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Adverse childhood experiences among youth reported to child welfare: Results from the national survey of child & adolescent wellbeing

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ABSTRACT

The negative influence of adverse childhood experiences (ACEs) on social, emotional, and behavioral (SEB) outcomes are well documented. However, no research to date has examined the effect of ACEs on SEB outcomes in youth who received mental health services after reporting to the child welfare system. This study's analyses of data from the National Survey of Child and Adolescent Well-Being II revealed that the most prevalent ACEs included hospitalization for a medical condition, neglect, and exposures to domestic and community violence. Logistic regression of this data showed that the odds of being diagnosed with internalizing problems increased with age and when sexual abuse was reported. The results also showed that compared to Caucasian youth, Latinos were less likely to be diagnosed with externalizing behaviors, even when sexual abuse had been reported. Contrary to one of this study's hypotheses, mental health service use within the past 18 months increased the odds of being diagnosed with SEB problems. These findings highlight the persistence of SEB problems despite receipt of mental health services. Future research should assess the impact of interventions that aim to mitigate poor SEB outcomes due to ACEs, especially sexual abuse.

1. Introduction

The CDC-Kaiser Permanente Adverse Childhood Experiences (ACE) Study (Felitti et al., 1998) is one of the largest investigations of childhood trauma and its association with adult health and well-being. The original ACE Study included more than 17,000 adult participants, documenting seven adverse life events: psychological, physical, and sexual abuse; violence against mother; and living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned. Nearly two thirds of study participants reported at least one ACE, and more than one in five reported three or more ACEs. Additionally, an ACE score, or total sum of the different categories of ACEs reported by participants, was used to assess cumulative childhood stress. A dose-response relationship between ACEs and negative health and well-being outcomes (e.g., alcoholism/alcohol abuse, depression, illicit drug use, heart disease, and sexually transmitted infections) was observed across the life course, meaning that greater exposure to ACEs yielded a stronger effect on health and well-being outcomes (Centers for Disease Control and Prevention [CDC], 2016).

Both the original ACE Study (Felitti et al., 1998) and replications (e.g., Anda et al., 2006; Briere, Kaltman, & Green, 2008; Brown...
et al., 2010; Dube et al., 2009; Fuemmeler, Dedert, McClernon, & Beckham, 2009; Hyman et al., 2008) have shed great light on the prevalence and impact of ACEs and their role in adult morbidity and mortality. In fact, ACE has become part of our common lexicon when considering the lasting effects of traumatic childhood events on health and well-being. Yet, important gaps remain due to significant methodological limitations in the original study and its replications, including lack of prospective studies of the consequences of ACEs during childhood and adolescence, retrospective reporting of events that occurred several decades prior, and use of a limited range of adverse life events (Greeson et al., 2014).

2. Literature review

2.1. Prevalence studies

Recent studies have sought to address the aforementioned limitations by using data from a large clinic-referred sample of children and adolescents across the United States who were exposed to developmentally salient traumatic events, including major adversities not found in the original ACE studies (e.g., Greeson et al., 2014; Layne et al., 2014). Specifically, Greeson et al. (2014) used data from the National Child Traumatic Stress Network (NCTSN) to document the prevalence of 20 diverse trauma types and their association with child/adolescent behavior problems among a national, clinic-referred sample of children and adolescents assessed and treated for trauma exposure (n = 11,028). On average, participants experienced approximately three types of trauma. Traumatic loss/separation and domestic violence were experienced by nearly half of the sample. Impaired caregiver was experienced by almost 40% of the sample, as was emotional abuse. Nearly 31% of the sample experienced physical abuse and also neglect. Twenty-four percent of the sample experienced sexual abuse, 16% experienced community violence, and almost 10% experienced illness/medical trauma.

The use of the NCTSN dataset has been extended to investigate patterns of traumatic experiences among children and youth in foster care, who represent a particularly vulnerable group of young people. For example, Greeson et al. (2011) used the NCTSN data to examine complex trauma exposure among children and adolescents placed in foster care and referred to a NCTSN site for treatment (n = 2,251). Complex trauma was defined as physical abuse, sexual abuse, emotional abuse, neglect, or domestic violence. This study observed high rates of complex trauma exposure: 70.4% of the sample reported at least two of the traumas that constitute complex trauma; 11.7% reported all five types. Although this study shed light on the occurrence of complex trauma among young people in foster care, it was limited in that it did not investigate forms of trauma beyond maltreatment and familial violence.

2.2. ACE and social-Emotional-Behavioral functioning

Both of the aforementioned studies that used data from the NCTSN also investigated the association between exposure to childhood trauma and child/adolescent behavior problems. Greeson et al. (2014) found a significant dose-response relationship between total number of trauma types and behavior problems for all scales on the Child Behavior Checklist (CBCL) except sleep. Each additional trauma type endorsed significantly increased the odds for scoring above the clinical threshold on the CBCL. Similarly, Greeson et al. (2011) found that compared to youth with other types of trauma, those with complex trauma histories had significantly higher rates of internalizing problems, posttraumatic stress, and clinical problems or symptoms.

Data from the National Survey of Child and Adolescent Well-Being (NSCAW) corroborated the above findings. In one study, researchers investigated whether witnessing violence and violence victimization were associated with children's internalizing and externalizing behavior problems and also examined the mediating role of posttraumatic stress (PTS) symptoms in these relationships (n = 2064; Yoon, Steigervald, Holmes, & Perzyński, 2016). Being a victim of violence in the home was directly associated with more internalizing and externalizing behavior problems, whereas witnessing violence was not directly related to either internalizing or externalizing behavior problems. PTS symptoms mediated the effects of witnessing violence and violence victimization on internalizing behavior problems.

