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February 23, 2022

BY ELECTRONIC MAIL ONLY

Representative Jess Edwards
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RE: Physical and Emotional Abuse at YDC

Dear Chair Edwards and Representative Rogers:

We have received feedback that some members of the committee and the community have questions about what we mean when saying that child residents of YDC were the victims of physical and emotional abuse, in addition to sexual abuse, in state custody. We provide a brief summary below, although regrettably there is a great deal more than we include here.

In the 1981 revision to the enabling statute for YDC (RSA 621:1 et seq.), the legislature directed DHHS and YDC to enact By-Laws governing the management of the facility. The purpose was to ensure that YDC fulfilled its mission to "provide protection and care" and to create a "wholesome physical and emotional setting for each child" in a manner worthy of the State's sacred obligation to the children in its custody.

For nearly 40 years, no one ever bothered to draft, let alone implement, those "wholesome setting" By-Laws. Accordingly, the facility operated without essential governing rules for nearly 40 years. No one seemed to notice.

In part for this reason, YDC largely came to be managed by a culture of casual and routine violence against the children housed there. The violence was pervasive and normalized. Like

the notorious Laconia State School with which it shared many disreputable characteristics, the environment was closed to the public, and the guards largely had free reign on a daily basis. New guards were taught by old guards (some of whom were family relatives - nepotism was a feature) that violence - whether by beatings, joint and pressure-point manipulation, restraints such as handcuffs or bed tie-downs, routine verbal abuse, or lengthy periods of solitary confinement locked in a cell (often for weeks and months) - was acceptable and expected. The minor residents were told that if they disclosed the reality of the violence inside of YDC, they would not be believed and would be punished more severely in retaliation.

Here, we cull several representative examples from a small sample of files. These examples are mainstream illustrations and do not represent the worse cases of abuse. These examples could be replicated many times by a more extensive review of the files.

Physical Beatings and Torture

- child had jaw broken - taken to hospital where a plate was put in. Child suffers from permanent nerve damage.

- child had wrist broken - taken to outside medical treatment (in a strip mall) where a cast was put on.

- child was beaten while in handcuffs. Shoulder and thumb dislocated, elbow broken. Taken by ambulance to hospital.

- child was kicked in his testicles. Caused a hernia that required surgery. Treated at a clinic in Manchester.

- child was beaten - dislocated shoulder and taken to CMC.

- child was beaten by 5 guards resulting in broken fingers, fractured arm and slipped disc.

- child arm was broken by a rough restraint. Taken to hospital.

- child was beaten and knocked out. Spent 3 days at Elliot Hospital.

- child was beaten - broken arm. Future beatings resulted in refracturing the arm. Surgeries at Dartmouth Hitchcock Medical Center.

- child was slammed to the ground resulting in a knee injury that needed surgery at Concord.

- child knocked unconscious after being struck by a guard in the back of the head with a walky-talky.

- an individual known to the child resident as “Coach” touched his genitals over his clothes in the basement dozens of times. Eight additional guards, acting sometimes individually or in concert with one another, subjected him to dozens of acts of physical abuse, including beating him with their fists, choking him until he lost consciousness, and kneeing him in the head. As a result, the child sustained black eyes, lost teeth, and a broken wrist, for the latter of which he received medical care from an outside doctor located in a strip mall. He was placed in solitary confinement for over half of the time he was in YDC custody.

- a guard put out cigarettes on the child resident on multiple occasions, burning him. The guard also choked him to the point of unconsciousness and regularly tortured him through the application of pressure to his joints and other sensitive areas, including his testicles. Other guards “wrestled” the child several times per week, purposefully hurting him and bending his joints and other pressure points. In addition, the child was placed in solitary confinement for lengthy periods.

- a guard would force the child to strip naked in front of him multiple times per week during his time at the Sununu Center. The guard also would wake the child up in the middle of the night, forcing him to do pushups. If he refused, the guard would kick, punch, slap, and otherwise torment him. Additionally, another guard choked him to the point of unconsciousness multiple times, while another guard punched him so hard on one occasion he lost consciousness. Another caused the child to suffer a permanent shoulder injury when using unnecessary force to restrain him. The child was placed in solitary confinement multiple times for days or weeks.

- the child resident was first committed to the Youth Facility in 1996, and a guard told him that another guard was looking for him to get revenge for a prior encounter between the second guard and the child years earlier when the child was a resident of a third-party residential placement. After the second guard found the child, he then punched him, dropped him to the floor, and choked him until he was unconscious. When the child regained consciousness, he was naked on the floor of a common bathroom, with the guard raping him from behind. When he looked over his shoulder to look at his assailant, the guard slammed the child’s head onto the floor, causing him to lose consciousness again. Another guard also punched him in a bathroom on a separate occasion. The guards also placed the child in solitary confinement for multiple weeks at a time on multiple occasions.

- a guard viciously beat a child resident while he was restrained in cuffs. On another occasion, another guard known to the child as “Wild Bill” picked him up by grabbing him by the throat, pinning him against the wall with his feet dangling in the air, held him there choking him almost until the point that he lost consciousness, and then dropped him to the floor. The child was also digitally penetrated during a strip search following a visit with his family. The guards also forced the child to fight with other YDC residents on multiple occasions. He was placed in solitary confinement on several occasions, sometimes for a day at a time, other times for a week at a time.

- on multiple occasions, a child resident was restrained by being handcuffed to a window for lengthy periods of time. On several occasions he was severely beaten by multiple guards at the same time. During one six-month period, he was forced by YDC staff to fight other juvenile residents, approximately once every weekend. The child was on multiple occasions placed in solitary confinement, often for days at time, and at least one time for approximately a month. He was also locked in a basement for a substantial period.

*** * ***

We have many additional child victims who were beaten weekly - sometimes by individual guards and sometimes by multiple guards at one time.

Solitary Confinement and Emotional Torture

- child spent one month straight in solitary with 4-point restraints.

- child spent one month straight in solitary and was handcuffed and shackled every night before bed. He spent a total of one year in solitary.

- child spent four months straight in solitary.

- child spent two months straight in solitary. This happened twice for a total of four months.

- child spent days at a time in solitary in 4-point restraints. Had to urinate on himself.

- child spent three months straight in solitary, in his underwear.

- child spent six months straight in solitary.

- child spent one month straight in solitary - six times - for a total of six months.

- child spent six months straight in solitary. Spent a total of two years in solitary.

- child spent three weeks of each month in solitary for her entire 3 years in YDC.

- child spent weeks at a time in solitary. Forced to go the bathroom on the floor.

- child spent one month in solitary with no mattress and had to go the bathroom in a pickle jar.

*** * ***

The incidence of prolonged (days, weeks, months) solitary confinement at YDC has been too frequent and constant to count. Often, the emotional pain was aggravated by being clothed only in underwear, being held in 4-point restraints on a bedframe with no mattress, being handcuffed

to the bedframe, and being forced to defecate and urinate on the floor because of the absence of toileting facilities in the cell and the refusal of access to a bathroom.

*** * ***

Dr. David Finkelhor of UNH is a nationally-renowned expert on childhood abuse. According to Dr. Finkelhor, physical and emotional abuse in children in general are at least as traumatic and likely to result in long-term harm as sexual abuse. In fact, physical abuse appears to be worse than sexual abuse in children. And, perhaps surprisingly, emotional abuse of children is even worse than either physical and sexual abuse in terms of persistent traumatic effect. *See* Finkelhor Child Trauma Study at **Exhibit A**.

Additionally, there is a plethora of conclusive research on the substantial emotional harm caused by solitary confinement, especially on children. *See* Affidavit of Stuart Grassian, M.D., attached as **Exhibit B**. It is no accident that repressive regimes use solitary confinement to punish and extract information from its perceived opponents - it is very effective in producing intolerable trauma.

The effects on children of physical and emotional abuse in general are at least as traumatic and consequential as sexual abuse. In a civilized society acting in good faith, there is no moral or other principled reason to discriminate against one type of child abuse over another. There is no good reason to retraumatize some victims by telling them that their harm is of less importance than another. To them, all they know is their own pain; and dismissing or devaluing that pain is sure to make it even worse.

Sincerely,

/s/ David A. Vicinanzo

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DAV/cln

Attachments

EXHIBIT A

Child Abuse & Neglect 107 (2020) 104522

Contents lists available at ScienceDirect

Child Abuse & Neglect

journal homepage: www.elsevier.com/locate/chiabuneg

Research article

Strengthening the predictive power of screening for adverse childhood experiences (ACEs) in younger and older children

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ARTICLE INFO

Keywords:
Childhood adversity
Maltreatment
Toxic stress
Trauma symptoms
Child mental health

ABSTRACT

Background: There is increasing interest in routine screening for Adverse Childhood Experiences (ACEs) to help identify high-risk children who would benefit from interventions. However, there has not yet been sufficient research concerning which particular set of ACEs would be most predictive as a potential screening tool.

Objective: This study compared 40 Adverse Childhood Experiences (ACEs), covering 11 different conceptual domains, in their ability to predict trauma symptoms in childhood.

Participants and setting: The current study uses pooled data from three National Surveys of Children's Exposure to Violence (NatSCEV) conducted in 2008, 2011, and 2014. Each survey collected information on children aged one month to 17 years.

Methods: Samples were obtained from a mix of random digit dialing and address based sampling methods. Telephone interviews were conducted with children 10 years and older and with caregivers, if the randomly selected child was under age 10.

Results and conclusion: A different set of 15 items best predicted trauma symptoms for younger (2−9-year-old) compared to older (10−17-year-old) youth. Some conventional ACEs, like physical and emotional abuse, proved important for both age groups. However, family-related factors were more predictive for younger children, while community and peer violence exposures were more predictive for older children. Our new proposed measures explained substantially more variance in subsequent trauma symptoms than did the original ACE measure (R^2 = .31 vs .18 for 2-9 year olds; R^2 = .43 vs .26 for 10-17 year olds; $p < .001$ for all) and identified a larger percentage of children with high levels of trauma.

1. Introduction

Research based on the Adverse Childhood Experiences (ACEs) framework is growing at a rapid rate. This literature points very consistently to the large number of later health and mental health conditions that appear to be associated with the accumulation of exposures to stressful conditions in childhood (Felitti et al., 1998; Hughes et al., 2019; Nurius, Fleming, & Brindle, 2019; Petruccelli, Davis, & Berman, 2019; Shonkoff et al., 2012). Researchers and advocates are attempting to draw strong conclusions from this literature about how to predict later life outcomes and what prevention measures are warranted. For example, in 2019 California passed legislation incentivizing pediatricians to screen all children for ACEs and backed it with $95 million for reimbursement and training costs (Stavely, 2019).

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https://doi.org/10.1016/j.chiabu.2020.104522
Received 26 November 2019; Received in revised form 13 April 2020; Accepted 29 April 2020
Available online 28 July 2020

However, before action plans are even more widely developed around the ACE findings and broad-based screening efforts are implemented, there are core foundational issues that should be addressed. Importantly, we need a better understanding of what constitutes an adverse childhood experience and which experiences should be prioritized for screening or prevention purposes. The original 10-item ACE inventory asked about childhood physical, sexual and emotional abuse, physical and emotional neglect, exposure to domestic violence, household substance abuse and mental illness, parental incarceration, and parental divorce (Dube, Felitti, Dong, Giles, & Anda, 2003). However, these items were not chosen through any systematic empirical process of selecting the best predictors of negative outcomes. The ability of this particular list of adversities to predict health outcomes was treated as validation of the measure, and much of the subsequent literature has relied on this list or close variants.

Yet, it is not clear these early-identified ACEs are the *most* predictive set of adversities among all potential domains of ACEs. Indeed, some of the ensuing research has pointed to important domains of adversity that were not covered by the original ACE inventory, such as forms of peer victimization, witnessing community violence, and family economic stressors (Finkelhor, Shattuck, Turner, & Hamby, 2013; McEwen & Gregerson, 2019). Questions have also been raised about whether the ACEs being measured are the actual causal influences or rather simply markers for the occurrence of other correlated events or conditions that may be the actual agents of trauma and related outcomes (McEwen & Gregerson, 2019). The literature on the impact of divorce, for example, one of the ACE items, suggests that the actual trauma agents are other factors such as exposure to parental conflict, reduced supervision, harsh discipline, and economic hardship more than the separation of the parents or the dissolution of the marriage (Amato, 2000). This suggests the need for a critical examination of adversity items in relationship to one another.

