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The prevalence of child sexual abuse with online sexual abuse added

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ABSTRACT

Background and objective: Research efforts are measuring various forms of online sexual abuse. There is a need to incorporate such measures of online sexual abuse into the calculation of overall prevalence rates for child sexual abuse.

Participants: A sample of 2639 respondents aged 18-to-28 was recruited from a nationally representative online panel.

Methods: Using an online questionnaire, respondents were assessed via self-report about 9 types of online sexual abuse in childhood and were also assessed with 2 questions that have been used to assess generic child sexual abuse prevalence in previous surveys.

Results: The addition of the online abuse to the generic questions about child sexual abuse raised the overall prevalence rate from 13.5 % to 21.7 %. The rate for females increased from 19.8 % to 31.6 % and for males from 6.2 % to 10.8 %. The largest independent contribution to the overall combined increase were the offenses involving non-consensual image sharing and voluntary online sexual interactions with an impermissibly older adult partner. The inclusion of the online sexual abuse exposures also increased the ability to identify the survivors with the highest levels of current psychological distress.

Conclusion: The study highlights the importance of counting and including online sexual abuse in efforts to estimate the overall prevalence of childhood sexual abuse. The paper proposes 2 or 3 questions that could be added to sexual abuse questionnaires to assess these online offenses efficiently.

Technology has created new forms of sexual offenses against minors. These include offenses with labels like online grooming, image based sexual abuse, nonconsensual sexting, sextortion and online commercial sexual exploitation. Online grooming is when adults or older youth use online communication to draw minors into sexual relationships (Gómez-Guadix et al., 2018). Image based sexual abuse includes sexual images taken, made or shared without consent (Finkelhor et al., 2022). Non-consensual sexting also denotes the sharing of sexual images without consent (Krieger, 2017). Sextortion means trying to extort money or sexual images using the threat of disseminating obtained images (Wolak et al., 2018). Online commercial sexual exploitation refers to the exchange of sexual images or interactions online for money or other valuables (Walsh & Finkelhor, 2023 - Under review).

Numerous efforts have been made to estimate the prevalence of these new forms in population surveys (Gómez-Guadix et al., 2021; Gómez-Guadix et al., 2022; Madigan, Ly, et al., 2018; Pampati et al., 2020; Patchin & Hinduja, 2020). A meta-analysis of nine survey

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studies of unwanted online sexual solicitation yielded a mean prevalence of 11.5 % (Madigan, Villani, et al., 2018). A US teen survey found 5 % reported an episode of online sextortion (Patchin & Hinduja, 2020). A high school survey found 5–6 % reporting recent non-consensual sexting (Pampati et al., 2020). These findings suggest that the technology facilitated offenses occur at rates that match rates of various subcategories of conventional sexual abuse (Gewirtz-Meydan & Finkelhor, 2020). The victim accounts also reveal that online abuse contains similar elements of non-consensuality or illicit power imbalance that define conventional sexual abuse (Finkelhor et al., 2014). But the online experiences have not been integrated into those conventional rates, either as individual or aggregated forms.

Moreover, these online offenses are associated with similar risk factors as conventional sexual abuse, including parental maltreatment, bullying, other forms of victimization as well as female gender and sexual minority identity (Assink et al., 2019; Turner et al., 2023). An obvious implication is that the estimates of overall sexual abuse need to be adjusted to incorporate these new online forms. This adjustment will better reflect the true prevalence of exposure, especially if sexual abuse becomes increasingly technologically mediated over time.

Integrating the assessment of conventional and online sexual abuse may also help identify the most seriously affected victims. Other studies have shown that the experience of online sexual abuse is associated with psychological harms as strongly as and independent of conventional sexual abuse, controlling for confounders (Hamilton-Giachritsis et al., 2020; Jonsson et al., 2019; Mitchell et al., 2001). Multiple types of victimization, sometimes referred to as polyvictimization, have generally identified the most symptomatic survivors (Finkelhor et al., 2007a, 2007b). Several studies show an augmented impact among sexual abuse survivors specifically when technology complicates the abuse (Say et al., 2015; Ståhl & Dennhag, 2021). This suggests the importance of aggregated assessment of conventional and online abuse for understanding impact.

Because some sexual abuse now has both technological as well as conventional components (Jeglic & Winters, 2023) and because most types of sexual abuse create risk for other types (Assink et al., 2019), the amalgamation of the two types requires more than just adding independent population estimates together. The survivor population needs to be divided into those with one type or both. This paper delves into the question of whether and how overall prevalence estimates of sexual abuse are changed when various technological forms of sexual abuse are included in overall estimates. It also assesses whether the association between sexual abuse and current mental health of survivors is strengthened by including online abuse experiences.