Data from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) further corroborated the association between child maltreatment and behavior problems among children and adolescents involved with the child welfare system (CWS). Lewis, McElroy, Harlaar, and Runyan (2016) compared internalizing and externalizing behavior problems of those with a history of childhood sexual abuse (CSA) to those with a history of maltreatment, but not sexual abuse (n = 977). Their findings indicated significantly more problems over time in the CSA group than the maltreated group without CSA. Internalizing problems were higher for sexually abused boys compared to girls. For sexually abused girls, internalizing problems, but not externalizing problems, increased with age relative to boys. This pattern was similar among maltreated but not sexually abused youth.

2.3. ACE and mental health service use

Prevalence studies on child/adolescent trauma are prolific, as are correlational studies that document the association of trauma with behavior problems. In terms of how to address the impact of ACE on children/youth referred to the CWS, we know far less about whether intervening with services can disrupt the dose-response trajectory documented in the studies reviewed here and elsewhere (Fraser et al., 2013). Overall, studies have shown that mental health service use can function protectively and improve child behavior problems associated with ACE (Bethell, Gombojav, Solloway, & Wissow, 2016; Flynn et al., 2015; Silverman et al., 2008). For example, in a population-based study of 9417 children aged 6–17, Bethell et al. (2016) investigated the use of mindfulness-based approaches for children and youth with emotional, mental, and behavioral conditions, many of whom had multiple ACEs. Their findings revealed that, though mindfulness-based methods are largely under-utilized, such methods hold promise for attenuating the
impact of ACEs and improving child resilience. Likewise, in a meta-analysis of evidence-based mental health treatments for children and youth exposed to traumatic events, Silverman et al. (2008) found that, on average, treatments had a positive, though modest, effect in terms of reducing internalizing and externalizing behavioral problems.

2.4. Disparate access to mental health services by race/ethnicity

Although studies have indicated that the effects of ACEs may be ameliorated by mental health treatment among children and youth from the general population, less is known about the efficacy of mental health treatment in reducing social, emotional, and behavioral problems among CWS-involved children with multiple types of ACEs. Additionally, given the disproportionately large number of African American youth in the CWS (Shaw, Putnam-Hornstein, Magruder, & Needell, 2008), it is important to understand whether the relationship between various types of ACEs, receipt of mental health services, and child behavior differs by race/ethnicity. Indeed, a number of studies have demonstrated disparate access to and receipt of mental health services by race/ethnicity among CWS-involved children and youth (Burns et al., 2004; Garcia, Kim, & DeNard, 2016; Kim & Garcia, 2016; Martinez, Gudiño, & Lau, 2013). For example, Burns et al. (2004) used data from NSCAW to assess the relationship between mental health need and access to mental health services among 3803 child welfare-involved children and youth aged 2–14. Their findings indicated that African American maltreated youth across all age groups were significantly less likely to receive mental health services than their Caucasian peers. Martinez et al. (2013) also used NSCAW data to extend this inquiry by examining differences in pathways to receipt of mental health services among a sample of Caucasian, African American, and Latino children and youth with maltreatment histories, aged 4–14. They found that maltreatment exposure was positively associated with internalizing and externalizing behaviors across all racial/ethnic groups of youth, though both types of behaviors were only predictive of mental health service receipt among Caucasian youth. Notably, neither of these studies measured other forms of ACEs beyond child maltreatment.

2.5. Present study

The present study significantly contributes to the literature by investigating the relationship between multiple types of ACEs, internalizing and externalizing behaviors, and mental health service receipt among a nationally representative, racially/ethnically diverse sample of children and youth involved with CWS. Our investigation is guided by the following research questions:

- What is the prevalence of adverse childhood experiences (ACEs) among CWS-involved children and youth across the domains of child maltreatment (i.e., number of types of trauma, emotional abuse, physical abuse, sexual abuse, neglect, and medical trauma), caregiver functioning (i.e., caregiver mental illness, caregiver substance abuse, caregiver incarceration, and impaired caregiver), and environmental stress (i.e., community violence, domestic violence, and traumatic loss/separation)?
- To what extent do ACEs (i.e., child maltreatment, caregiver functioning, and environmental stress) influence social, emotional, and behavioral (SEB) outcomes over time among CWS-involved children and youth?
- To what extent do mental health services moderate the relationship between ACEs and change in SEB scores over time among CWS-involved children and youth, and do these relationships differ by race/ethnicity?

Using data from NSCAW, a nationally representative, longitudinal survey of children and families with CWS involvement, we control for demographic characteristics (i.e., age, gender, race/ethnicity) and hypothesize that (1) change over time across various types of ACEs will be positively associated with the extent to which children experience increased social, emotional, and behavioral problems as measured by internalizing, externalizing, and overall scores on the Child Behavior Checklist (CBCL); (2) the effect of ACEs on children’s behaviors, as measured by the CBCL scores, will be significantly reduced by receipt of mental health services; and (3) there will be a significant interaction between race/ethnicity and mental health service use in predicting CBCL scores, meaning that the extent to which mental health service use ameliorates social, emotional, and behavioral problems will vary by race/ethnicity.

3. Methods

3.1. Study design and sample

The Research Triangle Institute conducted the NSCAW I study, which involved recruiting a cluster sample of children (n = 5501) between the ages of 0 and 14 who were referred to the CWS due to an alleged report of maltreatment between October 1999 and December 2000. Data for the NSCAW study were collected from youth, caregivers, teachers, and caseworkers at baseline during the initial investigation and at follow-up conducted 12 months, 18 months, 36 months, and 60–72 months after the initial investigation. In light of increasing demands, fewer resources, and a plethora of changes in practice and policy, the NSCAW II was undertaken by the Administration for Children and Families and replicated NSCAW I (Dolan, Smith, Casanueva, & Ringeisen, 2011). Eighty-one counties or contiguous areas of two or more counties that had participated in NSCAW I formed the NSCAW II cohort. The cohort included 30 states (versus 36 states for NSCAW I) and 5873 children ranging in age from birth to 17.5 years old who were referred to the CWS between February 2008 and April 2009 due to a report of maltreatment. Like NSCAW I, data on multiple indicators of child and family-level data, permanency, well-being, and service receipt were collected from multiple informants at baseline (Time 1) and at 18-month follow-up (Time 2) (Dolan et al., 2012).

