ACEs in Head Start Children and Impact on Development

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This report updates findings on adverse childhood experiences (ACEs) in children enrolled in a large urban Head Start program. As part of a system-wide shift to trauma-informed practices, ACEs screening of parents was introduced in spring 2012.

The following results reflect the experiences of a representative set of children and parents in Head Start. ACE exposure is based on parental report using a modified version of the original Anda and Felitti ACE questionnaire. A copy of the screening tool is attached.

Parents are volunteers and drawn from the general Head Start population in Spokane WA. Screening is now routinely conducted in this Head Start program and voluntary participation exceeds 80% of the parents asked to answer the ACE questions regarding their child’s lifetime exposure as well as their own childhood exposure. ACE scores are then associated with routine demographic and assessment data collected in Head Start. Other than low income qualification, Head Start families are a cross section of the general population. As a result, we have an opportunity to describe the scope of exposure and the impact on development in a representative sample of preschool children in the community.

These results describe initial development success and risk as children enter Head Start. The children are typically 3-4 years old at the time of the screening. Families have varied experiences in early childhood education but the majority or families are newly enrolled. Principal conclusions at this time are:

- ACE exposure in this general population sample of families is very high.
- As ACEs in children increase, teachers and parents report that the children’s development is placed at risk. The Teaching Strategies Gold results are notable because they document school readiness deficits in children ages 3-4 years. The DECA results suggest that children with higher ACEs not only experience lower development assets (attachment quality) but increased rates of behavioral concerns.

ACE Exposure in Children and Caregivers

In our current sample of 628 paired parent and child ACEs results, we find that 63% of parents report that they experienced three or more ACEs and 40% of these 3-4 year old children already has experienced thee or more ACEs based on parental report. In the general ACEs literature,

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increased health and social risks increase greatly with three or more ACEs. These results are summarized in the next figure.

ACEs Screening Results from Parent Survey

While children’s ACE exposure can occur in families with a range of parental ACE exposure, parents with the greatest histories of adversity in their own childhood report high rates of ACEs in their children. There is a moderate linear correlation between parent and child ACEs (r=.32, p<.001) but the relationship is not linear. Rather, as parental ACE history increases, there is rapidly increasing risk of ACE exposure in children (Chi Square (df=81) = 155.8, p<.001).

Child ACEs and Developmental Measures

Head Start uses routine teacher observational report as a performance measure and to aid in educational planning for children. Spokane Head Start employs the Teaching Strategies Gold (TSG) teacher rating assessment with scales intended to assess social emotional, gross motor, fine motor, cognitive, language, literacy, and math development in young children. The most widely adopted teacher observation tool in Head Start, an independent validity study (Kim et al., 2013) and an unpublished but independent analysis released by the publisher indicates acceptable concurrent validity with other well-validated assessments of child development.
In regression analyses with 224 children for whom we had complete data, we controlled \(^2\) for children’s age, gender, race, and ethnicity in order to test children’s ACE exposure (0-1 ACEs, 2-3 ACEs, 4 or more ACEs) on measures of social and cognitive development. We found that children’s ACE scores are predictive of teachers’ ratings of child developmental status on the following TSG subscales defined as ‘below developmental expectations’ or ‘meeting/exceeding developmental expectations’:

- Social emotional development [Wald Statistic (d.f.=4)=14.9, p<.001]
- Literacy development [Wald Statistic (d.f.=4)=7.6, p<.02]
- Language development [Wald Statistic (d.f.=4)=6.2, p<.05]
- Cognitive development [Wald Statistic (d.f.=4)=8.3, p<.02]
- Math development [Wald Statistic (d.f.=4)=7.0, p<.03]

In each instance, higher ACEs are associated with lower ratings of development mastery after controlling for demographic differences.

On several measures of school readiness and on social emotional development, boys show greater effects from ACEs. On other measures, the impact of ACEs is equivalent for boys and girls. The following figures show the relationship between ACEs and developmental progress in boys and girls.

We conducted regression analyses with the parents’ ACE history as the primary predictor of child development and found no significant relationships between parental ACEs and child developmental status. While parental ACE history is highly associated with children’s ACE risk, development progress is much more determined by the individual characteristics of the child than the history of the parent in this data.

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\(^2\) Race, ethnicity, age, and gender were included in the regression analyses because of their independent potential impact on the TSG development measures. In regression, the significance test of the predictive power of ACEs reflects the unique contribution of ACEs after these other individual differences are controlled for.

The present findings will be updated periodically with more complete data as the study sample increases.
Gender difference is statistically significant [Wald Statistic (d.f.=1)=13.8, p<.001]
Gender difference is statistically significant [Wald Statistic (d.f.=1)=4.1, p<.04]

This finding of a significant relationship between child ACE exposure and social emotional development replicates a separate finding in pilot work we conducted with parent rating of child adjustment using the Devereux Early Childhood Assessment (DECA). In a sample of 104 Head Start children, we found that as children’s ACE exposure increased, parental rating on Attachment and Initiative scales demonstrated significantly lower developmental success and the parents’ report of Behavior Concerns significantly increased. The following figure uses Attachment and Behavior Concerns from this DECA study to exemplify the impact of ACEs on the DECA, These results confirm the TSG social emotional development finding above.
Parent DECA Reports by Child ACE Exposure

ACEs Exposure in Head Start Children by Attachment Success and Behavioral Concerns based on Parental DECA reports