1. Methods

This analysis is based on data from the Technology Facilitated Abuse study, using the US nationally representative KnowledgePanel (KP). KP is a large, multi-use sample that the survey firm Ipsos has recruited via address-based systematic sampling, from mail addresses obtained from national universal address data bases. After the mail recruitment, panel participants agreed to participate in regular online surveys. Digital devices were provided to any recruited sample members who lacked devices to participate. The KP panelists in the age range 18-to-28 years old ($n = 13,884$) were invited to participate in the current survey. This age range was chosen to capture the cohort with childhood in the digital era. In total, 2639 panel members participated in the survey by the end of data collection, with an overall participation rate of 20 %, an overall American Organization of Public Opinion Research (AAPOR) study completion rate of 20 %, and an AAPOR cumulative response rate of 1 %, taking into account the original panel recruitment statistics (Callegaro & DiSogra, 2008). Such response rates are not untypical of modern survey research, and the KP design has been shown to be on a par with what more traditional survey methods can currently provide (IPSOS, n.d.; MacInnis et al., 2018; Yeager et al., 2011). KP is also a high quality survey panel that checks responses for validity and has incentives that deter fabrication. Participants receive redeemable credit points within the KP system for completing surveys. The study was approved and overseen by the Human Subjects Review Board of the University of New Hampshire.

Of the 2639 completed surveys, 1215 respondents endorsed one or more of the screening questions about possible online victimizations. For those with multiple victimizations, the survey gathered follow up information on two, given time constraints, prioritizing episode types that were of less frequent occurrence in the sample overall, as determined by a survey pretest, in order to maximize information on less frequent types of abuse. Such oversampling is common in survey research (Cervantes & Kalton, 2007) and was compensated for in the weighting of sample cases. The sample was 48.5 % male, 49.8 female, 1.8 % other gender; 23.7 % Hispanic, 12.6 % non-Hispanic black, 53.9 % non-Hispanic white, 4.8 % other race, and 5 % more than one race. The final recruited sample was in line with the US population distribution of 18- to 28-year-olds, but slightly older and more female. Weights were developed for the sample to adjust for non-response (raking adjustment to the 2021 age-specific Census benchmarks for gender, education, race, household income, census region and metropolitan status) and the prioritization of lower base-rate incidents among those with multiple exposures. For more information on study details, consult Finkelhor et al. (2022).

2. Measures

2.1. Online child sexual abuse (OCSA)

Online child sexual abuse was defined by a positive response to any of nine screening items. There has not yet been a consensus on what exact elements are needed to qualify for OCSA, but the elements assessed in the study were a conservative selection of dynamics that have been operationalized and measured in previous surveys, reflecting the two sexual abuse elements of non-consensuality and/or impermissible age difference (Finkelhor et al., 2014). They include: 1) non-consensual image sharing (“Has someone ever shared with other people a sexual picture or video of you without your permission?”); 2) non-consensual 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 requests for 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 9) commercial sexual activity including commercial sex talk ("Sexual talk"), commercial sex images ("Making, sending, or posting sexual pictures or videos of yourself") or 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?" All qualifying episodes had to have occurred before age 18. The unwanted solicitation items (5, 6, 7) were counted as online child sexual abuse only when the perpetrator was a known or suspected adult, because unwanted solicitations from peers include a considerable portion of bids for intimacy in teen relationships that do not qualify as sexual abuse in offline contexts. Otherwise endorsement of the screen item counted as a victimization. The measure development information is available elsewhere (Finkelhor et al., 2022).

2.2. Generic sexual abuse

Generic child sexual victimization was measured using two items available in the survey adapted from the Juvenile Victimization Questionnaire (Finkelhor et al., 2005), versions of which have been asked in three past US sexual abuse prevalence studies (Gewirtz-Meydan & Finkelhor, 2020): "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?" Endorsement of either of these two items was scored as an experience of generic sexual abuse. We use the term generic rather than offline sexual abuse to apply to these two questions, because in principle some of the episodes elicited by these questions could have involved online components.

2.3. Symptoms

For purposes of assessing the association between abuse and mental health, current mental health symptoms were measured using 10 items from the Kessler Psychological Distress Scale ($K-10$) (Kessler et al., 2002). The 10 items were assessed on a scale from 1 "None of the time" to 5 "All of the time" and summed to create an overall mental health score. Scores ranged from 10 to 50 and had a weighted mean of 19.1 (95 % Confidence Interval (CI): [18.5, 19.7]). Cronbach's alpha for the K10 items was 0.945.

Table 1
Augmented prevalence rate adding online CSA to generic CSA abuse estimate.