One exercise that would be useful in moving towards the development of a more empirically-based ACEs screener would be to start with much broader list of possible ACEs derived from multiple conceptual domains and compare them on their predictive merits. This exercise has the potential to illustrate other domains of adversities that warrant inclusion. It also has the potential to show the advantages among different kinds of possibly similar events or the rough equivalence of others for purposes of outcome prediction.

An important limitation of the original ACE literature, and most subsequent studies, was its reliance on adult populations who were being asked to report on adversities from a distant vantage point (Petruccelli et al., 2019). Although this may be appropriate for some ACEs usages, it does not provide the information needed to know which adversities to prioritize in childhood screenings in order to target prevention or intervention efforts. Childhood adversities in retrospect may be forgotten, mis-remembered or distorted (Brewin, Andrews, & Gotlib, 1993; Fisher et al., 2011; Shaffer, Huston, & Egeland, 2008). Identifying the most causally relevant experiences that have the greatest impact on health requires an understanding of how these experiences influence negative outcomes *in childhood*.

The experiences that are most impactful may also differ depending on when they occur or when they are assessed in childhood. Some adversities may have particular developmental critical periods (Khan et al., 2015; Niederkrotenthaler, Floderus, Alexanderson, Rasmussen, & Mittendorfer-Rutz, 2012), affecting children only or primarily if they occur during one developmental stage. The specification of such sensitive periods is still not well developed, but some findings suggest, for example, that parental morbidity and suicide have specific effects at earlier ages (Niederkrotenthaler et al., 2012), and the impact of peer emotional abuse is particularly influential at age 14 for girls (Khan et al., 2015). Thus, assessments with younger children may show a different set of ACEs that are most predictive of concurrent outcomes than assessments with older children, either because of critical period effects, development differences in the occurrence of particular types of ACEs, or because the proximal impact of different ACEs changes as children age. As a result, attempts to identify the most influential adverse experiences, should account for developmental variations depending on the age at which assessments take place. A related developmental consideration concerns at what ages children can provide valid self-reports about adverse experiences and at what ages parents are likely to provide more accurate reports of children's ACEs. We assess two age groups, 2 – 9-year olds for which we have proxy parent reports and 10 – 17- year olds for which we have self-report data. This developmental demarcation may be useful to incorporate into research, clinical and diagnostic settings, where decisions must be made about whether to get reports from parents or from children themselves.

The current study had the advantage of utilizing information on 40 contemporaneous adversities for children across a large age span enabling a comparison of these adversities in their ability to predict a subsequent outcome in childhood. We focus on trauma symptoms as the outcome, an indicator that is generally thought to be one of the major mediating indicators between adversity and poor health and mental health conditions in adulthood (Kendall-Tackett, 2002). Trauma symptoms are considered manifestations of emotional and endocrine dysregulation of the stress response system that take a toll on other aspects of physiology over time (Danese & McEwen, 2012).

The specific aims of this study are to: 1) Assess a comprehensive list of ACEs to determine which particular set of items has the strongest association with level of current trauma symptomatology, separately for younger (ages 2–9) and older (ages 10–17) children; 2) Compare the resulting sets of ACEs with the set of items included in the original ACE measure in terms of variance explained in trauma symptoms; 3) Establish the "high ACEs" cut off points that maximize both the sensitivity and specificity of each measure; and 4) Determine if the new proposed ACEs items are able to identify significantly more children and adolescents with clinically-relevant levels of trauma symptoms than the original ACEs measure.

2. Methods

2.1. Sample and procedure

The analyses that follow utilize data from three National Surveys of Children's Exposure to Violence (NatSCEV), cross-sectional U.S. studies that collected information about nationally-representative samples of youth aged one month to 17 years in 2008, 2011, and 2014. The samples from each of the three surveys were obtained from a mix of random digit dialing (RDD), address based

sampling, as well as targeted oversampling of households with children, cell phone-only households, and/or underrepresented racial groups. Interviews began with an adult caregiver in each household to collect family demographic information. One child was randomly selected from all eligible children living in a household by sampling the child with the most recent birthday. Telephone interviews were conducted with children 10 years and older about their adversity experiences and other topics. If the selected child was under age 10, proxy interviews were conducted by the caregiver "who was most familiar with the everyday experiences of the child."

Sample weights adjusted for differential probability resulting from both this complex study design as well as variations within household eligibility and non-response by demographic characteristics. More information about the sample and weighting is available in prior publications (Finkelhor, Turner, Ormrod, & Hamby, 2009; Finkelhor, Turner, Shattuck, & Hamby, 2015; Finkelhor, Turner, Shattuck, & Hamby, 2013). The analysis for the current study used pooled data from all three surveys for a total sample size of 11,896 (n = 5532 aged 2–9; n = 6364 aged 10–17).

Interviews averaged about 50 min in length and were conducted in English or Spanish. Respondents who disclosed a situation of serious threat or ongoing victimization were re-contacted by a clinical member of the research team trained in telephone crisis counseling, whose responsibility was to provide them with contact information for support in their local community. All procedures involving human subjects were reviewed and approved by the University of New Hampshire IRB.

2.2. Measurement

2.2.1. Adverse childhood experiences (ACEs)

The NatSCEV interviews included numerous questions and indexes from which to draw a large pool of Adverse Childhood Experiences (ACEs) that fell within several content domains. Forty ACEs were considered in the current study. ACEs were assessed with items of The Juvenile Victimization Questionnaire (JVQ) (Hamby, Finkelhor, Ormrod, & Turner, 2004), the Lifetime Childhood Adversity measure (Turner, Finkelhor, & Ormrod, 2006), and additional questions asked in the parent screener survey. All ACE items assessed in this study inquire about lifetime prevalence of the adverse event or condition. Detailed item wording and variable construction are provided in Appendix A.

The Juvenile Victimization Questionnaire (JVQ) (Hamby et al., 2004), is a comprehensive inventory of childhood victimization covering five general areas of youth victimization: conventional crime, maltreatment, victimization by peers and siblings, sexual victimization, and witnessing/indirect victimization. The JVQ has demonstrated good psychometric properties, including test-retest reliability and construct validity in a nationally representative sample (Finkelhor, Hamby, Ormrod, & Turner, 2005). For the present study, six ACE domains, representing six different components of childhood Victimization, were assessed with items from the JVQ: Maltreatment (4 ACEs[1]), Community Violence Exposure (4 ACEs), Property Crimes (4 ACEs), Physical Assault (7 ACEs), Sexual Victimization (2 ACEs), and Peer Victimization (2 ACEs). The specific victimization ACEs considered can been seen in Table 1.

Several ACE domains reflecting non-victimization adversities were also assessed, including Family Instability (6 ACEs), Interpersonal Loss (3 ACEs), Parent Psychological Disorder (2 ACEs), Non-Relational Threat (3 ACEs) and Economic Stressors (3 ACEs[2]). Many ACEs in these domains were items from the Lifetime Childhood Adversity measure. Additional questions asked in the NatSCEV parent screener questionnaire included income, reliance on public assistance, number of times the child moved residence, number of live-in partners the parent had since the child was born, and parental diagnoses of psychological and substance use disorders. The specific non-victimization ACEs considered can been seen in Table 2.

2.2.2. Trauma symptoms

Trauma symptomatology was assessed using 24 items from the Trauma Symptom Checklist (TSC) (Briere, 1996) designed for youth 10 and older and 26 items from Trauma Symptom Checklist for Young Children (TSCY) completed by parents of children, ages 2–9. Both scales assess children's responses to unspecified traumatic events in different symptom domains, including depression, anxiety, anger, post-traumatic stress, and dissociation. Respondents were asked to indicate how often they (or their child) had experienced each symptom within the last month. The TSC and TSCY have demonstrated good test-retest and internal consistency reliability and good concurrent validity in clinical and population-based samples (Briere, 1996; Briere et al., 2001). A summary measure of all items was constructed for each age group. For some analyses, we also constructed a "high trauma" indicator in order to identify cases of potential clinical significance. High trauma was defined at the top decile of the summary measure for each age group.

2.3. Analyses

Data analyses designed to identify the most impactful ACEs proceeded in several steps. Because of the likelihood of developmental variations, we conducted each step below separately for the 2 − 9-year-old and 10 − 17-year-old samples.

1) Given our goal of covering all major domains of adverse experience and selecting ACEs within each domain most strongly associated with trauma symptoms, we compared ordinary least square (OLS) standardized regression coefficients of each within-

[1] "emotional neglect", an item included in the original ACEs index, was not considered in this study since an equivalent item was not available in the data set

[2] we were only able to assess current welfare receipt; a lifetime measure indicator of this item was unavailable

Table 1
Standardized regression coefficients for each adverse childhood experience (ACE) predicting trauma symptoms: Victimization domains.

	Younger children (2 – 9 year olds)		Older children (10 – 17 year olds)	
	% in sample	Beta in model	% in sample	Beta in model
Physical Assault Domain				
Assault w/ weapon	6.5	0.03	12.7	**0.08*** **
Peer assault w/out injury	40.9	**0.07*** **	37.0	0.02
Peer assault with injury	5.4	**0.04*** *	11.5	**0.07*** *
Serious assault threat	7.3	**0.05*** *	27.0	**0.09*** **
Kidnap attempt	1.3	**0.05*** *	2.3	0.01
Bias attack	1.6	0.02	4.4	**0.09*** **
Dating violence	—	—	3.0	0.01
Property Crime (non-sib perpetrator)				
Theft	11.7	**0.08*** **	11.2	0.01
Robbery	9.3	0.03	33.3	0.03
Vandalism	11.3	**0.04***	20.4	0.01
Home burglary	12.4	−0.00	25.6	0.00
Peer Victimization				
Peer physical intimidation	22.1	**0.08*** **	26.7	**0.07*** **
Peer emotional abuse	26.4	**0.18*** **	38.6	**0.16*** **
Community Violence Exposure				
Witness attack with weapon	5.7	**0.05*** *	30.0	**0.06*** *
Witness attach w/o weapon	14.0	0.02	46.3	0.02
People being shot, bombs, riots	4.8	0.03	14.4	**0.09*** **
School threat	1.5	0.01	16.8	**0.05*** *
Child Maltreatment				
Physical abuse	4.8	**0.10*** **	13.7	**0.08*** **
Emotional abuse	9.3	**0.12*** **	19.1	**0.13*** **
Physical neglect	4.6	0.01	3.2	**0.04***
Witness parental violence or chronic conflict	16.6	**0.10*** **	27.0	**0.11*** **
Sexual Victimization				
Any sexual assault	1.7	**0.05*** *	6.4	0.11***
Sexual harassment	0.3	**0.06***	9.7	**0.15*** **

Note: all significant positive betas are bolded.
[1]Each beta coefficient represents that ACE's association with trauma symptoms, controlling for all other ACEs (both non-victimization and victimization) outside of its individual domain.
*** $p < .001$.
** $p < .01$.
* $p < .05$.

domain ACE, controlling for all ACES that fall outside of that domain. This strategy allowed us to identify the most impactful ACE or set of ACEs that uniquely represent each domain. Tables 1 and 2 present all items within each domain and their beta coefficients predicting trauma symptoms, while controlling for all ACEs outside of the domain.

2) All ACEs that were significantly related to trauma symptoms ($p < .05$) in step 1 were then entered into another OLS regression model, allowing us to determine the unique, across-domain effect of each ACE (analyses not shown).
3) Because the number of statistically significant ACEs in step 2 was greater than would be ideal for a screening measure and because we wished to select the most impactful set of ACEs, we reduced the model further by selecting items with significant coefficients and strong predictive effects ($p < .01$) and $\beta > .05$. This yielded a set of 15 ACEs for each of the two age groups.
4) Another OLS regression analysis utilizing this reduced 15-item model was then conducted and compared to a regression of items that represent the original ACE measure, to contrast the total variance explained in trauma symptoms by each measure (Table 3).
5) In order to compare the relative effectiveness of the new proposed ACEs measure with the original scale in predicting trauma cases of potential clinical relevance, we evaluated cut points for "high" ACEs count by calculating the odds of predicting a high trauma score using each of the ACE measures. To this end, we examined the Receiver Operating Characteristic (ROC) curve, which plots the sensitivity, or the probability of detecting a high trauma case, as well as one minus the specificity, or the probability of detecting a case without a high trauma score. The area between these two lines is a measure of discrimination, or the model's likelihood of correctly identifying a child who is categorized as having high trauma. We plotted the sensitivity and specificity curves on the same plot for each measure and used the point at which they intercept as our cut point. This approach maximizes both sensitivity and specificity (Hosmer & Lemeshow, 2000).