<table>
<thead>
<tr>
<th>Percent of ACE Groups</th>
<th>No Reported ACEs N=25</th>
<th>One ACE N=20</th>
<th>2-3 ACEs N=30</th>
<th>4 or more ACEs N=29</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment Typical Development</td>
<td>96%</td>
<td>90%</td>
<td>87%</td>
<td>62%</td>
</tr>
<tr>
<td>Reported Behavior Concern</td>
<td>28%</td>
<td>45%</td>
<td>47%</td>
<td>69%</td>
</tr>
</tbody>
</table>

DECA Attachment: Chi Square (3) = 12.8, p<.005
DECA Behavior Concern: Chi Square (3) = 9.2, p<.03
DECA Initiative (not included in the figure): Chi Square (3) = 8.2, p<.04
Gender difference is not statistically significant

<table>
<thead>
<tr>
<th>ACE Exposure and Language Development in 3-4 Year Old Boys and Girls N=224</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Meeting or Exceeding Developmental Expectations</td>
</tr>
<tr>
<td>0-1 ACE N=127</td>
</tr>
<tr>
<td>Girls N=131</td>
</tr>
<tr>
<td>Boys N=123</td>
</tr>
</tbody>
</table>
ACE Exposure and Cognitive Development in 3-4 Year Old Boys and Girls N=224

<table>
<thead>
<tr>
<th>ACE Exposure</th>
<th>Girls N=131</th>
<th>2-3 ACEs N=67</th>
<th>4 or more ACEs N=62</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1 ACE</td>
<td>70%</td>
<td>62%</td>
<td>64%</td>
</tr>
<tr>
<td>Boys N=123</td>
<td>72%</td>
<td>41%</td>
<td>53%</td>
</tr>
</tbody>
</table>

- Gender difference is not statistically significant
Gender difference is statistically significant [Wald Statistic (d.f.=1)=5.4, p<.02]
Summary
The adult health and social consequences of increasing ACE exposure are well-established as is the evidence for trauma exposure in populations of children receiving formal social services. However, little information is available testing the potential impact of ACEs in the general population of children. Given the increasing focus on ACEs as public health challenge, we will have significant challenges mobilizing partners for prevention and early intervention if we cannot demonstrate the immediate scope of risk and effects in the general population of children.

Our key findings from the current 642 parent-child pairs:
- While our sample is from the general population, it is a low income population. This should be acknowledged in reporting these results.
- As parent ACE history increases, child ACE exposure increases. In the parents with five or more ACEs, 69% of their children have two or more ACEs and 40% of their children have four or more ACEs.
- Our sample of child has a mean age of 4.3 years. We document early exposure to high rates of ACEs in very young children.
- Children’ ACEs are strong predictors of developmental concerns in social emotional adjustment and in cognitive skills associated with school readiness.
- Parents’ ACE do not directly predict developmental risk but may help explain why children have greater ACE exposure and resulting developmental risk.

<table>
<thead>
<tr>
<th>Parents' ACEs</th>
<th>Two or more ACEs in Children (57% of children)</th>
<th>Four or more ACEs in Children (29% of children)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1 ACEs (25% of parents)</td>
<td>41%</td>
<td>16%</td>
</tr>
<tr>
<td>2-4 ACEs (35% of parents)</td>
<td>54%</td>
<td>25%</td>
</tr>
<tr>
<td>5 or more ACEs (40% of parents)</td>
<td>69%</td>
<td>40%</td>
</tr>
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</table>

The reason parents’ ACEs are not direct predictors of their children’s developmental may result from two influences we need to understand better.
- First, our children experience high levels of ACEs regardless of their parents’ ACE histories; 41% of parents with 0-1 ACEs have children with two or more ACEs. This may reflect the impact of poverty and the fact that ACEs explain a great deal but not everything about human struggles.
- Second, as common as parents’ ACEs are, many parents may also be resilient and despite their own histories and poverty offer their children protective factors; 31% of parents with five or more ACEs have children with 0-1 ACEs. This is a hopeful finding and underlines why we have to work to understand resilience as much as risk.

The present findings confirm that in this low income general population sample, ACE exposure is significant and widespread for both parents and children. Exposure to multiple ACEs is common by the age of four. Our findings demonstrate that a child’s exposure to ACEs is not wholly dependent on their parent’s history but that risk for children dramatically accelerates if
parents experienced significant ACEs. The challenge for the family and for our communities is that addressing ACEs has to be a two generation strategy.

The evidence demonstrates that ACE exposure in children is a significant predictor not only of social emotional adjustment but of the school readiness skills critical to children’s academic potential. This finding speaks directly to Head Start’s mission of preparing poor children to succeed in school and more generally to our fundamental belief as a society that educational success is the principal pathway to opportunity for all.

The finding that boys may be more vulnerable to some of the developmental effects of ACEs is an unexpected result but one with profound practice implications if confirmed by other studies. The comparative vulnerability of young boys to a range of behavioral and development challenges is well known but our findings suggest that even after accounting for overall gender differences there is evidence that boys may be more vulnerable to the early consequences of ACEs.

We can confirm that ACE exposure is a pervasive community problem established early in life and during key developmental stages. The finding that school readiness problems are associated with ACEs in preschool children provides strong initial evidence that early learning systems and policy makers would do well to address ACEs as a critical developmental and school readiness risk in the general population.

References


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