There were only two risk factors that appear particularly relevant for online CSA. Having parents with less than a high school education and risky online behavior were associated with greater increased risk of online sexual abuse only (RR=4.3 and 4.0, respectively) or exposure to both online and offline abuse (RR=4.2 and 7.7, respectively), relative to those with no CSA exposure, and these associations were also significantly greater than for offline only sexual abuse.



## Discussion

The current study examined risk factors for OCSA in a national sample of young adults ages 18 to 28. Being cisgender female, nonheterosexual, and having parents with less than a high school education emerged as important demographic predictors of OCSA in both bivariate and multivariate analyses. These findings are largely consistent with research on risk factors for sexual abuse, sexual harassment, and sexual assault, in general (Assink et al., 2019; Butler, 2013; López & Yeater, 2021). However, these demographic findings are contrary to some research specific to image-based sexual abuse that found no gender or sexual orientation differences in prevalence and higher rates among youth from higher SES backgrounds (Pedersen et al., 2022). These differences may be due to the more inclusive measure of OCSA used in the current study that encompasses certain non-image-based victimizations, such as some forms of sexual solicitations. It may also reflect differences in the samples used. The current sample comprises 18- to 28-year olds reporting on experiences before the age of 18 and is a national U.S. online panel sample, while the previously cited research is based on a European school-based sample of adolescents. Nevertheless, our findings strongly suggest that characteristics of online sexual abuse victims are similar to their offline counterparts (Assink et al., 2019). Also consistent with the current findings, research has found that lower parent SES is associated with excessive use (Urbanova et al., 2019), as well as use more frequent use specifically for entertainment and online communication (Camerini et al., 2018), relative to youth with higher SES parents.

Early offline sexual abuse appears to be a particularly powerful risk factor for online sexual abuse. Other sources of victimization also are important, but their associations are fully mediated by increasing risky online behavior. Risky online behavior may be among the most proximal factor that increases vulnerability to online sexual abuse and an important mediator of early victimization experiences. However, offline sexual abuse at a young age (12 or younger) appears to also have lasting effects on risk of online sexual abuse, independent of its association with risky online behavior. This direct effect may be due to the “traumagenic dynamics” of early CSA that damage sexual and global self-esteem and create powerlessness (Finkelhor, 1987; Kelley & Gidycz, 2015; Lemieux & Byers, 2008) leaving victims more vulnerable to future sexual victimization (Krahé & Berger, 2017). Mental health and self-concept vulnerabilities arising from early CSA may have broad implication for all types of sexual revictimization, including online sexual abuse. Interestingly, general adversity exposure, early stressful life events and conditions that did not involve victimization, also increased online sexual abuse risk independent of other victimizations. Moreover, online risky behavior did not significantly

mediate the relationship. Although the mechanisms by which early non-victimization adversity affects online sexual abuse are unknown, it may represent a marker of general vulnerability imposed by toxic stressors that damage self-protective capacities and health-related behaviors (Shonkoff et al., 2012).

Analyses that compared the strength of risk factors for online versus offline sexual abuse suggest guarding against considering online sexual abuse in a vacuum. As has been shown in previous research, individuals exposed to one form of victimization are often exposed to other types (Mitchell et al., 2011; Turner et al., 2010) and online victimization often co-occurs with offline victimization of the same type (Baumgartner et al., 2012; Zweig et al., 2013). Taken together, our findings suggest that most predictors of online sexual abuse are also (and even stronger) predictors of offline sexual abuse and/or the combination of offline and online sexual abuse. This suggests that reducing exposure to child maltreatment (physical, emotional, and neglect), peer bullying and harassment, and high levels of general adversity in childhood represents a core component for the prevention of sexual abuse in general. It also suggests that prevention programs should address both on- and offline sexual abuse together rather than treat them as separate phenomenon requiring separate programmatic efforts. Girls, sexual minorities, and youth in low SES contexts represent groups at particularly high risk and should be important target groups for such efforts. Although on- and offline sexual abuse share most risk factors, the unique significant effects of risky online behavior for online sexual abuse suggests that online risk reduction education this should also be added to sexual abuse prevention efforts.

### *Limitations*

This study has a number of strengths, including a comprehensive assessment of OCSA utilizing multiple questions, detailed follow-up information, and a nationally representative sample. But it has some notable limitations as well. The episodes being analyzed in this study were retrospective accounts, some more than 10 years old. In the rapidly changing digital world, they may not reflect current reality for young people. Moreover, respondents may have forgotten or misremembered details of events that occurred several years ago. Although we attempted to establish temporal ordering of some risk factors for OCSA, such as adversity and victimization, by only counting events that occurred prior to age 13, the causal order of variables remains somewhat ambiguous and should be interpreted with caution. Finally, like most contemporary surveys, the overall participation rate was low. However, the probability-based sample, efforts to reduce sample bias, and weighting strategies increase our confidence in the accuracy of our results.

## Conclusions

As technology has become increasingly integrated into the everyday lives of young people and a large portion of youth social interactions have moved online, so too have the opportunities for child sexual abuse. Research addressing this issue has been fragmented, the use of national U.S. samples has been scarce, and information on risk factors very limited. The current study helps to fill these gaps, demonstrating the importance of targeting vulnerable groups of youth, including sexual minorities, females, and youth from low SES households and highlights the importance of early adversity and offline victimization as crucial risk factors. Findings also suggest that prevention programs directed at reducing risk of sexual abuse in general are likely to be effective against online sexual abuse, provided they also incorporate efforts to educate youth on the need to avoid risky online behaviors.

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**David Finkelhor** is Director of Crimes against Children Research Center, and Professor of Sociology at the University of New Hampshire. He has been studying the problems of child victimization, child maltreatment and family violence since 1977. He is well known for his conceptual and empirical work on the problem of child sexual abuse. He has also written about child homicide, missing and abducted children, and Internet crimes against children.

**Deirdre Colburn** is a PhD Candidate in Sociology at the University of New Hampshire specializing in Health and Illness. Her research interests include social determinants of health, mental health, health care utilization, and health policy. Her current research focuses on demographic trends and policy effects surrounding telehealth utilization during the Covid-19 pandemic.