Table 2
Standardized regression coefficients for each adverse childhood experience (ACE) predicting trauma symptoms: Non-victimization domains.

	Younger children (2−9 year olds)		Older children (10−17 year olds)	
	% in sample	Beta in model[1]	% in sample	Beta in model[1]
Family Instability Domain				
Does not live w/ both bio parents (divorced)	38.8	−0.00	47.2	**−0.048***
Multiple live-in partners (2+)	6.0	0.04	12.5	0.02
Moved homes a lot	9.2	−0.02	19.8	−0.01
Taken from family	2.2	**0.09****	3.6	0.04
Family homelessness	2.7	0.03	3.4	−0.03
Caregiver in prison	5.8	−0.03	9.8	0.01
Interpersonal Loss				
Someone close died	22.9	**0.04**	45.1	**0.05*****
Someone close illness	25.7	0.03	47.9	**0.06*****
Someone close suicide attempt	3.8	**0.04***	11.7	**0.10*****
Parental Disorder				
Mother or father mental illness	18.5	**0.09*****	18.5	−0.01
Family drug/alcohol problem	4.6	0.01	6.8	−0.00
Non-Relational Threat				
Natural disaster	5.8	0.02	9.9	0.02
Bad accident	3.5	0.01	10.8	0.01
Bad illness	16.0	0.00	18.5	0.03
Economic Stressors				
Low income	10.3	**0.06****	8.9	0.01
Welfare	29.1	**0.08*****	20.0	0.01
Job loss	23.6	**0.06****	23.6	**0.03***

Note: all significant positive betas are bolded.
[1] Each beta coefficient represents that ACE's association with trauma symptoms, controlling for all other ACEs (both non-victimization and victimization) outside of its individual domain.
*** $p < .001$.
** $p < .01$.
* $p < .05$.

6) Using the resulting cut points, we calculated Odds Ratios (ORs) predicting high trauma cases, given high ACEs scores on the original and new proposed ACEs measure (relative to non-high ACEs scores on each measure). We also estimated the percentage of high trauma cases that had high ACEs scores on both the original and newly proposed measure could identify (Table 4).
7) Appendix B lists proposed items for new ACEs measures.

3. Results

Tables 1 and 2 report beta coefficients for each ACE predicting trauma symptoms, while controlling for all other ACEs outside of that ACE's specific domain. For the non-victimization category (Table 2), ACEs in the interpersonal loss domain, such as having someone close attempt suicide, appeared most strongly associated with trauma symptoms among older youth, while ACEs most negatively affecting younger children fell within the economic stressor domain (e.g. welfare, parental job loss). Being taken away from family was also significantly associated with trauma symptoms for the younger group only. None of the ACEs that fell within the non-relational threat domain (natural disaster, personal illness, and personal injury) were significantly related to trauma symptoms in either age group.

In general, substantially more victimization ACEs were statistically significant and more strongly related to trauma symptoms than were non-victimization adversities. As seen in Table 1, most ACEs in the physical assault domain were significantly associated with trauma symptoms for both age groups, as were ACEs in the maltreatment and peer victimization domains. For the older youth only, most ACEs within the community violence domain were also significant. Although none of the property crime ACEs were significant in the older group, younger children were negatively affected by personal property theft.

In the next step of the analyses, we wished to reduce the set of ACEs further to allow for the construction of a screening instrument of reasonable length, selecting the ACEs with the strongest associations with trauma symptoms. To this end, we entered all significant ACEs that were positively associated with trauma from Tables 1 and 2 in an OLS regression model for each age group. We then identified significant ACEs with beta coefficients greater or equal to .05 (analyses not shown). This smaller set of items (15 ACEs in each age group) were then regressed on trauma symptoms and compared to a regression model comprised of ACE items from the original measure. These analyses are present in Table 3.

Table 3
Ordinary Least Squares (OLS) regression analyses predicting trauma symptomatology from total number of Adverse Childhood Experiences (ACEs): Standardized regression coefficients.

	Younger children (2–9 year olds)		Older children (10–17 year olds)	
	Original Measure	New Proposed Measure	Original Measure	New Proposed Measure
Physical abuse	.13***	.09**	.12***	.06*
Emotional abuse	.20***	.11***	.24***	.10***
Sexual assault	.17**	.06**	.17***	.09***
Physical Neglect	.01	—	.06**	—
Witnessed domestic violence[1]	.12***	.08**	.11**	.09***
Parents Divorced	−.12	—	−.04*	—
Family mental illness[2]	.14***	.10***	.03	—
Family drug/ alcohol problem	.04	—	.08**	—
Parent in prison	.02	—	.02	—
Weapon assault		—		.06**
Peer assault w/o injury		.09***		—
Peer assault with injury		.03**		.05*
Serious assault threat		—		.09***
Bias attack		—		.09**
Personal property theft		.09***		—
Sexual harassment		.07**		.14***
Peer physical intimidation		.09***		.07***
Peer emotional abuse		.20***		.16***
Witness attack with weapon		.08**		.05**
Witness shots, bombs, riots		—		.10***
Someone close illness		—		.06***
Someone close suicide attempt		—		.11***
Taken from family		.09**		—
Welfare		.08**		—
Job loss		.05*		—
R^2	**.18**	**.31**	**.26**	**.43**
AIC	**14559.68**	**13634.93**	**16346.86**	**14715.00**
BIC	**14625.85**	**13740.80**	**16414.45**	**14823.13**

[1] New proposed measure used *witnessed domestic violence or chronic parental conflict*, which had stronger independent association with trauma symptoms than witnessing domestic violence only.

[2] New proposed measure used *mother or father mental illness* which had stronger independent association with trauma symptoms than any family mental illness.

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

Table 4
High ACEs Count Predicting High Trauma Cases.

	Younger children (2-9 year olds)		Older children (10-17 year olds)	
	Original Measure	New Proposed Measure	Original Measure	New Proposed Measure
Number of Items Included	9	15	9	15
Sample Average # ACEs (std. error)	0.87 (0.03)	2.17 (0.05)	1.28 (0.03)	3.00 (0.06)
High trauma: mean ACEs	2.02 (0.16)	4.43 (0.20)	2.73 (0.16)	6.49 (0.22)
Not high trauma: mean ACEs	0.74 (0.03)	1.90 (0.04)	1.12 (0.03)	2.61 (0.05)
Discrimination measure: Area under ROC curve	0.73	0.80	0.75	0.84
High ACEs Count: Number of items	4	5	4	7
% sample with high ACEs count	5.3	12.0	9.7	11.9
Logit Odds Ratio: DV = high trauma; IV = high ACES[a]	7.81 (2.03)	9.28 (1.68)	7.21 (1.31)	11.23 (1.92)
% high trauma cases identified	21.5	45.2	34.7	48.7
% high trauma cases *not* identified	78.5	54.8	65.3	51.3

[a] All are sig at $p < .001$

There are several noteworthy findings. First, several ACEs from the original measure were not significantly associated with trauma symptoms, even when only those ACEs were included in the regression. For both age groups, parental divorce and parental imprisonment were unrelated to trauma symptoms. For the younger children, physical neglect and family drug or alcohol problems also were not significantly related to trauma while, for older children, family mental illness was unrelated to this outcome. On the other hand, there were several additional ACEs in domains not covered in the original measure that were impactful and warranted inclusion in the new proposed measure. Of note were peer victimization ACEs; peer emotional abuse had the strongest association with trauma symptoms for both age groups. Several types of physical assault and sexual harassment were also important, especially for the older age group, as was witnessing a weapon assault and gun violence or riots. Interpersonal loss ACEs involving someone close, such as a serious illness or a suicide attempt, also emerged as important predictors among the older children, while being taken away from family was predictive among the younger children. Finally, the economic stressors of family welfare and parental job loss were impactful for younger children only. Most importantly, the set of items in the new proposed measure explained substantially more variation in trauma symptoms than did the original set of items; about 42% more variance explained among the younger group (31% vs 18%) and 40% among the older group (43% vs 26%). In addition, the Akaike information criterion (AIC) and Bayesian Information Criterion (BIC) values are substantially lower for the two proposed models compared to the models using the original ACES set, indicating greater parsimony, even accounting for the larger number of predictor variables.

As a next step, we examined how well each ACE measure predicted high trauma cases to determine the extent to which children with potentially clinically significant trauma levels could be identified. As shown in Table 4, high trauma cases among the 2 – 9-year-old sample had an average of two ACEs using the original ACEs measure (that is, 22% of the total items were endorsed on average), but an average of almost 4.5 ACEs using the new proposed measure (30% of the total items, on average). For the 10 – 17-year olds, these figures were 2.7 (30%) and 6.5 (43%), respectively. We conducted ROC analyses to determine the optimal cut off score to define high ACEs for both the original measure and our new measure, for each age group.

Hosmer and Lemeshow (Hosmer & Lemeshow, 2000) consider a ROC between 0.7 and 0.8 as acceptable and a ROC in the range of 0.8 to 0.9 as excellent. The original ACES measures scored acceptable using these guidelines (ROC = 0.73 for 2 – 9-year-olds; ROC = 0.75 for 10 – 17-year-olds) and the new proposed ACES measure scored as excellent (ROC = 0.80 for 2 – 9-year-olds; ROC = 0.84 for 10 – 17-year-olds). We then used the ROC data to plot the sensitivity and specificity on the same graph for each measure, taking the point where they intercept as our cut point. The cut points for 2 – 9-year-olds are four ACES (out of a possible 9) in the original scale; or five ACES (out of a possible 15) in the new proposed scale. For 10 – 17-year-olds, the cut points are four ACES (out of a possible 9) in the original scale and seven ACES (out of a possible 15) in the new proposed measure. Using these cut points, a little over 5% of the 2 – 9-year-olds fell into the “high ACEs” category in the original measure, while 12% fell into this category using the new measure. For the 10 – 17-year-olds, these figures were 9.7% and 1%, respectively.

Among the 2 – 9-year-olds, the odds of having a high trauma level was 7.8 times greater for the high ACEs group than for the non-high ACEs group, when based on the original ACEs measure. In contrast, the odds ratio using the new proposed measure in this age group was 9.3. Among the 10 – 17-year-olds, the odds of having a high trauma level was 7.2 times greater for the high ACEs group than for the non-high ACEs group, when based on the original ACEs measure. The odds ratio using the new proposed measure in this age group was 11.2. Importantly, there were substantial differences in the extent to which each measure could successfully identify high trauma cases. Among the 2 – 9-year-old children, a high ACEs score identified only 21.5% of high trauma cases using the original measure, but almost 46% of high trauma cases were accurately identified with the new proposed measure. Among the 10 – 17-year-old children, a high ACEs score on the original measure identified 34.7% of high trauma cases while a high ACEs score on the new measure identified 48.7% of those with high trauma symptomatology.

4. Discussion

Research on ACEs has grown in recent years, as has interest in its use as a screening tool to identify high-risk children who would benefit from interventions. To do so effectively, however, some fundamental issues should be addressed. Among them is a better understanding of which ACEs most predict outcomes in childhood, outcomes that likely serve as mediating mechanisms to long-term health problems. We have argued that such efforts should be empirically derived, cover multiple domains of experience, and take into account possible developmental variations in the predictive power of different ACEs. The current research takes an important step in this direction.

This study started with a large inventory of 40 childhood adversities to determine what smaller group of items covering a number of environmental domains might efficiently predict high risk children suffering from psychological distress symptoms. It concluded that a particular (and somewhat different) set of 15 adversities was most parsimonious for both age groups. It also showed that these sets did substantially better at predicting trauma symptoms than the original ACE items, including identifying high trauma cases of potential clinical significance.