Prevalence any generic CSA before 18 ($n = 445$)	Weighted % (SE)		
	Prevalence online CSA only	Combined generic CSA and online CSA	% Increase from generic CSA (13.5 %) to combined
Type of online CSA before 18	Weighted % (SE)		
Any online CSA ($n = 494$)	15.6 (1.0)	21.7 (1.1)	8.2
Non-consensual image sharing ($n = 131$)	4.9 (0.6)	15.7 (1.0)	2.2
Non-consensual image taking ($n = 62$)	2.0 (0.3)	14.0 (0.9)	0.5
Forced image recruitment with image provided ($n = 68$)	1.6 (0.3)	14.1 (0.9)	0.6
Threatened sharing ($n = 81$)	3.5 (0.6)	14.6 (1.0)	1.1
Unwanted sexual talk with adult perpetrator ($n = 54$)	1.2 (0.2)	14.3 (0.9)	0.8
Unwanted sexual questions with adult perpetrator ($n = 52$)	1.5 (0.3)	14.5 (0.9)	1.0
Unwanted sexual acts with adult perpetrator ($n = 39$)	1.1 (0.3)	14.0 (0.9)	0.5
Voluntary older partner for youth under 16 only ($n = 151$)	4.3 (0.5)	15.3 (1.0)	1.8
Commercial talk, images, or other ($n = 58$)	1.7 (0.3)	14.1 (0.9)	0.6

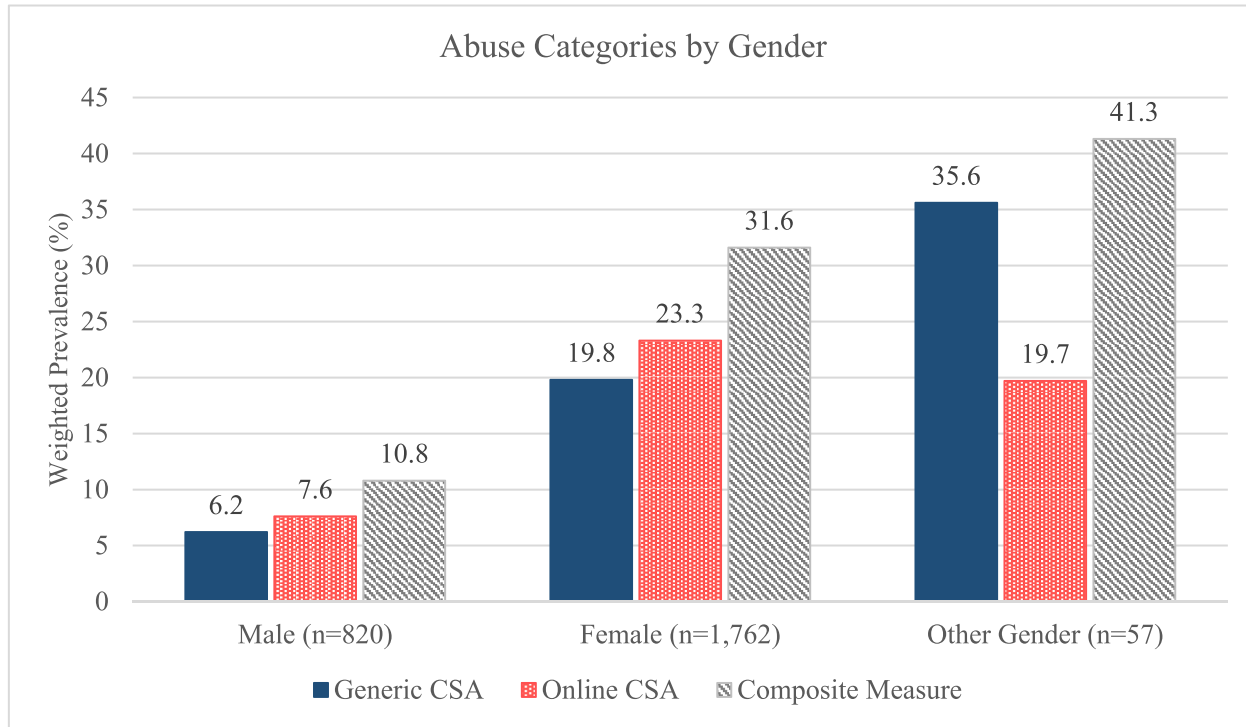


Fig. 1. Rates of childhood sexual abuse by gender.

2.4. Analysis

Data were analyzed in Stata/SE version 17.0. Survey weights were applied in all analyses. Weighted prevalences of each OCSA type, as well as combined generic CSA and OCSA measures, were estimated. A weighted linear regression was used to assess the effect of victim characteristics and abuse type on symptom score. In the regression, abuse type was coded as *offline only* if respondents reported episodes from the generic sexual abuse questions but did not endorse any of the online measures, as both *online CSA and offline* if they endorsed generic and online sexual abuse, and as *no abuse* if they did not report either. The categories were mutually exclusive.

