

diagnosis, indicating that state and federal budgets may continue to bear disproportionate costs as the opioid crisis evolves.

**Limitations.** Limitations include the lack of clinical treatment outcomes and the inability to examine the timing, duration, or type of drug exposure (illicit, prescribed, or nonopioids). Increasing access to medication-assisted treatment for pregnant women with opioid use disorder, in line with clinical guidance, and better documentation of NAS at birth may contribute to incidence rates observed. Kids' Inpatient Database only includes hospital charges; we used cost-to-charge ratios and improve on previous estimates by including physician fees.

**Conclusions** | Research has demonstrated that quality improvement initiatives, which standardize treatment protocols and nonpharmacological treatment of infants with NAS, can reduce inpatient length of stay.<sup>6</sup> Additional research might explore the association of clinical interventions with physical, developmental, and cost outcomes and with the long-term care use and service needs of infants born with NAS.<sup>1</sup> These nationally representative results demonstrate the continuing association of the opioid crisis with maternal and infant health.

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## Prevalence of and Factors Associated With Self-injurious Thoughts and Behaviors in a Nationally Representative Sample of Preadolescent Children in Great Britain

Self-injurious thoughts and behaviors in childhood have received increasing recognition as an important clinical concern. Self-injurious thoughts and behaviors in childhood have been reported to be associated with concurrent psychiatric impairment, particularly externalizing disorders,<sup>1</sup> and to be predictors associated with negative outcomes, including subsequent self-injurious thoughts and behaviors<sup>1</sup> and psychiatric hospitalization.<sup>2</sup> Furthermore, the National Institute of Mental Health has identified childhood suicide as a priority; compared with studies of self-injurious thoughts and behaviors in adolescents and adults, there to date is a paucity of research on that topic with children.<sup>3</sup> Several fundamental aspects of childhood self-injurious thoughts and behaviors remain unknown, including their epidemiologic characteristics, with prior studies examining at-risk or clinical populations.<sup>1,2</sup> The current study characterizes the prevalence of self-injurious thoughts and behaviors in a nationally representative sample of preadolescent individuals in Great Britain.

**Methods** | The 1999 and 2004 surveys of Mental Health of Children and Young People in Great Britain were conducted with youths in England, Scotland, and Wales, obtained with permission from the UK Data Archives. For this study, analyses were restricted to individuals younger than 13 years. The unweighted number of participants was 13 126. Of those, 49.35% were female, 88.78% were white, 5.00% were South Asian, 3.34% were black, and 2.77% were other with a mean (SE) age of 8.53 (0.02) years.

The Development and Well-Being Assessment (DAWBA),<sup>4</sup> a structured diagnostic interview for epidemiologic research to assess for psychiatric disorders, was conducted with children aged 11 and 12 years, and with parents of children aged 5 to 12 years. The DAWBA included 7 questions about self-injurious thoughts and behaviors. Queries about self-injurious thoughts covered the last month, and those about self-injurious behaviors the last month and lifetime. Parental psychiatric functioning was also assessed.<sup>5</sup> This study used publicly available secondary data and was determined to be exempt from institutional review board approval and from

**Table. Multivariate Analyses of Self-injurious Thoughts and Behaviors in 13 126 Preadolescent Children in Great Britain**

Factor	Current Thoughts of Self-injury <sup>a</sup>		Lifetime Self-injurious Behaviors	
	OR (95% CI)	P Value	OR (95% CI)	P Value
Age	1.22 (1.15-1.30)	<.001	1.35 (1.27-1.44)	<.001
Male sex	1.35 (1.05-1.75)	.02	1.32 (1.03-1.68)	.03
Parental employment status				
Both parents unemployed	1.61 (1.17-2.21)	.003	0.99 (0.71-1.38)	.93
One parent unemployed	1.21 (0.86-1.69)	.27	1.06 (0.77-1.45)	.74
Both parents employed	1 [Reference]	NA	1 [Reference]	NA
Poor parental psychiatric functioning	1.14 (1.10-1.18)	<.001	1.09 (1.05-1.13)	<.001
Depression	7.87 (2.92-21.21)	<.001	1.92 (0.75-4.91)	.17
Anxiety	4.32 (2.89-6.44)	<.001	2.50 (1.64-3.82)	<.001
Oppositional defiant disorder and conduct disorder	2.45 (1.61-3.72)	<.001	4.74 (3.31-6.80)	<.001
Hyperkinesia	1.15 (.61-2.17)	.66	1.98 (1.15-3.43)	.01

Abbreviations: NA, not applicable; OR, odds ratio.

<sup>a</sup> Children with a lifetime history of self-injurious behaviors were included in the reference group to allow for analyses of ideation unconfounded by behavior.

informed patient consent according to the review board policy of Brown University.

Logistic regression was conducted for sociodemographic characteristics and psychiatric disorders in children and parental psychiatric functioning in association with current thoughts of self-injury and lifetime self-injurious behavior. Sociodemographic characteristics (age, sex, race, and parents' employment status) were assessed at the bivariate level. Those characteristics found to be factors were included as covariates with all remaining factors in the corresponding multivariate model. To avoid confounding self-injurious thoughts with behaviors (ie, the possibility that an association with the former is better accounted for by the presence of children with the latter), children with a history of self-injurious behaviors were included in the reference group in analyses of self-injurious thoughts. All analyses were conducted in SPSS statistical software, version 23.0 (SPSS Inc) and weighted to obtain nationally representative estimates. All tests of significance were evaluated using .05-level 2-sided tests. Data analysis was completed in May 2019.