Several observations about the predictive associations are worth emphasizing. First, almost all events and conditions that have been discussed in the literature as potential childhood adversities do seem to be statistically associated with distress at the bivariate level. Moreover, it is also the case that adding any arbitrary list of such adversities together will predict more negative outcome than they do singly. However, this is an undiscriminating standard to use for deciding what adversities to choose for screening or for intervention.

Second, some childhood adversities that have been conventionally considered as impactful, like divorce and parental imprisonment, did not make significant contributions in predicting symptoms after accounting for other more predictive adversities. This provides some support for the idea that the actual trauma agents for divorce, for example, are other factors such as exposure to

parental conflict, reduced supervision, harsh discipline, and economic hardship more than the separation of the parents (Amato, 2000). Thus, while these have very often been included in ACE inventories, it appears that related adversities, such as domestic violence and parental mental health problems are more causally relevant for negative outcomes. Another traditional ACE item that could be complicated in this way is neglect, which did not explain much variance in trauma symptoms when other factors were included. It did not enter at all among maltreatment items for younger kids, was weak for older youth, and dropped out once other adversities were included. The low prediction ability for neglect may be because physical and emotional abuse, as well as adversities related to economic and community disadvantage, co-vary strongly with neglect. But it also may be because neglect is a complex and multi-faceted childhood stressor that is hard to assess with simple screen questions. We encourage more research to evaluate different measures of neglect in ACEs screening efforts.

Third, there clearly were some domains of adversity with strong abilities to predict distress that had been excluded in the original ACEs inventory. Peer victimization was in this category, with exposures to peer physical intimidation and especially peer emotional abuse, both making important independent contributions. These two adversity items align with what other researchers sometimes call physical and emotional bullying, and which has been shown to have predominant ACE contributions in other studies as well (Khan et al., 2015).

Other important independent and strong predictors from our analysis that were not included in the original ACE items were several forms of physical assault. For older children, being the victim of a physical assault that resulted in injury or an assault that involved a weapon, were independently predictive of trauma symptoms. Both types of assault are what law enforcement calls “aggravated assault” and are considered especially dangerous. Finally, a serious threat of assault when the youth thought he or she would get hurt also made the list of independent predictors. This finding, together with the significance of aggravated assaults, suggests victimizations that elicit threat of serious bodily harm or fear of death are particularly impactful.

A final type of physical assault, bias attack, was also independently related to trauma symptoms in this older group, regardless of whether it resulted in injury or a weapon was involved. This type of incident, motivated by bias against an individual’s race, ethnicity, religion, disability, or sexual orientation, is what law enforcement sometimes label a “hate crime.” This finding is consistent with recent national studies showing that victimization incidents with a perceived bias component had substantially greater odds of creating an extreme emotional reaction (Jones, Mitchell, Turner, & Ybarra, 2018) than victimizations without a bias component. For younger children, peer assault without injury was a significant predictor, suggesting that even assault at this lower threshold is meaningful for younger children. Importantly, all these assault items had predictive value controlling for one another and after peer physical intimidation and parental physical abuse were accounted for, indicating their importance as separate traumatic occurrences. The salience of the assault victimization domain among older youth is especially striking.

In addition, a child’s exposure to community violence appears to also be an important predictor of trauma symptoms. The original ACEs inventory correctly included exposure to domestic violence as an important ACE but missed the equivalent exposure to community violence. Supporting past research on community violence exposure (Lynch, 2003; McCoy, Raver, & Sharkey, 2015), witnessing a weapon attack was predictive for both younger and older children and witnessing gun shots and civil disorder such as riots was predictive for the teens.

Our comprehensive approach also identified an important subtlety to the impact of sexual victimization. As expected, the experience of sexual assault made a strong contribution to predicting high trauma symptoms for both older and younger children. However, the separate experience of sexual harassment made an additional contribution independent of sexual assault for both age groups, and a particularly strong contribution among older youth. Thus, the experience of being demeaned, denigrated or stigmatized in a sexual way is an important childhood adversity that is not sufficiently explained by sexual assault or peer emotional abuse, which sometimes also has sexual components.

Another domain of adversity emerged from our analyses, but its implications are equivocal. Being the victim of personal property theft appeared to make some independent contribution for younger children. Property crime is a childhood adversity that has rarely been discussed by those interested in childhood mental health. Conventional beliefs hold that property harms are frequent, minor and transitory. Our property crime question was endorsed by only about one-tenth of the parents responding for this age group. Perhaps they were selective, only reporting on experiences associated with a strong sense of loss for the child. Nevertheless, for those assessing adversities to young children through parent inventories, our findings suggest that personal property theft bears consideration.

Two items from the interpersonal loss domain, someone close who had been very ill and someone close who attempted suicide, emerged as important predictors, but only for older children. Although it is unclear why this was the case, it may be that younger children are sometimes unaware of the serious illness or suicide attempt of the close network member. Even though the responding parent knows what happened, the child (particularly young children) may often be protected from the distressing details of the situation. In contrast, older youth, who are self-reporting, do so because they clearly know of the event and it has some salience for them. Moreover, in the case of suicide attempts, the close network member affected may often involve similar age peers; adolescents close in age to the person who has attempted suicide may be particularly impacted because the youth more strongly identifies with the victim.

A domain that has always been considered important for social policy analysts, but less so for mental health clinicians has been economic adversities. It was not considered in the original ACEs inventory and has generally been omitted in other adversity inventory versions (Oh et al., 2018), but has been considered by a few other ACEs researchers (Nurius et al., 2019). When our analysis contrasted several measures of economic adversity, low income was clearly not the best variable to use as a predictor. By contrast, being on welfare and parental job loss were independent predictors for younger children only.

An important question, however, is just what dynamics are responsible for distressing consequences of economic adversity on younger children. Since our models already had many elements of family conflict, maltreatment, neighborhood crime, and residential

instability, all of which can be concomitants of economic adversity, the mechanisms may be other aspects of family conditions or behaviors not directly captured by the ACEs assessed. For example, welfare and parental job loss may be proxy indicators for low parental involvement and availability, parenting practices and styles associated with low parent education (Brand, 2015; McLoyd, Jayaratne, Ceballo, & Borquez, 1994), or even the prenatal environment that can influence epigenetic dysregulation and brain development before birth (Babenko, Kovalchuk, & Metz, 2015; Monk, Spicer, & Champagne, 2012).

Family instability is also viewed as an important possible component of childhood adversity (Hadfield, Amos, Ungar, Gosselin, & Ganong, 2018; Lee & McLanahan, 2015). While the two conventional ACE items of divorce and parental imprisonment did not contribute independently to predicting distress, we also looked at a variety of other family instability indicators like moving a lot, a parent having multiple romantic partners, or the family being homeless. Nonetheless, the only family instability indicator that made an independent contribution was the child being removed from the family, and only for the younger children. Removal from the family occurs primarily for abuse, neglect and parental incapacity (Takayama, Wolfe, & Coulter, 1998; Turney & Wildeman, 2017), but these correlated adversities were controlled for in the analyses. Thus, the strength of this predictor may be due to additional trauma from the removal itself, like change of caregiver or living conditions (Maclean, Sims, O'Donnell, & Gilbert, 2016). It may also be a marker for particularly intense forms of maltreatment or parental incapacity, which differentially result in removal (Baldwin et al., 2019).

Another family instability factor included in our assessment was parental mental illness. A version of this, any family mental illness, was used to represent the item in the original screener, which asked about mental health problems among household members. After comparing the strength of associations with trauma symptomatology, we chose to include a more narrowly defined item of mother or father mental illness in our new proposed measure. This factor was only significant for the younger children, which is consistent with some recent studies from Sweden (Niederkrotenthaler et al., 2012). Although family drug or alcohol problem was also significant for older youth within the original ACEs analyses, it was not significant in either age group in the new proposed measure analyses, suggesting that ACEs that may be corollaries to this family problem accounted for its impact. In contrast, parent mental illness remained an independent predictor for younger children with other ACEs controlled.

Like economic stressors, the importance of parent mental illness for young children suggests that there are mechanisms not tapped by our list of ACEs. Future research should attempt to better understand how factors that reflect "status conditions", like economic disadvantage and parental mental disorder, influence child distress. They may index adversity experiences that still need to be identified and potentially included in ACEs measures as more direct causal agents of trauma. Conversely, the mechanisms explaining these associations may fall outside of what are typically considered toxic stress exposures. Either way, the issue highlights the need for more theoretical and empirical work to inform discussions on what, and what is not, part of the conceptual domain of "adverse childhood experiences".

4.1. Limitations

There are several limitations of this study. First, there may be low base-rate ACEs that could potentially have a substantial impact on child well-being, but we did not have power to detect significant associations. That being said, it can be argued that including ACE items that have very low base-rates would not be useful for identifying most children at high risk for negative outcomes and, therefore, would not be effective items to include in a wide-spread or universal screening measure. Second, older children may forget about adversities that had happened to them at very young ages and as a result, may tend to report more proximal adversities. However, this most certainly is also a problem of studies that rely on adults' retrospective accounts of their own childhood adversities. Relatedly, parents who provide proxy reports of their children's experiences may underreport certain ACEs, either because they do not know of the exposure or because they may be unwilling to report exposures that involve a parent. Third, our construction of the conventional ACE model is missing one item: emotional neglect, which was not explicitly measured in the NatSCEV. We did have a measure of emotional abuse, physical neglect and other parental incapacity measures, but it is not certain that these would cover the influence of parental emotional neglect measured more directly. Fourth, the current study is limited by cross-sectional data that does not allow us to control for pre-exposure trauma symptoms to fully establish temporal ordering. Moreover, although our study had the advantage of assessing cumulative adversities and recent trauma symptomatology in childhood, it is not certain that the ACEs that best predicted this outcome would be the same ACEs causally responsible for long term health problems in adulthood. Only a study that begins in childhood and follows individuals across decades of the life course, could more conclusively specify ACEs of greatest significance for long-term outcomes and the mediating factors that operate along the way. Finally, future studies might consider whether assessing more nuanced variations in the impact of different ACEs, for example by gender, race, and more narrow age ranges, would improve the predictability of screening instruments.

5. Conclusion

Many of the adverse childhood experiences included in the original ACEs index, such as physical abuse, emotional abuse, sexual assault, and witnessing domestic violence were good predictors of trauma symptoms for both older and younger children. However, others, such as divorce and parental imprisonment, were unrelated to this outcome in our analyses. If the goal is to identify children at high risk of experiencing trauma symptoms, and other related outcomes, increasing predictive accuracy of ACE measures can make a substantial difference. Clearly, we do not want to waste resources by unnecessarily flagging children who are not at significant risk.

Developmental differences in the most predictive ACEs highlight the more dominant influence of family-related factors for younger children, such as being taken from family, economic stressors, and parent mental health. Older children appear to be more strongly affected by community and peer violence exposure, especially in the form of different types of serious assault, like assault

with injury, weapon assault and bias motivated assault. Interpersonal loss ACEs, like a close network member being serious ill or attempting suicide, are also more influential among older youth. Thus, while many ACEs were predictive of trauma symptoms across the full developmental spectrum, there were several that were specific to the age of assessment, suggesting that developmental considerations are important when using ACEs as an assessment tool.

The ACEs field appears to be pushing ahead with plans to screen children and adults in an attempt to provide interventions to prevent their possibly negative developmental effects (Purewal et al., 2016; Stavely, 2019; Stevens, 2014). Many ACES researchers, however, have expressed concern about the risks of scaling up such screening prematurely (Finkelhor, 2018; Kelly-Irving & Delpierre, 2019; McLennan et al., 2019; Murphey & Bartlett, 2019; Racine, Killam, & Madigan, 2020). Effective screening regimens have been shown to require proven screening tools that efficiently identify cases that will benefit from treatment, and treatments for the identified conditions that have proven benefits themselves (Dobrow, Hagens, Chafe, Sullivan, & Rabeneck, 2018; Krist, Davidson, & Ngo-Metzger, 2019). ACEs research is nowhere near meeting those conditions. In fact, the current study directly highlights some of the weaknesses and uncertainties about which items or which combinations would be most useful in ACEs screening, and how inventories may fail to evaluate important adversities while screening for others that may be inert. We urge a more incremental and research-based approach to screening and treating childhood adversity exposure to avoid a possible waste of resources and to insure effective treatment. Our 15 item inventories provide a starting point that may be useful in future developmental studies, but additional research is needed. More rigorous construction of screening tools and more thorough evaluations of their comparative utility in clinical settings are needed to be successful in this goal of early intervention.