To assess the prevalence of ACEs and SEB outcomes among a more recent cohort of youth referred to the CWS, the current study
used the NSCAW II dataset, in which caseworkers and caregivers collectively provided data on youths’ exposure to ACEs. However, children who were four and under at Time 1 or 2 were not included (n = 3765) so as to focus on caregiver reporting of social, emotional, and behavioral development via the age-appropriate version of the Child Behavior Checklist for ages 4–17. “Other” youth (n = 196) were also deleted so as to avoid lumping Native American, Asian, and other racial/ethnic backgrounds into one category. Moreover, cases were deleted if (1) case records were missing at random (n = 27), (2) CBCL scores were missing at random at Time 2 (n = 152), and (3) youth were 18 years of age at both time points (n = 2). Taken together, these deleted cases reduced the final sample size to 1730.

3.2. Measures

3.2.1. Socio-Demographics

Data on children’s age, gender, and race/ethnicity were collected during the initial case identification procedure and were confirmed by caregiver and child welfare worker interviews.

3.2.2. Adverse childhood experiences

At Time 1, caseworkers reported “yes” or “no” as to whether children were exposed to different types of maltreatment, including (1) physical abuse, (2) sexual abuse, (3) emotional abuse, and (4) neglect maltreatment, inclusive of physical neglect, lack of supervision, abandonment, and educational maltreatment. In addition, caseworkers responded “yes” or “no” at Time 1 as to whether each primary caregiver (1) had a serious mental health problem; (2) had any physical, intellectual, or cognitive impairments; (3) had a recent history of being arrested; (4) used drugs/alcohol; and (5) was a victim of domestic violence.

Primary caregivers disclosed (1) whether their child had ever been hospitalized due to a medical condition, and (2) if violence in the community existed at Time 1. Violence exposure was indicated as “yes” if the caregivers denoted that (1) assaults or muggings and/or (2) delinquency or drug gangs were “somewhat of a problem” or “a big problem.” Finally, data on whether the child had been placed in out-of-home care at Time 1 or 2 were gathered from case records. A total count of the 12 ACEs was calculated, as was whether each child experienced three or more ACEs.

3.2.3. Mental health service use

Caregivers were administered an adapted version of the Child and Adolescent Services Assessment (Federal Interagency Forum on Child and Family Statistics, 2005) at Time 2. The assessment asked respondents whether or not their children utilized different types of inpatient and outpatient mental health services during the past 18 months. By then, children likely had sufficient time to access mental health services after the initial report of abuse and/or exposure to ACEs at Time 1, regardless of whether they remained with permanent caregivers or had been placed in out-of-home care. For our study, a dichotomous variable (1 = yes, 0 = no) was created to indicate whether the children utilized at least one of the following services: (1) psychiatric hospital unit; (2) hospital or medical inpatient unit; (3) residential treatment center or group home; (4) day treatment for emotional, behavioral, learning, or substance abuse problems; (5) mental health or community health center; (6) private professional help; or (7) in-home counseling/crisis services.

3.2.4. Outcome variable

To assess for the presence of clinically pervasive social, emotional, and behavioral outcomes, caregivers completed the Child Behavior Checklist (CBCL) at Time 1 and 2. Each of the 120 items asked caregivers to rate on a three-point Likert scale (0 = not true, 1 = somewhat or sometimes true, and 2 = very true or often true) whether they observed externalizing and internalizing symptoms (Achenbach, 1991). Children were characterized as being in need of mental health services if they scored at or above the clinical cut-point (T ≥ 64) on internalizing, externalizing, and total behavior problems (0 = not diagnosed, 1 = diagnosed) at both time points. Before separate multivariate models were conducted for internalizing, externalizing, and total behavior problems, change scores were calculated between Time 1 and 2. That is, for each of the three models, being diagnosed referred to all youth who were either (1) diagnosed at Time 1 and Time 2, or (2) not diagnosed at Time 1 but then diagnosed at Time 2. On the other hand, not being diagnosed included youth who were (1) not diagnosed at Time 1 and Time 2, or (2) diagnosed at Time 1 but not diagnosed at Time 2.

3.3. Analyses

Statistical analysis was performed using STATA MP/14.2 (College Station, TX). Subject characteristics were described using unweighted data for the entire cohort and then stratified by race (Caucasian, African American, and Latino) and compared using chi-square and one-way ANOVA tests for categorical and continuous variables, respectively. This was performed again using weighted data. To determine whether subjects developed or retained a diagnosis of SEB problems within internalizing, externalizing, and total CBCL behavior categories between Time 1 and Time 2, binary variables were created. Subjects who developed or had no change in negative CBCL behavior were compared to those who never developed or had improved behavior between the two time periods.