3. Results

3.1. Prevalence

The generic CSA prevalence estimate from the survey based on two questions was 13.5 % total (95 % Confidence Interval (CI): (11.8, 15.4)). By gender it was 19.8 % (17.2, 22.7) for females, 6.2 % (4.3, 8.7) for males and 35.6 % (19.8, 55.2) for other gender (trans male, trans female, or gender fluid/nonconforming) (Table 1 and Fig. 1).

The 9 online sexual abuse questions alone had a composite prevalence of 15.6 % (13.8, 17.7), ranging from 4.9 % (3.8, 6.2) for nonconsensual image sharing to 1.1 % (0.7, 1.6) for unwanted sexual acts with an adult perpetrator. The rate for females was 23.3 (20.4, 26.5), for males 7.6 (5.6, 10.2) and for other gender 19.7 % (9.9, 35.2) There was considerable overlap between positive endorsement of online abuse and endorsement of the generic sexual abuse questions: 47.3 % (40.8, 54.0) of respondents with online abuse also endorsed one of the generic sexual abuse screening questions.

A composite estimate of CSA prevalence that included the nine online sexual abuse screeners added to the 2 generic CSA questions raised the total combined rate to 21.7 % (19.6, 24.0) and by gender: 31.6 % for females (28.4, 35.0), 10.8 % for males (8.4, 13.7) and 41.3 % for other gender (24.2, 60.8).

As shown in the fourth column in Table 1, the online offenses that made the largest independent contribution to the overall combined increase were the ones about non-consensual image sharing and about voluntary online sexual interactions with an adult older partner.

Table 2 shows by how much the total composite CSA estimate would increase with the addition of each of the OCSA screening items, entering them in the order of their size. It shows that the addition of the largest 6 OCSA items would lead to a total estimate that is almost as large (within 0.2 %) of the addition of the full 9 OCSA items.

3.2. Predicting mental health

In addition to their contribution to prevalence, we also looked at the contribution of adding online abuse to the prediction of current mental health status, using a measure of mental health symptoms. The addition of OCSA experiences to the generic CSA questions also added significantly to the prediction of current symptom scores. The coefficient for the combined generic and online group compared to the generic alone (last coefficient in Table 3) was higher for the addition of both the 9 OCSA items (Model 1) and almost as high for the addition of just 6 of the OCSA offenses (Model 2). This points to the concentration of symptomatic respondents in the combined group, and the benefit of measuring online abuse.

4. Discussion

This paper seeks to add to the discussion about how to incorporate online forms of child sexual abuse into calculations of a composite prevalence measure of sexual abuse, one that includes the new forms along with the conventionally assessed forms. When screeners assessing new online forms were added to a conventional set of two CSA questions, the overall prevalence rate rose from 13.5 % to 21.7 %, an increase of >50 %. In addition to the increase in prevalence, the addition of the online forms also increased the ability

Table 2

Cumulative increase in combined generic CSA and online CSA prevalence, adding online types in order from largest to smallest.

Type of online CSA before 18	Cumulative combined CSA + OCSA prevalence Weighted %	Cumulative % increase from generic CSA (13.5 %) to combined
Any... non-consensual image sharing	15.7	2.2
Plus any... voluntary older partner (before 16)	17.2	3.7
Plus any... threatened sharing	17.9	4.4
Plus any... unwanted sexual questions	18.8	5.3
Plus any... unwanted sexual talk	19.0	5.5
Plus any... forced image recruitment	19.5	6.0
Plus any... non-consensual image taking	19.6	6.1
Plus any... unwanted sexual acts	19.7	6.2
Plus any... commercial talk, images, or other	19.7	6.2

Table 3
Regression analysis of mental health impact of combined CSA vs generic CSA only ($n = 1636$).

	Model 1	Model 2
	9 online questions	6 online questions
	β [95 % CI]	β [95 % CI]
Gender (ref = male, $n = 820$)		
Female ($n = 1762$)	1.8 [0.5, 3.1]**	1.8 [0.5, 3.1]**
Other ($n = 57$)	4.8 [1.4, 8.1]**	4.7 [1.3, 8.0]**
Sexual orientation (ref = heterosexual, $n = 1911$)		
Non-heterosexual ($n = 599$)	3.4 [1.8, 5.0]***	3.5 [1.8, 5.1]***
Age	-0.1 [-0.4, 0.1]	-0.1 [-0.4, 0.1]
Parent education (ref = less than HS, $n = 130$)		
High school ($n = 299$)	-0.1 [-3.2, 2.9]	-0.1 [-3.1, 3.0]
Some college ($n = 288$)	0.6 [-2.3, 3.5]	0.7 [-2.3, 3.6]
College degree ($n = 783$)	0.6 [-2.3, 3.6]	0.8 [-2.3, 3.7]
Graduate degree ($n = 416$)	0.1 [-3.1, 3.2]	0.1 [-3.0, 3.3]
Abuse type (ref = generic CSA only, $n = 213$)		
No CSA ($n = 1932$)	-4.0 [-5.9, -2.2]***	-4.3 [-6.1, -2.6]***
Online CSA and generic ($n = 232$)	3.5 [0.9, 6.2]**	3.4 [0.7, 6.1]*
R^2	0.1682	0.1678