Funding

This project was supported by grants 2006-JW-BX-0003 and 2009-JW-BX-0018 from the Office of Juvenile Justice and Delinquency Prevention, Office of Justice Programs, U.S. Department of Justice. The total amount of federal funding involved is $2,848,809.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

Informed consent was obtained from all individual participants included in the study or their legal guardians. Assent was also obtained from all participants under the age of 18.

Declaration of Competing Interest

The authors declare that there is no conflict of interest relating to this manuscript, nor any financial interests.

Appendix A. Adverse Childhood Experiences (ACEs) by Domain

Family Instability (6 ACEs)

Divorced/Separated
IF child currently does not live with both biological mother and biological father
Who are the adults currently living in the household?
Moved homes a lot
Answered four or more to following:
How many times has your [CHILD'S AGE]-year old moved since he/she was born?
Multiple live in partners
IF answered two or more to following:
How many DIFFERENT marriages or live-in partners have you had since your [CHILD'S AGE]-year-old was born? [Interviewer: Count marriage or live-in to same partner only once]
Parent went to prison
At any time in (your child's/your) life did either of (your child's/your) parents, stepparent, or guardian ever have to go to prison?
Child taken away
(Was your child/were you) ever sent away or taken away from your family for any reason?
Family homelessness
Was there ever a time in (your child's/your) life when (your child's/your) family had to live on the street or in a shelter because

they had no other place to stay?

Interpersonal Loss (3 ACEs)

Someone close died

Did (your child/you) ever have anyone close to (him/her/you) die because of an illness or an accident?

Someone close very ill

Has someone (your child was/you were) really close to ever had a VERY BAD illness where they had to be in the hospital a lot? Again, this would be someone important to (your child/you), like a parent, brother or sister, or best friend.

Someone close attempted suicide

Has someone close to (your child/you) ever tried to kill him or herself on purpose (like by shooting or cutting him or herself, or taking too many pills or drugs)?

Family Disorder (2 ACEs)

Has anyone in your [CHILD'S AGE]-year-old's family ever been diagnosed by a doctor, therapist or another professional with the following? (answer yes/no to each of the following)

a Major Depressive Disorder
b Bipolar Disorder
c Anxiety Disorder
d Substance or Alcohol Related Disorder
e Some other Psychiatric Disorder

Was that person (or those people) his/her mother, father, stepmother, stepfather, sister, brother, or someone else? (check all that apply)

Any family mental illness (original measure)

Counted ACE if respondent answered yes to **a, b, c, and/or e** with respect to any family member

Mother or father mental illness (new measure)

Counted ACE if respondent answered yes to **a, b, c, and/or e** AND indicated the person was mother, father, stepmother and/or stepfather.

Family drug or alcohol problem

Has there ever been a time that a member of (your child's/your) family drank or used drugs so often that it caused problems?

Non-Relational Threat (3 ACEs)

Natural Disaster

In (his/her/your) whole life, (was your child/were you) ever in a VERY BAD fire, flood, tornado, hurricane, earthquake or other disaster? This would be a time that (your child's/your) home or apartment was damaged and (your child/you) might have had to live somewhere else for a while

Personal illness

Did (your child/you) ever have a VERY BAD illness where (your child/you) had to go to the hospital? This could be a time when (your child was/you were) so sick that (your child/you) had to be in the hospital a lot? Has that ever happened?

Personal accident

Was your child/Were you) ever in a VERY BAD accident (at home, school, or in a car) where (your child/you) had to go to the hospital? This would be a time that (your child was /you were) was very hurt and needed to spend a long time in the hospital. Has that ever happened?

Economic Stressors (3 ACEs)

Parental job loss

Have there ever been any times when (your child's/your) mother, father, or guardian lost a job or couldn't find work?

Welfare

Do you currently receive Temporary Aid to Needy Families (TANF), WIC, welfare, Medicaid, or any other public assistance? [Asked in parent screener interview]

Low Income

Counted IF yearly household income was < $15,000

Child Maltreatment (4 ACEs)

Physical abuse

Not including spanking on (his/her /your) bottom, at any time in (your child's/your) life did a grown-up in (your child's/your) life hit, beat, kick, or physically hurt (your child/you) in any way?

Emotional abuse

At any time in (your child's/your) life, did (your child/you) get scared or feel really bad because grown-ups in (your child's/your) life called (him/her /you) names, said mean things to (him/her /you), or said they didn't want (him/her /you)?

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 them 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 child's/your) life, (was your child/were you) neglected?

Witness parental violence/chronic conflict

Counted IF respondent answered yes to either of the following:

At any time in (your child's/your) life did (your child/you) SEE a parent get pushed, slapped, hit, punched, or beat up by another parent, or their boyfriend or girlfriend?

Has there ever been a time when (your child's/your) parents or stepparents were ALWAYS arguing, yelling, and angry at one another a lot of the time?

Community Violence Exposure (4 ACEs)

Witness Weapon Assault

At any time in (your child's/your) life, in real life, did (your child/you) SEE anyone get attacked or hit on purpose WITH a stick, rock, gun, knife, or other thing that would hurt? Somewhere like: at home, at school, at a store, in a car, on the street, or anywhere else?

Witness Simple Assaults

At any time in (your child's/your) life, in real life, did (your child/you) SEE anyone get attacked or hit on purpose WITHOUT using a stick, rock, gun, knife, or something that would hurt?

School Threat

(Has your child/Have you) ever gone to a school where someone said there was going to be a bomb or attack on the school and (your child/you) thought they might really mean it?

Witness shootings, riots

At any time in (your child's/your) life, (was your child/ were you) in any place in real life where (he/she /you) could see or hear people being shot, bombs going off, or street riots?

Property Crime (4 ACEs)

Robbery

At any time in (your child's/your) life, did anyone use force to take something away from (your child/you) that (he/she was/you were) carrying or wearing?

Theft of personal property

At any time in (your child's/your) life, did anyone steal something from (your child/you) and never give it back? Things like a backpack, money, watch, clothing, bike, stereo, or anything else?

Vandalism

At any time in (your child's/your) life, did anyone break or ruin any of (your child's/your) things on purpose?

Household burglary

At any time in (your child's/your) life, did anyone steal something from your house that belongs to (your child's/your) family or someone (your child/you) live with? Things like a TV, stereo, car, or anything else?

Physical Assault (6 ACEs)

Weapon assault

Sometimes people are attacked with sticks, rocks, guns, knives, or other things that would hurt. At any time in (your child's/your) life, did anyone hit or attack (your child/you) on purpose with an object or weapon? Somewhere like: at home, at school, at a store, in a car, on the street, or anywhere else?

Threatened serious assault

At any time in (your child's/your) life, did someone threaten to hurt (your child/you) when (your child/you) thought they might really do it?

Bias assault

At any time in (your child's/your) life, (has your child/have you) been hit or attacked because of (your child's/your) skin color, religion, or where (your child's/your) family comes from? Because of a physical problem (your child has/you have)? Or because someone said (your child was/you were) gay?

Dating violence

At any time in your life, did a boyfriend or girlfriend or anyone you went on a date with slap or hit you? (asked only of youth ages

12 and older)

Peer assault with injury

Counted IF perpetrator was non-sibling AND respondent answered YES to either of the following AND follow-up indicated injury:

At any time in (your child's/your) life, did any kid, even a brother or sister, hit (your child/you)? Somewhere like: at home, at school, out playing, in a store, or anywhere else?

Peer assault with no injury

IF perpetrator was non-sibling AND respondent answered YES to following AND follow-up indicated no injury:

At any time in (your child's/your) life, did any kid, even a brother or sister, hit (your child/you)? Somewhere like: at home, at school, out playing, in a store, or anywhere else?

Kidnap attempt

When a person is kidnapped, it means they were made to go somewhere, like into a car, by someone who they thought might hurt them.] At any time in (your child's/your) life, has anyone ever tried to kidnap (your child/you)?

Sexual Victimization (2 ACEs)

Sexual Harassment

At any time in (your child's/your) life, did anyone hurt (your child's/your) feelings by saying or writing something sexual about (your child/you) or (your child's/your) body?

Sexual Assault

YES response to any of the following:

At any time in (your child's/your) life, did a grown-up (your child knows/you know) touch (your child's/your) private parts when they shouldn't have or make (your child/you) touch their private parts? Or did a grown-up (your child knows/you know) force (your child/you) to have sex?

At any time in (your child's/your) life, did a grown-up (your child/you) did not know touch (your child's/your) private parts when they shouldn't have, make (your child/you) touch their private parts or force (your child/you) to have sex?

Now think about other kids, like from school, a boyfriend or girlfriend, or even a brother or sister. At any time in (your child's/your) life, did another child or teen make (your child/you) do sexual things?

Peer Victimization (2 ACEs)

Physical intimidation

At any time in (your child's/your) life, did any kids, even a brother or sister, pick on (your child/you) by chasing (your child/you) or grabbing (your child/you) or by making (him/her /you) do something (he/she /you) didn't want to do?

Emotional bullying

At any time in (your child's/your) life, did (your child/you) get really scared or feel really bad because kids were calling (him/her /you) names, saying mean things to (him/her /you), or saying they didn't want (him/her /you) around?

Appendix B. Proposed New Measure Items

Young children ages 2 − 9 (caregiver screener)

1) Was your child ever sent away or taken away from your family for any reason?
2) Has any parent or stepparent of your child ever been diagnosed by a doctor, therapist or another professional with Major Depressive Disorder, Bipolar Disorder, Anxiety Disorder or any other psychiatric disorder?
3) Have there ever been any times when your child's mother, father, or guardian lost a job or couldn't find work?
4) Does your child's family currently receive Temporary Aid to Needy Families (TANF), WIC, welfare, Medicaid, or any other public assistance?
5) Not including spanking on his/her bottom, at any time in your child's life did a grown-up in your child's life hit, beat, kick, or physically hurt your child in any way?
6) At any time in your child's life, did your child get scared or feel really bad because grown-ups in your child's life called him/her names, said mean things to him/her, or said they didn't want him/her?
7) At any time in your child's life did your child SEE a parent get pushed, slapped, hit, punched, or beat up by another parent, or their boyfriend or girlfriend? Or has there ever been a time when your child's parents or stepparents were ALWAYS arguing, yelling, and angry at one another a lot of the time?
8) At any time in your child's life, in real life, did your child SEE anyone get attacked or hit on purpose WITH a stick, rock, gun, knife, or other thing that would hurt? Somewhere like: at home, at school, at a store, in a car, on the street, or anywhere else?
9) At any time in your child's life, did anyone steal something from your child and never give it back? Things like a backpack, money, watch, clothing, bike, stereo, or anything else?
10) At any time in your child's life, did any kid (not including a brother or sister) hit your child causing him/her to be injured? That is, he/she felt pain the next day or had something like a cut, bruise, or broken bone? This could have happened at home, at school, out playing, in a store, or anywhere else.

11) At any time in your child's life, did any kid (not including a brother or sister) hit your child even though he/she was not injured? This could have happened at home, at school, out playing, in a store, or anywhere else?
12) At any time in your child's life, did anyone hurt your child's feelings by saying or writing something sexual about your child or your child's body?
13) At any time in your child's life, did any kids, even a brother or sister, pick on your child by chasing your child or grabbing your child or by making him/her do something he/she didn't want to do?
14) At any time in your child's life, did your child get really scared or feel really bad because kids were calling him/her names, saying mean things to him/her, or saying they didn't want him/her around?
15) At any time in your child's life, did any grown-up (that your child knows or did not know) touch your child's private parts when they shouldn't have or make your child touch their private parts? Or did any grown-up force your child to have sex?

AND/OR

Now think about other kids, like from school, a boyfriend or girlfriend, or even a brother or sister. At any time in your child's life, did another child or teen make your child do sexual things?