The primary outcome variable for modeling was diagnosis of CBCL behavior between two measured time periods (18 months apart). The secondary outcome variables of interest included use of mental health services and race. Univariable logistic regression for survey data was performed looking at factors associated with CBCL behavior diagnosis with respect to internalizing, externalizing, and total behavior separately. Factors with p value of ≤ 0.20 were deemed significant in univariable regression and carried forward for testing in a multivariable model. Multivariable logistic regression for survey data was then conducted.
Adverse Childhood Experiences (ACEs) Baseline Characteristics by Subject Race (Weighted).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total (n = 1730)</th>
<th>Caucasian (n = 727)</th>
<th>African American (n = 526)</th>
<th>Latino (n = 477)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control variables.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age [M (SD)]</td>
<td>9.8 (3.4)</td>
<td>9.7 (3.3)</td>
<td>9.5 (3.9)</td>
<td>10.1 (3.1)</td>
<td>0.05</td>
</tr>
<tr>
<td>Gender − male</td>
<td>49.6%</td>
<td>50.9%</td>
<td>49.3%</td>
<td>47.9%</td>
<td>0.81</td>
</tr>
<tr>
<td>Adverse childhood experiences (% yes)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCG has mental illness</td>
<td>11.4%</td>
<td>14.0%</td>
<td>8.9%</td>
<td>9.2%</td>
<td>0.15</td>
</tr>
<tr>
<td>PCG has physical/cognitive impairment</td>
<td>5.8%</td>
<td>6.1%</td>
<td>7.2%</td>
<td>4.3%</td>
<td>0.47</td>
</tr>
<tr>
<td>PCG recently arrested</td>
<td>10.5%</td>
<td>8.6%</td>
<td>14.3%</td>
<td>11.0%</td>
<td>0.31</td>
</tr>
<tr>
<td>PCG uses drugs/alcohol</td>
<td>13.1%</td>
<td>15.2%</td>
<td>10.2%</td>
<td>12.1%</td>
<td>0.26</td>
</tr>
<tr>
<td>PCG victim of domestic violence</td>
<td>26.7%</td>
<td>25.8%</td>
<td>22.2%</td>
<td>31.4%</td>
<td>0.22</td>
</tr>
<tr>
<td>Child victim of emotional abuse</td>
<td>4.5%</td>
<td>5.4%</td>
<td>1.1%</td>
<td>5.4%</td>
<td>0.17</td>
</tr>
<tr>
<td>Child victim of physical abuse</td>
<td>21.9%</td>
<td>23.2%</td>
<td>20.9%</td>
<td>20.5%</td>
<td>0.68</td>
</tr>
<tr>
<td>Child victim of neglect</td>
<td>30.3%</td>
<td>28.1%</td>
<td>29.2%</td>
<td>34.2%</td>
<td>0.45</td>
</tr>
<tr>
<td>Child victim of sexual abuse</td>
<td>8.9%</td>
<td>11.8%</td>
<td>6.5%</td>
<td>6.3%</td>
<td>0.05</td>
</tr>
<tr>
<td>Community violence exposure</td>
<td>26.9%</td>
<td>14.5%</td>
<td>31.9%</td>
<td>42.2%</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Child institutionalized for medical condition</td>
<td>33.5%</td>
<td>38.3%</td>
<td>25.5%</td>
<td>32.1%</td>
<td>0.12</td>
</tr>
<tr>
<td>Poverty, trouble paying basic necessities</td>
<td>21.6%</td>
<td>19.1%</td>
<td>24.6%</td>
<td>23.4%</td>
<td>0.40</td>
</tr>
<tr>
<td>Placed in out-of-home care</td>
<td>13.1%</td>
<td>11.9%</td>
<td>16.0%</td>
<td>13.0%</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Total number of ACEs [M (SD)]</td>
<td>2.1 (1.4)</td>
<td>2.1 (1.4)</td>
<td>2.0 (1.6)</td>
<td>2.3 (1.3)</td>
<td>0.03</td>
</tr>
<tr>
<td>ACEs categorical: 3 or more ACEs</td>
<td>34.4%</td>
<td>32.7%</td>
<td>32.0%</td>
<td>38.6%</td>
<td>0.31</td>
</tr>
<tr>
<td>Behavioral outcomes and service use (% yes)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave 1 Clinical internalizing problems</td>
<td>20.4%</td>
<td>23.0%</td>
<td>17.8%</td>
<td>18.6%</td>
<td>0.34</td>
</tr>
<tr>
<td>Wave 2 Clinical internalizing problems</td>
<td>16.4%</td>
<td>19.1%</td>
<td>11.5%</td>
<td>16.1%</td>
<td>0.09</td>
</tr>
<tr>
<td>Wave 1 Clinical externalizing problems</td>
<td>25.6%</td>
<td>28.7%</td>
<td>24.6%</td>
<td>21.6%</td>
<td>0.23</td>
</tr>
<tr>
<td>Wave 2 Clinical externalizing problems</td>
<td>24.0%</td>
<td>31.1%</td>
<td>21.6%</td>
<td>15.1%</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Wave 1 Clinical total problems</td>
<td>27.6%</td>
<td>30.0%</td>
<td>30.3%</td>
<td>22.1%</td>
<td>0.14</td>
</tr>
<tr>
<td>Wave 2 Clinical total problems</td>
<td>25.2%</td>
<td>30.5%</td>
<td>21.3%</td>
<td>20.2%</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Any mental health service use at Wave 2</td>
<td>24.3%</td>
<td>32.7%</td>
<td>19.7%</td>
<td>15.2%</td>
<td>&lt; 0.01</td>
</tr>
</tbody>
</table>

Note: PCG = primary caregiver; ACE = adverse childhood experiences; mental health outcomes are measured via the CBCL; continuous variables are given as means with standard deviation (SD) and analyzed with one-way ANOVA; categorical variables are given by proportion (%) of the population and analyzed with chi-square tests; p value < 0.05 is considered statistically significant.

Variables were tested for confounding and effect modification against secondary variables of interest. Additional interaction terms were created and tested among the ACEs that were significantly associated with any mental health service use, as detected by the univariable results. The factors that were tested for effect modification with any mental health service use and its impact on changes in SEB outcomes included race, sexual abuse, child hospitalized for a medical condition, primary caregiver with mental illness, incarcerated relative, the total ACEs score, and three or more ACEs. Given the significant association between sexual abuse and race and its clinical relevance, these variables were also tested for effect modification on changes in SEB outcomes. Specific protocols are described at http://www.stata.com/meeting/germany12/abstracts/desug12_royston.pdf.