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

to predict the survivors with the most mental health symptoms.

This clearly suggests that there is utility in augmenting conventional CSA measures with online abuse measures. The conventional questions fail to identify a substantial portion of the online abuse victims. Moreover, the added online experiences improve significantly the prediction of possible harms.

Enlarging the estimated prevalence of child sexual abuse in this way does need to be accompanied with a caution. As with generic sexual abuse epidemiology, these large prevalence rates include a range of diverse episodes that do not all fit the stereotype of an adult offender having physical sexual contact with a child. Large proportions of the episodes, both online and conventional, involve other youth as perpetrators, some involve relatively brief inappropriate verbal interactions, and in the case of online offenses most do not involve physical contact (Finkelhor et al., 2022; Gewirtz-Meydan & Finkelhor, 2020). This diversity needs to be explained to audiences unfamiliar with the diversity of what can be counted as sexual abuse.

5. Limitations

This analysis presents a combined estimate for child sexual abuse that includes online forms of abuse, and it makes suggestions for future work on this type of effort. But some of its limitations need to be kept in mind. First, this study was not organized as a typical study of child sexual abuse prevalence, but rather had a large focus on the online components and fewer questions about generic sexual abuse, which could certainly have biased the findings in comparison to what will likely be the design of future prevalence studies. In particular, because of the language “known adult” used in the generic sexual abuse question, there may have been an underestimation of offline abuse by strangers. Many prevalence studies of sexual abuse also have more screening questions for generic sexual abuse which can enlarge estimates. However, the rate of generic sexual abuse in this population, 20 % for females and 6 % for males, is about the same as in other US national surveys (Stoltenborgh et al., 2011).

Second, the sample for this study was adults 18–28 and not youth themselves. While adult retrospective studies continue to be done on CSA, the better design for accurate contemporary estimates is generally considered to be samples that obtain reports from late adolescence and very early adulthood (Finkelhor et al., 2014; Nguyen et al., 2019). Third, this study used an online panel selected to be representative of the national population, but nonetheless with a low participation rate compared to many previous prevalence studies, although consistent with current standards of survey research (European Commission, 2022; MacInnis et al., 2018; Yeager et al., 2011). The biases of these kinds of panels with their participation rates have not been well established for topics like childhood victimization. Although respondents were offered incentives for participation in the way of points that could be turned into commodities and were checked for incoherent response patterns, no other assurance was available that responses were not fabricated.

6. Future work

Considerable additional work is needed to arrive at consensus about how best to obtain measures of sexual abuse that include both its online and offline dynamics. Recent prevalence studies have, for example, only measured conventional sexual abuse (Mathews et al., 2023) or, by contrast, only online offenses (ECPAT & UNICEF, 2022). Many of the previous online abuse measures included only a limited number of offenses that may have been poorly specified. For example they may have asked a question about online sexual solicitation or receipt of an unwanted sexual image, which may include peer romantic exchanges and which might not be deemed to be sexual abuse (Jones et al., 2012).

One urgent problem is in the realm of definitions: what kinds of online encounters should be deemed sexual abuse and equivalent to what has been counted as such in the pre-online environment. For example, in the pre-digital environment a child might be shown a graphic sexual image they did not wish to see, for example by a peer, in a video they were watching, or even by an adult but not in the context of an attempt to groom the child (Hornor, 2020). These would probably not have been classified as child sexual abuse. In the online environment, it is not clear whether the receipt of an unwanted graphic sexual image from a known or unknown person would be deemed an example of sexual abuse (Sabina et al., 2008; Wolak et al., 2007).

An additional complication is that the nature and dynamics of technology facilitated abuse have been changing in recent years with the addition of phenomena such as live-streaming, sextortion, the rise of commercial sexual sharing applications like OnlyFans (Titheradge & Croxford, 2021) and the arrival of virtual reality (VR) technology. It is a challenge to ensure that survey questions expand to cover such dynamics and that respondents are conversant with the situations being queried. This may require intensive monitoring of the digital environment, frequent updating of questionnaires and cognitive testing in order to stay current.