Older youth 10 – 17 (self-report)

1) Has someone you were really close to ever had a VERY BAD illness where they had to be in the hospital a lot? This would be someone important to you, like a parent, brother or sister, or best friend.
2) Has someone close to you ever tried to kill him or herself on purpose (like by shooting or cutting him or herself, or taking too many pills or drugs)?
3) Not including spanking on your bottom, at any time in your life did a grown-up in your life hit, beat, kick, or physically hurt you in any way?
4) At any time in your life, 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?
5) At any time in your life did you SEE a parent get pushed, slapped, hit, punched, or beat up by another parent, or their boyfriend or girlfriend? Or has there ever been a time when your parents or stepparents were ALWAYS arguing, yelling, and angry at one another a lot of the time?
6) At any time in your life, in real life, did you SEE anyone get attacked or hit on purpose WITH a stick, rock, gun, knife, or other thing that would hurt? Somewhere like: at home, at school, at a store, in a car, on the street, or anywhere else?
7) At any time in your life, did any kid (not including a brother or sister) hit you causing you to be injured. That is, you felt pain the next day or had something like a cut, bruise, or broken bone? This could have happened at home, at school, out playing, in a store, or anywhere else
8) Sometimes people are attacked with sticks, rocks, guns, knives, or other things that would hurt. At any time in your life, did anyone hit or attack you on purpose with an object or weapon? Somewhere like: at home, at school, at a store, in a car, on the street, or anywhere else?
9) At any time in your life, did someone threaten to hurt you when you thought they might really do it?
10) At any time in your life, have you been hit or attacked because of your skin color, religion, or where your family comes from? Because of a physical problem you have? Or because someone said you were gay?
11) At any time in your life, were you in any place in real life where you could see or hear people being shot, bombs going off, or street riots?
12) At any time in your life, did anyone hurt your feelings by saying or writing something sexual about you or your body?
13) At any time in your life, did any kids, even a brother or sister, pick on you by chasing you or grabbing you or by making you do something you didn't want to do?
14) 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?
15) At any time in your life, did any grown-up (that you know or did not know) touch your private parts when they shouldn't have or make you touch their private parts? Or did any grown-up force you to have sex?

AND/OR

Now think about other kids, like from school, a boyfriend or girlfriend, or even a brother or sister. At any time in your life, did another child or teen make your you do sexual things?

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EXHIBIT B

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In re: ***Meehan, on behalf of himself and all others similarly situated v. New Hampshire Department of Health and Human Services, et al.***
New Hampshire Superior Court, Merrimack County, Civil No.217-2020-00026

Preliminary Psychiatric Report of Stuart Grassian M.D.

I. Introduction.

I am a Board-certified psychiatrist, licensed to practice medicine in the Commonwealth of Massachusetts. My professional experience as a psychiatrist has spanned over forty years. In the present matter, I have been asked to review hypotheticals (attached herein) concerning the experience of adolescents in juvenile detention in New Hampshire. These hypotheticals describe subjecting these adolescents to physical and sexual abuse, and also to subjecting adolescents to conditions of solitary confinement. I have been asked to provide an opinion regarding the likely psychiatric effect of these hypothetical situations.

2. Qualifications.

2.1. Experience Regarding Psychiatric Effects of Solitary Confinement,

During the course of my professional life I have had extensive experience in evaluating both adolescents and adults who have been subjected to stringent conditions of confinement. I have evaluated several hundred individuals who were then experiencing, or had in the past experienced, confinement in solitary. Included in this are a large number of adolescents who

were confined in juvenile detention facilities in conditions that were as harsh and punitive – and in some instances worse – than those experienced in solitary confinement in adult prisons.

In 1983, I published an article in the American Journal of Psychiatry (AJP) describing a particular psychiatric syndrome associated with solitary confinement.[1] The article (attached hereto and incorporated herein) also noted that this syndrome had been previously described in the psychiatric literature.

My observations and conclusions generally regarding the psychiatric effects of solitary confinement have been cited in a number of federal court decisions, for example: *Davenport v. DeRobertis*, 844 F.2d 1310 (7th Cir. 1988), *Coleman v. Wilson,* 912 F.Supp. 1282 (E.D. Cal., 1995), *affirmed sub nom Brown v. Plata* (2011, 131 S. Ct. 1910), *Madrid v. Gomez*, 889 F. Supp. 1146 (N.D. Cal. 1995), and in the concurring opinions of Justice Kennedy in *Davis v Ayala,* (2015) 135 S. Ct. 2187 and of Justice Sotomayor in *Apodaca v. Raemish,* (2018), 586 U.S. ____.

I prepared a written declaration for *Madrid* describing the medical literature and historical experience concerning the psychiatric effects of restricted and isolated conditions of confinement as well as of other conditions of restricted environmental and social stimulation, and subsequently compiled the general (non-institution, non-inmate specific) portions of that declaration into an article entitled *Psychiatric Effects of Solitary Confinement*, 22 Wash. U. Journal of Law & Policy (2006) (attached hereto and incorporated herein). This article describes the extensive body of literature, including clinical and experimental literature, regarding the

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[1] *Psychopathological Effects of Solitary Confinement.* Am. J. Psychiatry, 140:1450-1454, 1983.

effects of decreased environmental and social stimulation, especially in relation to the effects of segregated confinement on prisoners.

I have given lectures and seminars regarding these issues. They include, but are not limited to, lectures at Harvard Medical School, Boston, Harvard Law School, Cambridge, at meetings of the Nova Scotia, Virginia and New York State Bar Associations, The Office of Military Commissions of the U.S. Department of Defense (regarding Guantanamo detainees), The Federal Capital Defenders Habeas Unit, The John Jay College of Criminal Justice, and the American Correctional Association, as well as invited testimony before state legislative hearings in New York, Massachusetts and Maine.

I have been consulted by a variety of public advocacy groups in the United States, including The Legal Aid Society of New York, Prisoner's Legal Services of New York, the Center for Constitutional Rights, The Massachusetts Correctional Legal Services, The Massachusetts Civil Liberties Union, the National Prison Project of the American Civil Liberties Union, the Department of Corrections of the State of Florida, and various religious organizations. I also serve on the Advisory Committee of the New York State Commission on Quality of Care & Advocacy for Persons with Disabilities. In Canada I have been retained by the British Columbia Civil Liberties Union and the John Howard Society.

Since the tragic events of September 11, 2001, I have also been consulted regarding the confinement of a number of individuals who were deemed to be "enemy combatants" and/or were either charged with or convicted of conspiring against the United States. These include

individuals who were confined in Guantánamo, in the Navy Brig in Charleston, S.C., in the Federal ADX prison in Florence, Colorado and in the SeaTac facility in Seattle, Washington, as well as in federal detention centers in New York City and Miami, Florida.

2.2. Adolescents: Solitary Confinement and Abuse in Juvenile Detention Facilities.

I have extensive experience in evaluating the psychiatric effects of solitary confinement with juveniles. I have been involved as an expert in class-action litigation regarding the use of solitary confinement in juvenile detention facilities in several jurisdictions, including New Jersey and Texas, and more recently in Ohio, Wisconsin and Iowa. The latter three of these lawsuits resulted in a dramatic restructuring of juvenile detention in those States, with the virtual elimination of solitary confinement of juveniles. In my experience, facilities that use a great deal of solitary confinement are facilities that are generally very punitive, harsh and abusive, in their dealings with the adolescents under their care.

I have also been consulted and testified in a class-action lawsuit in Michigan concerning juveniles housed in solitary confinement in adult prisons.

In the course of my involvement in these class-action lawsuits, I have testified about the psychiatric effects of solitary confinement, the inadequacy of mental health treatment, and physical and psychological abuse prevailing in the juvenile institutions at issue in such cases.

I was also retained and testified in the criminal trial of an individual who ran a juvenile facility and was ultimately convicted of physical and sexual abuse as well as the excessive use of solitary confinement in his facility.

In addition to my experience with juvenile detention, I also have extensive clinical experience in evaluating and treating adolescents with behavioral problems associated with delinquency, substance abuse, and psychiatric illness – problems that are also very common among juveniles in detention facilities. My clinical involvement with these juveniles has generally been in psychiatric inpatient settings, inpatient and outpatient addictions treatment programs, and in individual or family outpatient treatment. I have served as Director or Clinical Director on two Inpatient Units serving adolescents and adults. In addition, a large proportion of troubled juveniles have problems with substance abuse and addiction, and I have extensive clinical and supervisory experience in the field of addictions with both adults and juveniles.

It might be thought that the juvenile patient population is very different from the population seen in a juvenile detention facility. That, however, is quite often not the case. In my professional experience, I have come to recognize that it is often almost a matter of chance as to whether a behaviorally disruptive or delinquent adolescent will be placed in the correctional system, or whether he will be referred for psychiatric hospitalization. Indeed, in a number of cases I have treated juveniles who seemed to bounce back and forth between psychiatric hospitals and juvenile detention facilities. This is not difficult to understand; these adolescents almost invariably have some combination of severe problems with impulse control - impulsivity, emotional volatility, explosive anger - and for many or most, addictive behavior and/or bipolar mood disorder and/or Posttraumatic Stress Disorder from childhood abuse and violence. Many seemed to be dedicated to fight against any assertion of authority, and many had committed acts of violence. While there is a spectrum of presentations among those in juvenile detention and those in a psychiatric hospital, there is a great deal of overlap. I have also described the high

incidence of psychiatric disorders among the juveniles confined in detention facilities, and the particular vulnerability of adolescents, especially those with pre-existing psychiatric disorders, to the destructive effects of such confinement.

2.3. Sexual Abuse of Juveniles.

I have evaluated a number of individuals who were sexually abused as adolescents and pre-adolescents. Many of these evaluations were of clergy sexual abuse of minors, including the notorious cases in Massachusetts involving Father Porter and a number of other priests. In addition to these, I have evaluated individuals who were sexually abused by other clergy, by teachers, by athletic coaches, by juvenile detention officers, and by others in positions of power. I have studied issues related to the effects and memory of such abuse, and have lectured on the issue at various conferences.

3. Psychiatric Effects of Solitary Confinement.

In addition to the powerlessness, fear, and anger that solitary confinement will inevitably cause, there are particular psychiatric consequences to its use. It has indeed long been known that severe restriction of environmental and social stimulation has a profoundly deleterious effect on mental functioning. This issue has, for example, been a major concern for many groups of patients including, for example, patients in intensive care units, spinal patients immobilized by the need for prolonged traction, and patients with impairment of their sensory apparatus (such as eye-patched or hearing impaired patients). This issue has also been a very significant concern in military situations, polar and submarine expeditions, and in preparations for space travel.

In regard to segregated confinement, the United States was actually the world leader in introducing prolonged incarceration–and solitary confinement–as a means of dealing with criminal behavior. The "penitentiary system" began in the United States in the early 19th century, a product of a spirit of great social optimism over the possibility of rehabilitation of individuals with socially deviant behavior. This system, originally embodied in the "Philadelphia System," involved almost an exclusive reliance upon segregated confinement as a means of incarceration. It also became the predominant mode of incarceration–both for post-conviction and also for pretrial detainees–in several European prison systems emulating the American model at the time.

The results were catastrophic. The incidence of mental disturbances among prisoners so detained, and the severity of such disturbances, was so great that the system fell into disfavor and was ultimately abandoned. During this process, a major body of clinical literature developed which documented the severe psychiatric disturbances created by such stringent conditions of confinement. The paradigmatic disturbance was an agitated confusional state which, in more severe cases, had the characteristics of a florid delirium, characterized by severe confusion, paranoia, and hallucinatory features, and also by intense agitation.

The psychiatric harm caused by solitary confinement became exceedingly apparent. Indeed, by 1890, in In re Medley, the United States Supreme Court explicitly recognized the massive psychiatric harm caused by solitary confinement:

> This matter of solitary confinement is not . . . a mere unimportant regulation as to the safe-keeping of the prisoner . . .[E]xperience [with the penitentiary system of solitary confinement] demonstrated that there were serious objections to it. A considerable number of the prisoners fell, after even a short confinement, into a semi-fatuous condition, from which it was next to impossible to arouse them, and others became violently insane; others still, committed suicide; while those who stood the ordeal better were not generally reformed, and in most cases did not recover sufficient mental activity to be of any subsequent service to the community.