Factors preserved within the multivariable models with p value ≤ 0.05 were deemed statistically significant, and those not significant were retained within the multivariable models for clinical relevance, with one exception. While both the total ACEs score and three or more ACEs were insignificant in the multivariable model, the total ACEs score was retained in the final models due to clinical relevance. Design-based goodness-of-fit for logistic regression (Archer and Stanley, 2006) was used to perform an F-adjusted mean residual test for each behavioral outcomes model.

It should be noted, NSCAW project staff received Institutional Review Board (IRB) approval from the Research Triangle Institute before the commencement of data collection. In addition, the University of Pennsylvania IRB approved secondary analyses of data to address the current research questions.

4. Results

Characteristics of the sample, the prevalence of ACEs and of externalizing, internalizing, and total behavioral problems, and the proportion of youth who utilized mental health services are reported by race/ethnicity in Table 1. The mean age of the entire sample was 9.8 years (SD = 3.4), and a near-equal distribution of males and females was represented in the sample. Over a third of the sample (34.4%) experienced three or more ACEs. The four most prevalent ACEs among the entire sample were (1) being hospitalized for a medical condition (33.5%), (2) negligent treatment (30.3%), (3) community violence exposure (26.9%), and (4) exposure to domestic violence (26.7%). Roughly a third of the sample was diagnosed with clinically pervasive behavioral and emotional symptoms at Time 1 (27.6%) and Time 2 (25.2%), and had received mental health services (24.3%), respectively.

A number of the exposures and diagnoses significantly differed by race/ethnicity. First, Caucasians (11.8%) were more likely than their Latino (6.3%) and African American counterparts (6.5%) to experience sexual abuse (p = 0.05). Secondly, while Latino youth (42.2%) were significantly more likely than both African American (31.9%) and Caucasian youth (14.5%) to experience community violence exposure, the rate among African Americans also exceeded that of their Caucasian counterparts (p < 0.01). Thirdly, African
Fourthly, the total count of ACE exposures was, on average, higher for Latinos (American (16%) and Latino (13%) youth were more likely than Caucasians (11.9%) to be placed in out-of-home care (SD = μ = 1.6, SD = 1.6) and Caucasians (μ = 2.1, SD = 1.4) (p < 0.05). Interestingly, the prevalence of SEB problems at Time 1 did not differ by race/ethnicity. However, at Time 2, Caucasians (31.1%) were more likely to be diagnosed with externalizing problems than other youth (p < 0.01). In addition, the prevalence of externalizing problems was higher among African American (21.6%) than Latino youth (15.1%). Likewise, Caucasians (30.5%) were significantly more likely to be diagnosed with clinically pervasive total behavior problems at Time 2 than other youth (p < 0.01). However, the prevalence of total pervasive behavior problems did not differ between African American (21.3%) and Latino youth (20.2%). Finally, Caucasians (32.7%) were twice as likely as Latinos (15.2%) to utilize mental health services (p < 0.01). Meanwhile, results also detected a disparity in mental health service use between African Americans (19.7%) and Caucasians.

Multivariate results for the internalizing, externalizing, and total behavior problems regression models are presented in Tables 2, 3 and 4. The likelihood of being diagnosed with clinically pervasive internalizing behaviors increased with age (OR = 1.08, p < 0.05) and when sexual abuse was reported (OR = 1.89, p < 0.05). Physical abuse, however, decreased the odds of being diagnosed with internalizing behaviors (OR = 0.37, p < 0.01). Compared to Caucasian youth, Latinos were less likely to be diagnosed with externalizing behaviors (OR = 0.56, p < 0.05), even when sexual abuse had been reported (OR = 0.16, p < 0.05). Compared to males, females were less likely to be diagnosed with externalizing behaviors (OR = 0.54, p < 0.01). The likelihood of youth being diagnosed with clinically pervasive behavior problems (total CBCL scores) marginally increased when youth had been hospitalized due to a medical condition (OR = 1.64, p = 0.06). Receipt of mental health services increased the odds of being diagnosed with internalizing behaviors (OR = 4.78, p < 0.01), externalizing behaviors (OR = 4.46, p < 0.01), and total behavior problems (OR = 4.72, p < 0.01). Lastly, mental health service use did not moderate the relationship between ACEs and changes in SEB outcomes, and a significant interaction between race/ethnicity and mental health service use in predicting CBCL scores was not

**Table 2**
Multivariable Model for Factors Associated with Internalizing Behaviors.

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any mental health service use at Wave 2.</td>
<td>4.78</td>
<td>[2.97–7.70]</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian Reference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>0.69</td>
<td>[0.36–1.35]</td>
<td>0.28</td>
</tr>
<tr>
<td>Latino</td>
<td>1.24</td>
<td>[0.79–1.95]</td>
<td>0.34</td>
</tr>
<tr>
<td>Age</td>
<td>1.08</td>
<td>[1.01–1.15]</td>
<td>0.03</td>
</tr>
<tr>
<td>PCG has mental illness</td>
<td>1.90</td>
<td>[0.77–4.64]</td>
<td>0.16</td>
</tr>
<tr>
<td>Child victim of physical abuse</td>
<td>0.37</td>
<td>[0.23–0.60]</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Child victim of sexual abuse</td>
<td>1.89</td>
<td>[1.03–3.47]</td>
<td>0.04</td>
</tr>
<tr>
<td>Child hospitalized for medical condition</td>
<td>1.33</td>
<td>[0.75–2.36]</td>
<td>0.32</td>
</tr>
<tr>
<td>Total ACE score</td>
<td>0.91</td>
<td>[0.71–1.17]</td>
<td>0.45</td>
</tr>
<tr>
<td>Child placed in foster care</td>
<td>1.74</td>
<td>[0.88–3.43]</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Note: OR = odds ratio; CI = confidence interval; PCG = primary caregiver; ACE = adverse childhood experiences; p = p value, p value < 0.05 is considered statistically significant.