Another issue concerns how to compare sexual abuse epidemiology across time and across generations while adding online offenses. Using conventional generic measures over time may underestimate exposure and exaggerate declines if sexual abuse dynamics are migrating increasingly to an online environment (Mathews et al., 2023). On the other hand, if the new online dynamics are different in character, it may be misleading simply to compare combined rates in younger populations to non-combined rates in older populations. This points to the need to report prevalence trends and differences on multiple dimensions not just as aggregate numbers. These dimensions include relationship to perpetrator, physical contact or non-contact, and the involvement of images, among others.

A key methodological issue for future epidemiological work is to consolidate the large number of online screen questions that were part of the design of this study, which was primarily focused on online forms of sexual abuse. Most future surveys to estimate sexual abuse, particularly as a predictor rather than an outcome variable, will not have space to add nine additional screeners to capture a composite of online and offline abuse. Our analysis suggests that the addition of the first six forms of online abuse in Table 2 comes very close to the prevalence estimated by the use of all nine. Those six forms are: Non-Consensual Image Sharing, Voluntary Sexual Interactions with an Older Partner (before 16), Threatened Sharing, Unwanted Sexual Questions, Unwanted Sexual Talk and Forced Image Recruitment.

Moreover, some of the screeners could be readily combined. Our survey was designed to differentiate very specific subtypes of online sexual abuse, but it is possible to combine some of these various abuses into more consolidated questions.

Two examples are illustrated. The following question would combine the dynamics of non-consensual sharing, threatened sharing or forced image recruitment.

Before the age of 18, did anyone ever share a sexual picture or video of you without your permission or threaten or try to force you to share a sexual picture or video?

This next question would combine the dynamics of sexual conversations or online sexual activities with an older partner, even if voluntary.

Before the age of 18, did someone you believed to be an adult and at least 5 or more years older use the Internet or a cell phone to engage in sexual conversations or image sharing with you? These could be interactions you wanted, or didn't want.

At face value, the additions of experiences from these two questions, based on the six categories they represent from the survey, augment the prevalence almost as much as the full nine.

However, it has been shown that larger numbers of screeners tend to elicit higher prevalence (Wyatt & Peters, 1986), so it is not entirely certain that these two additional questions alone would elicit the number or types of experiences elicited by the full nine. Nonetheless, our data suggest that overall prevalence will still be raised several percentage points.

For studies with sufficient room, it may be conceptually useful to also ask the question about commercial online sexual exploitation: "Have you had conversations or shared images over the Internet or a cell phone in exchange for money, drugs, or other things of value?"

This question may not add much to prevalence, but it is a distinct new form of sexual exploitation that may be growing because of new, readily-accessed websites facilitating the sale of self-made sexual images (Titheradge & Croxford, 2021), and it may be important to track.

These three questions would be consistent with a definition of online child sexual abuse as they included: 1) threatened, forced and non-consensual use of sexual images by any age offender, 2) impermissible online sexual interactions with an adult or substantially older person, and 3) a juvenile engaged in commercial sexual interactions.

Clearly, the technological influences that are changing the nature and dynamics of sexual abuse and exploitation require timely responses from researchers and epidemiologists to stay current with the developing experiences of children and youth.

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Declaration of competing interest

There is no conflict of interest relating to this manuscript, nor any financial interests.

Data availability

The data is archived at the Inter-university Consortium for Political and Social Research (ICPSR) at the University of Michigan

Institute for Social Research.