The consequences of the Supreme Court's holding were quite dramatic for Mr. Medley, who had been convicted of having murdered his wife. Under the statute in force at the time of the murder, he would have been executed by hanging after about one additional month of incarceration in the county jail. But in the interim between the crime and his trial, the Colorado legislature had passed a new statute that called for the convicted murderer to be, instead, incarcerated in solitary confinement in the new Colorado State Penitentiary during the month or so prior to being hung. Mr. Medley's attorneys argued that punishment under this new law was so substantially more burdensome than punishment under the old law, as to constitute a violation of the ex post facto clause of the United States Constitution. The Supreme Court agreed with them, even though it simultaneously recognized that if Mr. Medley was not sentenced under the new law, he could not be sentenced at all, since the old law was rescinded when the new law was passed. Despite this, the Court held that added to a sentence of death on the gallows, this additional punishment of one month of solitary confinement was simply too egregious to ignore; the Court declared Mr. Medley a free man and ordered his release from prison.

Dramatic concerns about the profound psychiatric effects of such conditions of

isolated confinement continued into the 20th century, both in the medical literature, and in the news. The alarm raised about the "brainwashing" of political prisoners of the Soviet Union, Communist China, and especially of American prisoners of war during the Korean War, gave rise to a major body of medical and scientific literature concerning the effects of sensory deprivation and social isolation, including a substantial body of experimental research. It is troubling that this history is often overlooked by those who freely employ segregated confinement today. This history and literature, as well as my own experience and observations, have demonstrated conclusively that, when deprived of a sufficient level of environmental and social stimulation, individuals will soon become incapable of maintaining an adequate state of alertness and attention to the environment. Indeed, even a few days of solitary confinement will predictably shift the electroencephalogram (EEG) pattern towards an abnormal pattern characteristic of stupor and delirium.[2]

This fact is, indeed, not surprising. Most individuals have at one time or another experienced, at least briefly, the effects of intense monotony and inadequate environmental stimulation. After even a relatively brief period of time in such a situation, an individual is likely to descend into a mental torpor–a "fog"–in which alertness, attention, and concentration all become impaired. In such a state, after a time, the individual becomes increasingly incapable of processing external stimuli, and often becomes "hyper-responsive" to such stimulation. For example, a sudden noise or the flashing of a light jars the individual and becomes intensely unpleasant. Over time, the

[2] *Psychiatric Effects of Solitary Confinement*, (2006) 22 Wash. U. Journal of Law & Policy, 331.

very absence of stimulation causes whatever stimulation is available to become noxious and irritating.

An adequate state of responsiveness to the environment requires both the ability to achieve and maintain an attentional set–to focus attention–and the ability to shift attention. The impairment of alertness and concentration in solitary confinement leads to two related abnormalities:

- The inability to focus, to achieve and maintain attention, is experienced as a dissociative stupor. It is like a mental "fog" in which the individual cannot focus attention. The individual cannot, for example, grasp or recall when he attempts to read or to think.

- The inability to shift attention results in a kind of "tunnel vision" in which the individual's attention becomes stuck almost always on something intensely unpleasant. He cannot stop thinking about that matter and becomes obsessively fixated upon it. These obsessional preoccupations are especially troubling. Individuals in solitary easily become preoccupied with some thought, some perceived slight or irritation, a perceived injustice, tortured by it, unable to stop dwelling on it. In solitary confinement, ordinary stimuli become intensely unpleasant, and small irritations become the focus of paranoid rage. Individuals in such confinement brood upon normally unimportant stimuli, and minor irritations become the focus of increasing agitation and paranoia. Random, chaotic and impulsive violence often results. This violence can be self-directed (cutting, head banging, suicide attempts), or directed outward (assaults, destruction of property, smearing of feces, and so forth).

Somatic preoccupations are common. For example, an inmate becomes obsessively preoccupied with some minor, almost imperceptible bodily sensation, a sensation that grows over time into a worry, and finally into an all-consuming, life-threatening illness. This can also happen with a bodily function. I evaluated one inmate who became obsessed with the feeling that he could not empty his bladder fully, and this preoccupation became an all-consuming agony such that he would stand over the toilet literally for hours on end. The inmate would try anything to relieve the feeling including drinking excessively to "wash it through" or not drink at all to "dry it out." Of course, none of that worked. It was truly an agony for him.

In summary, the psychopathological effect of solitary confinement has several typical features[3]:

1. Perceptual distortions, illusions and hallucinations in multiple spheres (visual, auditory, olfactory, somatosensory, etc.)[4];
2. Affective disturbances – especially intense anxiety and panic attacks;
3. Difficulties with thinking, concentration and memory, at times resulting in overt confusional states; and
4. Obsessive, intrusive thoughts, at times accompanied by compulsive behaviors.
5. Impulsive, chaotic violence, either self-directed or directed outward.

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[3] See Grassian, S.: *Psychopathological Effects of Solitary Confinement*. American Journal of Psychiatry, 140:11. pp. 1450-1454 (Nov. 1981) (attached hereto and incorporated herein).

[4] Note that in the more typical psychiatric disorders, one sees generally only auditory hallucinations of voices. Visual hallucinations are uncommon, and when they do occur, they are generally of lifesized people who are the authors of the auditory hallucinations. Hallucinations in other sensory modalities are virtually non-existent.

There are, of course, substantial differences in the effects of solitary confinement upon different individuals. Some descend deeper into a mental fog, and those most severely affected may develop states of florid psychotic delirium, marked by severe hallucinatory confusion, disorientation, and even incoherence.

Individuals who are less severely affected will still experience substantial psychiatric harm– difficulties with thinking and concentration, intense anxiety, agitation, irritability, paranoia, hostility and random violence, obsessional thinking, difficulty tolerating external stimuli, and so forth. Some become obsessively fixated on their conditions of confinement or upon the rage they feel at what they perceive to be intentional cruelties and injustices. Some become "jail house lawyers," recurrently and obsessively filing lawsuits and grievances. Such preoccupations do ward off the descent into a confusional fog, but at a price of increasing rage and paranoia.

4. The Particular Vulnerability of Adolescents in Solitary Confinement.

Solitary confinement of adolescents causes far greater harm than it does for adults, and the risks to juveniles of solitary confinement are alarming. Research on adolescent development makes clear why juvenile solitary confinement is uniquely harmful.

New technologies in brain research have allowed us to recognize and observe brain plasticity, that brain function and neural connectedness are still evolving and developing during adolescence, especially so in regard to the functioning of the prefrontal cortex – that part of the

brain most centrally involved in inhibiting emotional reactivity, allowing mastery over the emotional reactivity of the subcortical amygdala and nucleus accumbens - the brain's more primitive emotional centers. Even for emotionally and cognitively healthy adolescents, this process of brain maturation extends well into the individual's mid twenties.

Brain research, both human and animal studies, has amassed a clear picture of this process,[5] and there is clear evidence that this process of brain development can be derailed by chronic unremitting stress. The effects of stress on adolescent brain development has been described in detail,[6] and there is by now a substantial body of research describing the severe lasting effects of stress on the human brain, and the particular vulnerability of juveniles to such effects.[7]

There has also been a large body of research using animal models,[8] demonstrating long-term consequences of chronic unpredictable stress. The research has demonstrated that the brain's reaction to stress, the surge of cortisol (the stress hormone) modulated through the brain's hypothalamic-pituitary-axis, is massively affected in adolescents who have experienced chronic stress.

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[5] *See, e.g.:* Casey, B.J., Jones, R.M., and Hare, T.A., (2008) *The Adolescent Brain,* Ann. N.Y. Acad. Sci. 1124: 111-126; Ernst, M., Mueller, S.C. (2008) *The adolescent brain: Insight from functional neuroimaging research.* Dev. Neurobiol 68(6) 729-743.

[6] *See, e.g.:* Tottenham, N., Galvan, A. (2016) *Stress and the adolescent brain. Amygdala-prefrontal cortex circuitry and ventral striatum as developmental targets.* Neuroscience and Biobehavioral Reviews 70:217-227.

[7] For a detailed discussion and bibliography, see, e.g. Bremner,J. (2006) *Traumatic Stress: effects on the brain.* Dialogues in Clinical Neuroscience; Vol. 8, No. 4, 445-461

[8] The harm caused animals by experimentation involving social isolation has in fact led to restrictions of such experimentation by academic review boards. For example, Columbia University has passed rules severely restricting the housing of experimental animals alone in cages.

Research further demonstrates that acute stress impairs the juvenile's ability to maintain goal-directed, as opposed to emotion-driven, behavior.[9] Functional brain studies have provided evidence that while adults are able to engage prefrontal cortical mechanisms to inhibit behavior that is likely to have adverse consequences, adolescents are unable to do so.[10] These consequences – including actual morphological changes in brain structure – have been demonstrated to persist into adulthood.[11]

The very act of placing a juvenile in isolation – the utter helplessness of it – is enormously stressful. This surge of cortisol – of fear, anxiety, and agitation – will be especially severe in juveniles.

The brain research has yielded very clear and consistent results: As noted in an *amicus brief* to the United States Supreme Court: "*each* key characteristic of solitary confinement – lack of physical activity, meaningful interaction with other people and the natural world, visual stimulation and touch – is by itself sufficient to change the brain and to change it dramatically."[12] As brain researchers have noted, especially in juveniles, factors like stress and depression can literally shrivel areas of the brain, including the hippocampus, the region of the brain involved in

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[9] *See, e.g.:* Plessow, F. et.al. (2012) *The stressed prefrontal cortex and goal-directed behaviour; acute psychosocial stress impairs the flexible implementation of task goals.* Exp Brain Res 216:397-408.
[10] Uy, J., Galvan, A. (2016) *Acute Stress increases risky behavior and dampens prefrontal activation among adolescent boys. J.* Neuroimage, http??dx.doi.org/10.1016/j.neuroimge.2016.08.067
[11] *See, e.g.* Hollis, F. et.al. (2012) *The Consequences of adolescent chronic exposure to unpredictable stress exposure on brain and behavior.* Jl. of Neuroscience, http://dx.doi.org/10.1016/j.neuroscience.2012.09.018; Tottenham, N, Galvan, A. (2016). *Stress and the adolescent brain; Amygdala-prefrontal cortex circuitry and ventral striatum as developmental targets.* Neuroscience and Behavioral Reviews, 70, 217-227.
[12] Amicus Brief to U.S. Supreme Court of Medical and Other Scientific and Health-Related Professionals filed 12/23/16 in *Ziglar v. Abbassi et.al.* and companion cases.

memory, spatial orientation and the control of emotions, a burden that may well become permanent.

In a review article[13], Dr. Laurence Steinberg notes that studies of adolescents confined in adult prisons as well as in Juvenile Detention institutions likewise provide clear evidence that placing disturbed youth in solitary confinement is both counterproductive and dangerous, that such conditions are highly likely to create psychological disturbance, stunt emotional and cognitive growth and impair the development of psychosocial maturity.

At the same time, the posited hypotheticals ask that I assume that the adolescents were deprived of adequate educational opportunities while in detention, and of any education at all while confined in solitary, with the result that on release from confinement their educational attainment was far below expected grade level. In my professional judgment, such experience would be particularly devastating, further promoting a negative and self-defeating self-image.

5. The Particular Vulnerability of Youth with Mental Health Problems

It is well-recognized that the great majority of juveniles in confinement have histories of traumatic childhoods, and of serious mental illness or cognitive impairment - Posttraumatic Stress Disorder, Attention Deficit Hyperactivity Disorder, and various forms of Bipolar Mood Disorders.[14] Not only is the incidence of mental disorders and of traumatic childhood

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[13] Steinberg, L. (2009) *Adolescent Development and Juvenile Justice.* Ann. Rev. Clin. Psychol. 5: 459-485.

[14] These two diagnoses in fact have much in common; indeed, approximately 95% of individuals with BMD meet criteria for the diagnosis of ADHD. See, eg. Wozniak J, et. al.: (1995) *Mania-like symptoms*

experiences significantly greater among juveniles in detention than that of juveniles in the community, but those in solitary confinement have even a higher incidence of such burdens and mental disorders than seen among those juveniles whose confinement is entirely in general population.