**Result** | In total, 2.18% (SE, 0.13%) of children experienced past-month self-injurious thoughts without any history of behavior (ie, pure ideators), 0.80% (SE, 0.08%) had past-month self-injurious behaviors, and 2.41% (SE, 0.14%) had lifetime self-injury. Among sociodemographic factors, only minority race was unrelated to self-injurious thoughts (odds ratio [OR], 0.81; 95% CI, 0.54-1.21;  $P = .30$ ) or behaviors (OR, 0.67; 95% CI, 0.43-1.04;  $P = .07$ ).

Multivariate analyses are presented in the **Table**. Age, male sex, both parents being unemployed, current parental psychiatric functioning, depression, anxiety, and externalizing disorders, except hyperkinesia, were associated with self-injurious thoughts. For example, the OR for anxiety with regard to current thoughts of self-injury in this population was 4.32 (95% CI, 2.89-6.44;  $P < .001$ ). All factors were significant for self-injurious behaviors, except depression and parental employment. For example, the OR for anxiety with regard to lifetime self-injurious behaviors was 2.50 (95% CI, 1.64-3.82;  $P < .001$ ).

**Discussion** | To my knowledge, this study provides the first analyses of the prevalence and sociodemographic and clinical factors of self-injurious thoughts and behaviors in a nationally representative sample of preadolescent individuals, showing that although low base-rate phenomena, self-injurious thoughts and behaviors are associated with significant psychiatric comorbidity. Self-injurious thoughts and behavior rates were higher among boys in the current and prior studies,<sup>1</sup> contrasting with greater rates of suicidal ideation and attempts among girls in adolescence.<sup>6</sup> Insofar as males are more likely to die by suicide<sup>6</sup> and earlier onset of psychiatric problems is associated with worse trajectories, whether preadolescents with SITBs are at particular risk of suicide deaths warrants future study. Additionally, whether SITBs in preadolescents in the general population are associated with negative later-life outcomes<sup>1</sup> or have changed in prevalence over time should be evaluated.

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## COMMENT & RESPONSE

### A Decade of Sexting Research: Are We Any Wiser?

**To the Editor** Mori et al<sup>1</sup> provide a much-needed meta-analysis and systematic review of the associations of sexting with sexual behaviors and other health indicators. Their rigorous analysis will be a valuable resource to clinicians. It also serves as another reminder that, despite the boom in sexting research over the past decade, scholars have only begun to scratch the surface of the phenomenon. Next to the urgent need for a unified conceptualization of sexting to generate sufficient cumulative evidence,<sup>1-3</sup> 2 other areas for future work are made apparent.

First, one of the main findings was that the associations between sexting and several risk behaviors were stronger among younger adolescents compared with older teenagers. Early adolescents (between ages 12 and 15 years) might be particularly vulnerable to risks associated with sexting given their young age.<sup>1,3</sup> Yet, despite the clear need for sexting research to focus on this developmental stage, only 5 of 23 studies in Mori et al<sup>1</sup> reported a mean participant age younger than 15 years, leaving the most critical age group understudied. This highlights the need for future risk behavior surveillance studies to begin to include digital sexual behaviors along with standard offline sexual behaviors so that we can obtain reliable evidence for all age groups.

Second, past research may have lost valuable time by treating the act of sending sexts itself, whether consensual or not, as problematic for too long. Just as with cyberbullying,<sup>4</sup> hardly any sexting research has accounted for contextual factors, which may affect the correlates that are identified.<sup>1</sup> Mori et al<sup>1</sup> provide excellent suggestions for future studies to assess the intention, mediums, content, context, and format of sexting. I would add that important contextual factors may include the extent to which youths experience pressure to send sexting images and the extent to which they feel expected to do so (eg, under influence of relational scripts and peer norms). Furthermore, especially when studying the psychological consequences of sexting, considering whether the senders experi-

enced regret or worry after hitting *send* might be another useful factor that might explain associations with internalizing problems such as anxiety or depression. The concern that sexting images may resurface at any time in the future<sup>5</sup> may especially contribute to these emotions, regardless of the initial consensual context or harmless intention. In sum, this review is an essential step for the field to mature and a reminder that it is past time to start focusing on the real issues surrounding sexting.

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**In Reply** Van Ouytsel aptly underscores areas within the sexting literature that must be addressed to move the field forward. As emphasized in our work<sup>1,2</sup> as well as in the work of others,<sup>3</sup> a unified conceptualization and approach to researching sexting is needed and, in this reply, we take the opportunity to provide methodologic recommendations for future research in a summative and distilled format. Through the process of reviewing hundreds of studies, meta-analyses provide the notable advantage of detecting collective shortcomings within a research area. Having completed 2 meta-analyses on youth sexting,<sup>1,2</sup> the following methodologic recommendations are provided based on a comprehensive review of this literature.

“Have you sent a sext?” should not be the sole item on a questionnaire about youth sexting behavior. All future sexting research should assess the *content* and *format* of sexting. Content refers to whether the message included sexually suggestive words, images, or videos. Format refers to the technological device (personal smartphones or tablets/computers) and application over which the message was sent (text message including iMessage or Android chat, Instagram, Snapchat, and WhatsApp). Across the sexting literature, there has been insufficient distinction between these various aspects of