References

- Assink, M., van der Put, C. E., Meeuwse, M. W. C. M., de Jong, N. M., Oort, F. J., Stams, G. J. J. M., & Hoeve, M. (2019). Risk factors for child sexual abuse victimization: A meta-analytic review. *Psychological Bulletin*, 145(5), 459–489. <https://doi.org/10.1037/bul0000188>
- Callegaro, M., & DiSogra, C. (2008). Computing response metrics for online panels. *Public Opinion Quarterly*, 72(5), 1008–1032.
- Cervantes, I. F., & Kalton, G. (2007). Methods for sampling rare populations in telephone surveys. In *Advances in telephone survey methodology* (pp. 113–132). <https://doi.org/10.1002/9780470173404.ch5>
- ECPAT, I., & UNICEF. (2022). *Disrupting harm in Thailand: Evidence on online child sexual exploitation and abuse*. Global Partnership to End Violence against Children.
- European Commission. (2022). Fighting child sexual abuse: Commission proposes new rules to protect children. Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/IP_22_2976.
- Finkelhor, D., Hamby, S. L., Ormrod, R. K., & Turner, H. A. (2005). The JVQ: Reliability, validity, and national norms. *Child Abuse & Neglect*, 29(4), 383–412. <https://doi.org/10.1016/j.chiabu.2004.11.001>
- Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007a). Poly-victimization and trauma in a national longitudinal cohort. *Development and Psychopathology*, 19(1), 149–166. doi:10.1017/S0954579407070083.
- Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007b). Poly-victimization: A neglected component in child victimization. *Child Abuse & Neglect*, 31(1), 7–26. <https://doi.org/10.1016/j.chiabu.2006.06.008>
- Finkelhor, D., Shattuck, A., Turner, H. A., & Hamby, S. L. (2014). The lifetime prevalence of child sexual abuse and sexual assault assessed in late adolescence. *Journal of Adolescent Health*, 55(3), 329–333. <https://doi.org/10.1016/j.jadohealth.2013.12.026>
- Finkelhor, D., Turner, H., & Colburn, D. (2022). Prevalence of online sexual offenses against children in the US. *JAMA Open Network*, 5(10), Article e2234471. <https://doi.org/10.1001/jamanetworkopen.2022.34471>
- Gómez-Guadix, M., Almendros, C., Calvete, E., & De Santisteban, P. (2018). Persuasion strategies and sexual solicitations and interactions in online sexual grooming of adolescents: Modeling direct and indirect pathways. *Journal of Adolescence*, 63, 11–18. <https://doi.org/10.1016/j.adolescence.2017.12.002>
- Gómez-Guadix, M., De Santisteban, P., Wachs, S., & Wright, M. (2021). Unraveling cyber sexual abuse of minors: Psychometrics properties of the Multidimensional Online Grooming Questionnaire and prevalence by sex and age. *Child Abuse & Neglect*, 120, Article 105250.
- Gómez-Guadix, M., Mateos-Pérez, E., Wachs, S., Wright, M., Martínez, J., & Incera, D. (2022). Assessing image-based sexual abuse: Measurement, prevalence, and temporal stability of sextortion and nonconsensual sexting (“revenge porn”) among adolescents. *Journal of Adolescence*, 94(5), 789–799. <https://doi.org/10.1002/jad.12064>
- Gewirtz-Meydan, A., & Finkelhor, D. (2020). Sexual abuse and assault in a large national sample of children and adolescents. *Child Maltreatment*, 25(2), 203–214. <https://doi.org/10.1177/1077559519873975>
- Hamilton-Giachritsis, C., Hanson, E., Whittle, H., Alves-Costa, F., & Beech, A. (2020). Technology assisted child sexual abuse in the UK: Young people’s views on the impact of online sexual abuse. *Children and Youth Services Review*, 119, Article 105451. <https://doi.org/10.1016/j.childyouth.2020.105451>
- Hornor, G. (2020). Child and adolescent pornography exposure. *Journal of Pediatric Health Care*, 34(2), 191–199. <https://doi.org/10.1016/j.pedhc.2019.10.001>
- IPPOS. (n.d.). Nonresponse bias analysis for Knowledgepanel® recruitment comparisons of recruited and nonrecruited households.
- Jeglic, E. L., & Winters, G. M. (2023). The role of technology in the perpetration of childhood sexual abuse: The importance of considering both in-person and online interactions. *Children*, 10(8), 1306. <https://doi.org/10.3390/children10081306>
- Jones, L. M., Mitchell, K. J., & Finkelhor, D. (2012). Trends in youth internet victimization: Findings from three youth internet safety surveys 2000–2010. *Journal of Adolescent Health*, 50(2), 179–186. <https://doi.org/10.1016/j.jadohealth.2011.09.015>
- Jonsson, L. S., Fredlund, C., Priebe, G., Wadsby, M., & Svedin, C. G. (2019). Online sexual abuse of adolescents by a perpetrator met online: A cross-sectional study. *Child and Adolescent Psychiatry and Mental Health*, 13(1), 32. <https://doi.org/10.1186/s13034-019-0292-1>
- Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S.-L., ... Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, 32(6), 959–976. <https://doi.org/10.1017/S0033291702006074>