**Table 3**
Multivariable Model for Factors Associated with Externalizing Behaviors.

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any mental health service use at Wave 2.</td>
<td>4.46</td>
<td>[2.64–7.54]</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian Reference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>0.84</td>
<td>[0.45–1.56]</td>
<td>0.58</td>
</tr>
<tr>
<td>Latino</td>
<td>0.56</td>
<td>[0.33–0.96]</td>
<td>0.04</td>
</tr>
<tr>
<td>Child victim of sexual abuse</td>
<td>2.17</td>
<td>[0.82–5.78]</td>
<td>0.12</td>
</tr>
<tr>
<td>Child victim of sexual abuse by race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual abuse – Caucasian</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual abuse – African American</td>
<td>0.80</td>
<td>[0.12–5.49]</td>
<td>0.82</td>
</tr>
<tr>
<td>Sexual abuse – Latino</td>
<td>0.16</td>
<td>[0.03–0.80]</td>
<td>0.03</td>
</tr>
<tr>
<td>Age</td>
<td>1.02</td>
<td>[0.94–1.11]</td>
<td>0.57</td>
</tr>
<tr>
<td>Gender – female</td>
<td>0.54</td>
<td>[0.34–0.86]</td>
<td>0.01</td>
</tr>
<tr>
<td>PCG has mental illness</td>
<td>1.05</td>
<td>[0.51–2.16]</td>
<td>0.89</td>
</tr>
<tr>
<td>Child has incarcerated relative</td>
<td>1.62</td>
<td>[0.91–2.87]</td>
<td>0.10</td>
</tr>
<tr>
<td>Child hospitalized for medical condition</td>
<td>1.21</td>
<td>[0.71–2.07]</td>
<td>0.49</td>
</tr>
<tr>
<td>Total ACE score</td>
<td>1.08</td>
<td>[0.85–1.38]</td>
<td>0.52</td>
</tr>
</tbody>
</table>

Note: OR = odds ratio; CI = confidence interval; PCG = primary caregiver; ACE = adverse childhood experiences; p = p value, p value < 0.05 is considered statistically significant.
5. Discussion

This study is the first, to the authors’ knowledge, to examine the relationship between multiple types of ACEs, internalizing and externalizing behaviors, and mental health service receipt among a nationally representative, racially/ethnically diverse sample of children and youth involved in the child welfare system.

5.1. Prevalence of ACEs

During our analyses, we first explored the prevalence of ACEs among child welfare-involved children and youth. The most prevalent ACE that youth experienced was youth hospitalization. This result is consistent with other literature that found a greater likelihood of physical health problems among maltreated children (Aisenberg, García, Ayón, Trickett, & Mennen, 2008; Scott, Smith, & Ellis, 2012; Whitaker, Phillips, Orzol, & Burdette, 2007). The complex traumas of neglect and domestic violence exposure were also among the most prevalent ACEs experienced by youth in this study. These results are congruent with previous incidence studies that identified neglect as the most prevalent form of child maltreatment (Kisiel, Fehrenbach, Small, & Lyons, 2009; Sedlak et al., 2010) and with studies examining youth violence exposure that reported elevated rates of witnessing domestic violence (Greerson et al., 2014; Layne et al., 2014). The fourth most prevalent ACE was exposure to community violence. Previous literature has also found high rates of victimization (84%) or witnessing community violence (79%) among a racially diverse sample of 386 maltreated and non-maltreated youth (Aisenberg et al., 2008; Voisin, 2007). A notable finding of the current study in this regard was the significantly higher community violence exposure rates for Latino and African American youth than for Caucasian youth, which agrees with similar studies that detected disparate rates by race/ethnicity (Aisenberg et al., 2008; Voisin, 2007). The findings that youth hospitalization and community violence were among the four most prevalent trauma exposures reiterate the need to screen for and address multiple types and forms of trauma exposures rather than solely focus on identifying and addressing the negative impact of maltreatment (Greerson et al., 2011).

5.2. Relationship between ACEs and SEB problems

After determining the prevalence of ACEs among youth referred to the CWS, we examined their influence on SEB outcomes, hypothesizing that exposure to ACEs would be positively associated with the extent to which children experience increased SEB problems. Our results for internalizing, externalizing, and total CBCL problems mainly supported our hypothesis. For instance, our study showed youth age and reports of sexual abuse were positively associated with a diagnosis of internalizing behavior. These results are consistent with previous literature showing that age significantly predicts internalizing behavior (McCrae & Barth, 2008; Sternberg, Baradaran, Abbott, Lamb, & Guterman, 2006). Regarding the impact of sexual abuse, the current findings are in line with previous research that showed that youth who experienced sexual abuse had significantly more internalizing problems than those who were not victimized (Lewis et al., 2016). Also of note is that youth in our study who experienced physical abuse were less likely to be diagnosed with internalizing behaviors. We surmise that youth who experience more overt forms of child abuse, including physical abuse, are more likely to use mental health services than youth who experience child neglect (Clark, Yampolskaya, & Robst, 2011; Farmer et al., 2010; Gudiño, Martínez, & Lau, 2008; Horwitz et al., 2012). Thus, it is possible their internalizing symptoms are addressed as they remain engaged in mental health treatment. Further research is needed to confirm this possible explanation.