In a recent and quite comprehensive review of the literature regarding the particular vulnerabilities of juveniles in confinement, and the need to provide a different paradigm for management of juveniles in detention[15], the authors describe the unique challenges of working with juveniles in confinement, and how the combination of their traumatic past and their still developing brain function requires a very different understanding and approach to their occasionally disruptive behavior; for example, what might be labelled as willful aggressive defiance may actually be a defensive, fearful reaction to perceived threat:

> Youth in juvenile justice settings ... often have histories of complex trauma: ... including polyvictimization, life-threatening accidents or disasters, and interpersonal losses. Complex trauma adversely affects early childhood biopsychosocial development and attachment bonding, placing the youth at risk for a range of serious problems (e.g. depression, anxiety, oppositional defiance, risk taking, substance abuse, and reactive aggression.) Complex trauma is associated with an extremely problematic combination of persistently diminished adaptive arousal reactions, episodic maladaptive hyperarousal, impaired information processing and impulse control, self-critical and aggression-endorsing cognitive schemas, and peer relationships that model and reinforce disinhibited reactions, maladaptive ways of thinking, and aggressive, antisocial and delinquent behaviors.

The authors go on to discuss the parameters of treatment that disturbed and disruptive juveniles need in order to help quiet their emotional and behavioral dyscontrol, and to overcome

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suggestive of childhood-onset bipolar disorder in clinically referred children. J Am Acad Child Adolesc Psychiatry; 34:867–876.

[15] Ford, J. et. al. (2012) *Complex Trauma and Aggression in Secure Juvenile Justice Settings.* Criminal Justice and Behavior, 39, 694-725.

maladaptive ways of thinking. These include adequate assessment, milieu management and group and individual psychological treatment – effectively, a psychiatric, rather than a punitive approach to disruptive and aggressive behavior of juveniles in detention. The treatment paradigm has to be geared towards decreasing the adolescent's stress, not a punitive approach that simply increases it.

In my own professional experience, involving interviews and evaluations of scores of juveniles confined in detention, I have found that juveniles in confinement have great difficulty in managing their behavior, especially under stressful conditions. When placed in confinement, many are likely to commit disciplinary infractions, and are especially likely to be placed into solitary confinement. Yet such individuals are precisely the group least capable of tolerating the stresses and the perceptual, occupational, and social deprivations of solitary confinement; juveniles generally, and especially those who commit infractions while in confinement, are exquisitely vulnerable to psychiatric and behavioral decompensation when housed in solitary confinement, especially likely to become even more behaviorally out of control, leading to more and more time in solitary.

6. Traumatic Stress: Physical and Sexual Abuse.

The sections above focus primarily on the effects on adolescents of chronic unremitting stress. However, many individuals are so traumatized by confinement in solitary that the confinement causes them to suffer from Posttraumatic Stress Disorder (PTSD). Moreover, the conditions

described in the hypotheticals also include descriptions of physical and sexual abuse, the kind of intrinsically severe traumatic stress that will typically cause PTSD[16].

Traumatic events such as physical and sexual abuse overwhelm the individual's capacity to cope, leaving the victim utterly raw – helpless and terrified. Such events undermine the individual's sense of personal integrity, inevitably causing the victim to experience a sense of utter personal degradation and shame. Psychiatrically, humiliation – shame – is one of the most destructive of human emotions. "Shame" is often confused with "guilt," but in fact shame is far more shattering. Guilt is the experience of having made the choice to do something wrong – there was a *choice* made; the decision was under the person's control. Shame is the experience of having no control, no autonomy, no personal integrity at all. The experience of shame is the experience of being laughed at, made into a mockery.

Trauma victims find that the traumatic event intrudes upon consciousness during the day and invades sleep in the form of nightmares. The victim lives with constant anxiety, hypervigilant and with an exaggerated startle response. Depression is almost inevitable. Substance abuse in an attempt at self-medication is quite frequent. Victims experience both hyperarousal and intrusive thoughts, yet also a numbing and constriction of emotional responsiveness.[17]

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[16] Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). American Psychiatric Association, 2013, pp. 271-280.

[17] Van der Kolk,B. (1987). Psychological Trauma. American Psychiatric Press, Inc. Washington, DC.

In my professional experience evaluating and treating scores of trauma victims, I have come to recognize that while there is a degree of overlap and mixing, there appear to be two distinct coping patterns taken by PTSD victims:

• Some victims – "Internalizers" -become withdrawn, chronically anxious, self-effacing, depressed and passive. They experience what has been termed "learned helplessness"[18]. Research regarding this phenomenon has shown that a situation in which the individual experiences himself as powerless to prevent harm, causing the victim to lose any sense of will to resist negative consequences then or in the future. The resulting feelings of paralysis, of passivity, anxiety and depression have neurobiological correlates.[19] They tend to become victims over and over again, unable to imagine that they can have the power to resist.

•. Others – "Externalizers" –live with intense agitation and anger. Their behavior becomes out of control; very often they become substance abusers, have volatile and explosive relationships with others, and often have chronic problems with the law. Because of their intense agitation and impulsivity, they are especially prone towards self-destructive acts and suicide.

7. Physical and Sexual Abuse of Teenagers.

It is clear that adolescents are especially vulnerable to developing these pathological responses to trauma. And, as noted above, adolescents with pre-existing histories of trauma and psychiatric

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[18] Seligman,M. 1972. *Learned Helplessness,* Ann. Rev. Med. 23:407-412.

[19] See e.g. Hammack,S. et al. (2012) *Overlapping neurobiology of learned helplessness and conditioned defeat; Implications for PTSD and mood disorders.* Neuropharmacology 62, 565-575.

Maier,S., Seligman,M. (2016). *Learned Helplessness at Fifty: Insights from Neuroscience.* Psychol.Rev 123(4): 349-367.

disturbance will be especially vulnerable. As described above, brain research has demonstrated that adolescence is a time of major brain plasticity and maturation. Uncontrollable stress will inevitably distort and derail that process, leaving the adolescent permanently impaired in his or her ability to become a ------ Adolescence is a time of defining a sense of identity – of who one is, what is valuable in oneself, and what is shameful. Traumatic experiences during adolescence will inevitably alter and degrade that sense of personal identity.

One of the most salient areas of emerging identity in adolescence is that of sexual identity. Sexual trauma during adolescence will inevitably distort and damage the victims' sense of themselves as sexual beings. Sexual dysfunction is very common[20]; the ability to form trusting intimate relationships is almost inevitably impaired.[21] In addition, there is a phenomenon known as "repetition compulsion"[22]; rape victims often become easy targets for repeated sexual abuse.[23] Some become out of control sexually in ways that are demeaning and self-destructive. In some respects, male victims are at particular risk. Male victims are at substantial risk for depression, Post Traumatic Stress Disorder, personality disorders, poor self-image, substance abuse problems, suicidality and sexual disorders, including aggression.[24]

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[20] See, e.g. Kaplan,H.& Sadock,B. (1985). Comprehensive Textbook of Psychiatry, p.1091. "In one study … more than half the women reported sexual dysfunctions, including lack of desire, inhibited orgasm, and inhibited excitement. Few emerge from the assault completely unscathed."

[21] See, e.g. Koss,M & Harvey,M., (1991) The Rape Victim, Sage Publications, Newbury Park, CA.

[22] See, e.g. Herman,J. (1997) Trauma and Recovery, Basic Books, New York, NY.

[23] See e.g. Casto,A. et al (2019) *Child Sexual abuse, Sexual Behavior, and Revictimization in Adolescence and Youth: A Mini Review.* Front. Psychol. 30, Aug. 2019. https://doi.org/10.3389/fpsyg.2019.02018.

[24] See e.g. Australian Institute of Family Studies, January 2013. *The long-term effects of child sexual abuse.* https://aifs.gov.au/crca/publications/long-term-effects-child-sexual-abuse/determining-association-between-child-sexual-abuse.

8. Complex Trauma.

Lastly, the hypotheticals posited herein ask me to assume that juveniles in detention in YDC facilties were subject to repeated trauma – multiple episodes of physical and sexual abuse. The experience of repetitive trauma – a phenomenon known as Complex Post Traumatic Stress Disorder[25] - is particularly devastating psychologically. As noted earlier in this report, many of the juveniles in detention have already experienced polyvictimization, making them as adolescents exceedingly vulnerable; the effects of such repetitive trauma in juvenile custody is likely to have a continuing and pervasive effect on the adolescent's personality development, causing a cluster of symptoms that includes[26]:

•. Alterations in affect regulation, including persistent dysphoria, chronic suicidal preoccupation, self-injury, explosive or extremely inhibited anger and sexuality.

•. Alterations in consciousness, including amnesia or intrusive images of traumatic events, and transient dissociative experiences.

• Alterations in self-perception, including sense of helplessness or paralysis of initiative, intense shame, guilt and self-blame, sense of being different from others, aloneness.

• Preoccupation with anger and revenge against perpetrator.

•. Alterations in relations with others, including isolation and withdrawal, disruption in intimate relationships, persistent distrust, and repeated failures of self-protection.

• Loss of sustaining faith, feelings of hopelessness and despair.

Signed this 22nd day of May, 2020.

Stuart Grassian, M.D.

[25] Herman,J. Trauma and Recovery, (1997) Basic Books, New York, N.Y., Chapter 6.

[26] *Op cit., loc cit.*

In re: ***Meehan, on behalf of himself and all others similarly situated v. New Hampshire Department of Health and Human Services, et al.***
New Hampshire Superior Court, Merrimack County, Civil No.217-2020-00026

Hypotheticals

1. Assume that the putative class is comprised of children (both boys and girls) aged 11-17 who, over the decades of the 1960s through the 2010s, were subjected to physical abuse by YDC employees including, but not limited to, being routinely beaten, choked into unconsciousness, slapped, thrown against walls, dragged along the floor, tortured through the use of "pressure points," and having their limbs twisted by YDC employees, resulting in bruises, cuts, scrapes, and broken bones, many of which went untreated.

   Assume as well that the putative class of children was also subjected to physical abuse for the entertainment of YDC employees including, but not limited to, being forced to assault other residents by YDC employees, being subjected to assaults by other residents at the direction of YDC employees, or being assaulted for no reason by YDC employees in the presence of other residents, solely for the gratification of YDC employees.

   Based on your professional education, training, and experience, what would be the likely effects of such experiences on the members of the putative class?

2. Assume that the putative class is comprised of children (boys and girls) aged 11-17 who, over the decades of the 1960s through the 2010s, were subjected to sexual abuse by YDC employees including, but not limited to, being fondled and fondling, being masturbated and masturbating, and oral and anal rape, sometimes serially by multiple YDC employees at the same time or on the same day, sometimes while being restrained by other YDC employees, and often including physical abuse inflicted during the sexual abuse, or in response to the refusal to comply with directives.

   Assume further that the putative class was also subjected to sexual abuse for the voyeuristic entertainment of YDC employees including, but not limited to, being forced to shower in the presence of YDC employees, being forced to expose themselves and/or masturbate in their rooms while the YDC employees watched through the door window to the resident's room, being forced to perform sexual acts upon each other, and being photographed and/or videotaped by YDC employees during acts of sexual abuse.

   Based on your professional education, training, and experience, what would be the likely effects of such experiences on the members of the putative class

3. Assume that the putative class is comprised of children (both boys and girls0 aged 11-17 who, over the decades of the 1960s through the 2010s, were subjected to solitary confinement including, but not limited to, being held in a solitary confinement cell or confined to their own rooms for 23 hours per day for 10 days at a time, either in their underwear or completely naked, with their mattresses removed from their beds, and sometimes not being released from the confinement for weeks or months at a time, and sometimes not until they acquiesced to sexual abuse.

   Assume that the putative class were additionally subjected to torturous conditions while in solitary confinement including, but not limited to, sometimes being handcuffed or strapped to their bedframes, either in their underwear or naked, for days at a time, sometimes being confined to their rooms with windows open in the winter to freeze them out while in their underwear, sometimes being deprived of food for days at a time, and sometimes being forced to urinate and defacate on the floor.

   Based on your professional education, training, and experience, what would be the likely effects of such experiences on the members of the putative class?

4. Assume that the putative class is comprised of children (both boys and girls) aged 11-17 who, over the decades of the 1960s through the 2010s, were deprived of education including, but not limited to, being denied federally mandated education for children with individualized education plans ("IEPs"), being subjected to inadequate education and being released from YDC with educational attainment far below their expected grade level, being denied any education while in solitary confinement and, in some cases, not being educated at all while residents at the YDC.

   Based on your professional education, training, and experience, what would be the likely effects of such experiences on the members of the putative class?