- Krieger, M. A. (2017). Unpacking “sexting”: A systematic review of nonconsensual sexting in legal, educational, and psychological literatures. *Trauma, Violence & Abuse*, 18(5), 593–601. <https://doi.org/10.1177/1524838016659486>
- MacInnis, B., Krosnick, J. A., Ho, A. S., & Cho, M.-J. (2018). The accuracy of measurements with probability and nonprobability survey samples: Replication and extension. *Public Opinion Quarterly*, 82(4), 707–744. <https://doi.org/10.1093/poq/nfy038>
- Madigan, S., Ly, A., Rash, C. L., Van Ouytsel, J., & Temple, J. R. (2018). Prevalence of multiple forms of sexting behavior among youth: A systematic review and meta-analysis prevalence of sexting behavior among youth prevalence of sexting behavior among youth. *JAMA Pediatrics*, 172(4), 327–335. <https://doi.org/10.1001/jamapediatrics.2017.5314>
- Madigan, S., Villani, V., Azzopardi, C., Laut, D., Smith, T., Temple, J. R., ... Dimitropoulos, G. (2018). The prevalence of unwanted online sexual exposure and solicitation among youth: A meta-analysis. *Journal of Adolescent Health*, 63(2), 133–141. <https://doi.org/10.1016/j.jadohealth.2018.03.012>
- Mathews, B., Pacella, R., Scott, J. G., Finkelhor, D., Meinck, F., Higgins, D. J., ... Dunne, M. P. (2023). The prevalence of child maltreatment in Australia: Findings from a national survey. *Medical Journal of Australia*, 218, S13–S18. <https://doi.org/10.5694/mja2.51873>
- Mitchell, K. J., Finkelhor, D., & Wolak, J. (2001). Risk factors for and impact of online sexual solicitation of youth. *Journal of the American Medical Association*, 285(23), 3011–3014.
- Nguyen, K. H., Kress, H., Villaveces, A., & Massetti, G. M. (2019). Sampling design and methodology of the violence against children and youth surveys. *Injury Prevention*, 25(4), 321–327.
- Pampati, S., Lowry, R., Moreno, M. A., Rasberry, C. N., & Steiner, R. J. (2020). Having a sexual photo shared without permission and associated health risks: A snapshot of nonconsensual sexting. *JAMA Pediatrics*, 174(6), 618–619. <https://doi.org/10.1001/jamapediatrics.2020.0028>
- Patchin, J. W., & Hinduja, S. (2020). Sextortion among adolescents: Results from a national survey of U.S. youth. *Sexual Abuse*, 32(1), 30–54. <https://doi.org/10.1177/1079063218800469>
- Sabina, C., Wolak, J., & Finkelhor, D. (2008). The nature and dynamics of internet pornography exposure for youth. *CyberPsychology and Behavior*, 11(6), 691–693. <https://doi.org/10.1089/cpb.2007.0179>
- Say, G. N., Babadağı, Z., Karabekiroğlu, K., Yüce, M., & Akbaş, S. (2015). Abuse characteristics and psychiatric consequences associated with online sexual abuse. *Cyberpsychology, Behavior and Social Networking*, 18(6), 333–336. <https://doi.org/10.1089/cyber.2014.0494>
- Ståhl, S., & Denhag, I. (2021). Online and offline sexual harassment associations of anxiety and depression in an adolescent sample. *Nordic Journal of Psychiatry*, 75(5), 330–335. <https://doi.org/10.1080/08039488.2020.1856924>
- Stoltenborgh, M., Van Ijzendoorn, M. H., Euser, E. M., & Bakermans-Kranenburg, M. J. (2011). A global perspective on child sexual abuse: meta-analysis of prevalence around the world. *Child Maltreatment*, 16(2), 79–101. <https://doi.org/10.1177/1077559511403920>
- Titheradge, N., & Croxford, R. (2021). *The children selling explicit videos on OnlyFans*. BBC News. Retrieved from <https://www.bbc.com/news/uk-57255983>.
- Turner, H., Finkelhor, D., & Colburn, D. (2023). Predictors of online child sexual abuse in a U.S. national sample. *Journal of Interpersonal Violence*, 38(11–12), 7780–7803. <https://doi.org/10.1177/08862605221149>
- Walsh, W., & Finkelhor, D. (2023). Commercial online sexual exploitation of children in a national victim survey. *Psychological Trauma: Computers and Human Behavior* (under review).
- Wolak, J., Finkelhor, D., Walsh, W., & Treisman, L. (2018). Sextortion of minors: Characteristics and dynamics. *Journal of Adolescent Health*, 62(1), 72–79. <https://doi.org/10.1016/j.jadohealth.2017.08.014>

- Wolak, J., Mitchell, K. J., & Finkelhor, D. (2007). Unwanted and wanted exposure to online pornography in a national sample of youth Internet users. *Pediatrics*, 119(2), 247–257. <https://doi.org/10.1542/peds.2006-1891>
- Wyatt, G. E., & Peters, S. D. (1986). Methodological considerations in research on the prevalence on child sexual abuse. *Child Abuse & Neglect*, 10, 241–251.
- Yeager, D. S., Krosnick, J. A., Chang, L., Javitz, H. S., Levendusky, M. S., Simpson, A., & Wang, R. (2011). Comparing the accuracy of RDD telephone surveys and internet surveys conducted with probability and non-probability samples. *Public Opinion Quarterly*, 75(4), 709–747. <https://doi.org/10.1093/poq/nfr020>