Our results also showed youth hospitalization was a marginally significant predictor of total CBCL scores. While there is no study to the authors’ knowledge directly linking youth hospitalization to child behavioral problems in maltreated children, the association may indirectly impact outcomes. Since the majority of youth in our sample experienced child maltreatment, they were more likely to
be diagnosed with physical health problems (Scott et al., 2012) and clinically pervasive internalizing and externalizing behavioral symptoms (Yoon et al., 2016). Thus, it is plausible that hospitalization is warranted when maltreatment occurs, which, in turn, may increase SEB problems over time.

5.3. Race and gender disparities in SEB outcomes

A particularly noteworthy finding of our study was that race and gender significantly predicted externalizing behavior problems. Regarding gender, youth identifying as male were more likely to be diagnosed with externalizing behavior problems, which is consistent with previous literature (Nguyen, Huang, Arganza, & Liao, 2007). The finding that Latino youth were less likely than Caucasians to be diagnosed with externalizing behaviors is surprising, as it appears to contradict what Martinez et al. (2013) had previously found. Relying on NSCAW I cohort data, Martinez et al. (2013) did not detect significant differences in the prevalence of externalizing (or internalizing) behaviors by race/ethnicity. Perhaps the detection of racial differences is unique to our sample of the NSCAW II cohort. What makes this even more perplexing is that in a recent study, Whitson and Connell (2016) detected racial differences in behavioral outcomes among a national sample of youth who experienced trauma and were referred to behavioral health services. Specifically, they found that while Caucasian youth had experienced more internalizing and externalizing behavior problems at baseline, they were significantly more likely to make greater strides in reducing pervasive symptoms compared with their African American and Latino counterparts. Future research is needed to validate the racial differences we detected among CWS-involved youth.

Moreover, as our results showed, Latinos were less likely than Caucasians to experience clinically pervasive externalizing symptoms when sexual abuse had been reported. Though we cannot discern why this finding emerged, prior research, albeit limited both in scope and replication, has shown that (1) a supportive response from a non-offending caregiver (Bolen & Lamb, 2007; Knott & Fabre, 2014) and (2) child advocacy centers, which are designed to enhance collaboration between child protective services and law enforcement to limit redundant investigations and child interviewing and implement a trauma-informed coordinated service plan, have been linked to improved child mental health outcomes (Herbert & Bromfield, 2016; Hubel et al., 2014). What remains unknown is whether these two intervention processes play a role in reducing poor SEB outcomes, particularly among Latino youth who have been sexually abused.

5.4. Mental health service use and SEB outcomes

One of the most important questions to consider in studying the prevalence of SEB problems is whether services are effective in addressing them. Contrary to our hypothesis, our findings showed mental health service use increased the odds of being diagnosed with internalizing, externalizing, and total behavior problems 18 months after baseline at Time 1. Comparing NSCAW I and NSCAW II data, Garcia et al. (2016) supported these findings, concluding that mental health need, as detected by CBCL scores, was positively linked to mental health service use. Furthermore, according to the current study, mental health service receipt unexpectedly did not mediate the relationship between ACEs and change in SEB scores over time. Our findings cannot explain why this mediating relationship was not statistically significant when previous studies have shown that mental health service use is protective in mitigating the effects of ACEs (Bethell et al., 2016; Flynn et al., 2015; Silverman et al., 2008). We could surmise that the delivery of mental health services is ineffective in ameliorating the pervasiveness of SEB problems among the subset of youth referred to the CWS. Alternatively, SEB symptoms could have been diagnosed at any point in time during the 18-month time span. Caseworkers may not have detected need when symptoms were pervasive (Dorsey, Kerns, Trupin, Conover, & Berliner, 2012), and even if or when detected, youth may have been placed on a long waitlist to gain access to mental health services (Bai, Wells, & Hillemeier, 2009; Bunger, Stiffman, Foster, & Shi, 2009; Garcia, Circo, DeNard, & Hernandez, 2015).

Finally, we examined whether the effect of mental health service use on SEB outcomes differed by race/ethnicity. Previous studies found that Caucasian youth were more likely to utilize mental health services than African American and Latino youth (Garland, Landsverk, & Lau, 2003; Horwitz et al., 2012; Martinez et al., 2013; Wells, Hillemeier, Bai, & Belue, 2009), even after controlling for need of services (Garcia et al., 2016; Garland et al., 2000; McMillen et al., 2004). Despite this linkage, our hypothesis that the effect of service use on SEB outcomes would differ by race/ethnicity over time was not supported. Nonetheless, our results showed a clear trend: the persistence of behavioral problems in the midst of mental health service receipt, regardless of race/ethnicity. Perhaps attention needs to be paid to implementing evidence-based interventions for children who are referred to the CWS. A study conducted by Garcia, O’Reilly et al., 2015 qualitatively explored barriers that racially diverse child welfare-involved youth typically experience in receiving effective mental health services. Some of the barriers caseworkers identified were lack of cultural competency, high turnover among caseworkers and mental health providers, lack of availability of empirically supported treatments, and placement instability. In turn, they found that these barriers disrupted youths’ ongoing and active participation in mental health treatment.

5.5. Implications for practice and policy

Among the important implications for practice and policy, the current study demonstrates how imperative it is that child welfare caseworkers assess children’s exposure to ACEs. Although the most prevalent ACEs this study detected included being hospitalized for a medical condition, neglect, and exposures to domestic and community violence, poor SEB outcomes are likely to develop over time when children experience sexual abuse. This finding underscores the need for caseworkers to refer youth who have been sexually abused to evidence-based interventions that mitigate negative SEB outcomes. Child advocacy centers, given their role in coordinating
and linking youth to effective and timely services, may play a pivotal role in achieving intended outcomes (Herbert & Bromfield, 2016).

Also, given the bivariate and multivariate results in this study that detected differences in SEB outcomes by race/ethnicity, it is essential that child welfare service providers are more sensitive to the differing needs of the culturally diverse populations they serve. Reliance on uniform measures to screen and assess for poor SEB symptoms and ongoing efforts to develop a positive helping relationship with youth, regardless of their race/ethnicity, are crucial for successful outcomes.

Funding, however, is needed to promote implementation of intervention and engagement strategies that reduce the negative impact of ACEs for child welfare-involved youth. The Title IV-E Child Welfare Waiver Demonstrations, a federal program that allows states to spend otherwise restrictive federal dollars more flexibly to achieve safety, permanency, and well-being, may play an instrumental role in providing the capacities and resources for caseworkers, supervisors, and leaders to achieve these goals (U.S. Department of Health and Human Services [USDHHS], 2013).

5.6. Implications for future research

This study’s findings raise a number of important questions pertaining to the understanding of SEB outcomes and how to improve them that warrant further research. For example, it would be important to know why Latino, African American, and Caucasian parents rated their children’s behavior differently in this study. It is plausible that some parents rate their children’s behavior more harshly than other parents do (Nelson, Leerkes, O & Brien, Calkins, & Marcovitch, 2012). Indeed, some evidence suggests there are underlying racial/ethnic conceptual distinctions in screening and diagnostic measures (Alegria, Vallas, & Pumariega, 2010). Qualitative inquiry could unearth why parents may interpret or judge their children’s behaviors differently, even when the same measures are used.

Notwithstanding measurement, longitudinal research is needed to assess SEB outcomes over a longer period of time. Under the best of circumstances, caseworkers should be armed with the knowledge, support, and capacity to assess for ACEs (Dorsey et al., 2012; Fitzgerald et al., 2015; Whitaker, Rogers-Brown, Cowart-Osborne, Self-Brown, & Lutzker, 2015), particularly sexual abuse, and refer youth to effective interventions when warranted. Given that a number of evidence-based interventions to address trauma should typically delivered within four months (e.g., Trauma-Focused Cognitive Behavioral Therapy or Prolonged Exposure Therapy for Adolescents; California Evidence-Based Clearinghouse [CEBC], 2006–2017; USDHHS, 2013), improvement in SEB outcomes within an 18-month timeframe is plausible. However, we cannot ignore the fact that caseworkers and clinicians may need more time, resources, and skills to screen, detect, and ameliorate poor SEB outcomes among youth who experience ACEs.

Future research is also needed to understand if, how, and under what conditions racial disparities in outcomes change over time in response to receiving mental health services. Why Latinos were less likely than Caucasians to be diagnosed with externalizing behaviors, even when they were sexually abused, is unknown. Perhaps even more perplexing is that the odds of being diagnosed with internalizing behaviors increased when physical abuse occurred. Future research should focus attention on identifying underlying protective factors that may explain these findings.

5.7. Limitations

While many of this study’s findings are noteworthy, there are some limitations that must be highlighted. First, we must call attention to our limited data on timing and sequence of ACEs. For example, it is uncertain at what age the youth sampled in this study experienced the ACEs. It is imperative that future research examine whether youth receive services in a timely manner to mitigate risk for poor outcomes during childhood and well into early adulthood. As our findings highlighted, the odds of being diagnosed with clinically pervasive internalizing behaviors increased with age. Clinicians and researchers should be privy to evidence-based interventions that are specifically designed or tailored for youth according to their age, development, and issue(s) of concern.

Secondly, the nature, extent, type, timing, and quality of mental health services the youth received are unknown. The data only revealed whether they received services within 18 months, and if they impacted changes in SEB outcomes from Time 1 to Time 2. While it is noteworthy that ACEs were assessed at Time 1, well before service-use patterns were tracked, symptoms of trauma may have been observed toward the end of the 18-month timeframe. Thus, youth may have been engaged in services when SEB outcomes at Time 2 were assessed. Data on engagement and completion of services and subsequent outcomes need to be collected on an ongoing basis. Despite these gaps, the findings of this study begin to shed light on how ACEs impact SEB outcomes among Caucasian, African American, and Latino youth referred to the CWS.

Thirdly, this study’s findings are nationally representative of the aforementioned three groups of youth. During NSCAW data collection, Asian and Native American youth and youth categorized as “other” were, however, categorized as a homogenous group. The data were not analyzed herein so as to be mindful of different outcomes that may have surfaced in light of varied contextual and cultural factors (e.g., language, parenting beliefs, or values) within and between the respective groups.

Finally, we must also call attention to the potential impact of biased reporting. Caregivers were asked to recall their children’s SEB outcomes and whether they utilized mental health services over the past 18 months. Thus, recall bias may have impacted the validity of our findings. Likewise, data on youth exposures to ACEs are only as valid as the accuracy of the reporting of caseworkers and caregivers.
5.8. Concluding remarks

Despite the limitations, this is the first study, to our knowledge, to examine the prevalence of ACEs among a unique target population—a nationally representative sample of racially diverse youth referred to the CWS due to a report of maltreatment. Our results suggest that the current standard of practice may not be addressing the needs for our most vulnerable youth who experience ACEs in a timely manner. This study is particularly novel in that the impact of various types of ACEs were examined. By and large, prior child welfare researchers have explored the impact of exposures to one or two ACEs (Aisenberg et al., 2008; Garcia, O’Reilly et al., 2015; Holmes, 2013; Holt et al., 2008; Lee, Fang, & Luo, 2013; Schaeffer, Swenson, Tuerk, & Henggeler, 2013), rather than assessing the cumulative impact of several ACEs on SEB outcomes. Thus, these results are particularly useful for child welfare caseworkers and leaders who are often challenged by increased expectations to promote well-being, rather than strictly focusing on ensuring safety. They are now privy to a particular subset of youth and ACEs that may increase the likelihood of poor SEB outcomes.

References


