

# Adverse Childhood Experiences and Adult Criminality: How Long Must We Live before We Possess Our Own Lives?

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## Abstract

**Background:** Empirical research associated with the Kaiser Permanente and Centers for Disease Control and Prevention Adverse Childhood Experiences (ACE) Study has demonstrated that ACE are associated with a range of negative outcomes in adulthood, including physical and mental health disorders and aggressive behavior.

**Methods:** Subjects from 4 different offender groups (N = 151) who were referred for treatment at an outpatient clinic in San Diego, CA, subsequent to conviction in criminal court, completed the ACE Questionnaire. Groups (nonsexual child abusers, domestic violence offenders, sexual offenders, and stalkers) were compared on the incidence of ACE, and comparisons were made between the group offenders and a normative sample.

**Results:** Results indicated that the offender group reported nearly four times as many adverse events in childhood than an adult male normative sample. Eight of ten events were found at significantly higher levels among the criminal population. In addition, convicted sexual offenders and child abusers were more likely to report experiencing sexual abuse in childhood than other offender types.

**Conclusions:** On the basis of a review of the literature and current findings, criminal behavior can be added to the host of negative outcomes associated with scores on the ACE Questionnaire. Childhood adversity is associated with adult criminality. We suggest that to decrease criminal recidivism, treatment interventions must focus on the effects of early life experiences.

## Introduction

In 1916, Sigmund Freud wrote:

*The associations of the patients went back from the scene to be explained, to earlier experiences, and this forced the analysis which was to correct the present to occupy itself with the past. This regressive direction became an important characteristic of the analysis. It was proved that psychoanalysis could not clear up anything actual, except by going back to something in the past.*<sup>1</sup>

Since the 1980s, Kaiser Permanente (KP) and the US Centers for Disease Control and Prevention (CDC) have collaborated on the accumulation of a voluminous database of information pertaining to the life histories of an urban, middle-class sample of patients insured by KP in San Diego, CA. During 2 periods of data collection (late 1995 to mid-1996 and mid-

late 1997), more than 17,000 patients completed and returned a mailed questionnaire (see Sidebar: Adverse Childhood Experiences Questionnaire). The questionnaire asked for information on adverse childhood experiences (ACE)—related to abuse (emotional, physical, and sexual), neglect (emotional and physical—asked only of the 1997 subjects), and household dysfunction (a battered mother, parental abandonment, or the experience of having had a substance-abusing, mentally ill, or incarcerated member in the household)—in childhood, defined as occurring before a subject's 18th birthday.<sup>2</sup> This database has been used in several important studies.

## Adverse Childhood Experiences and Illness

In an early study of more than 9000 participants, Felitti et al<sup>3</sup> assessed the

presence of 10 *risk factors*—smoking, obesity, physical inactivity, depression, suicide attempts, alcoholism, drug abuse, parental drug abuse, sexual promiscuity (50 or more partners), and a history of contracting a sexually transmitted disease—associated with morbidity in the US. They additionally examined 7 *disease conditions*—ischemic heart disease, cancer, stroke, chronic bronchitis or emphysema, diabetes, hepatitis or jaundice, and skeletal fracture—associated with mortality. The authors compared scores on the ACE Questionnaire (1 “point” given for each category of self-acknowledged adverse experience) to patients’ reports of risk behaviors and disease. A graded relationship was found between the number of adverse experiences reported in childhood and all 10 risk behaviors. In addition, subjects who reported 4 or more categories of adverse experiences in childhood, compared with subjects who scored 0 on the questionnaire, were 2.5 times more likely to have contracted a sexually transmitted disease, and more than 3 times more likely to have had 50 or more sexual partners. Subjects with 4 or more negative childhood events were also nearly 5 times as likely to have suffered a depressive episode in the 12 preceding months, twice as likely to smoke cigarettes, more than 7 times as likely to consider themselves an “alcoholic,” and 12 times as likely to have attempted suicide. For 5 of the 7 disease conditions (excluding stroke and diabetes) the same graded, “dose-response” relationship was identified ( $p < 0.05$ ).

The KP sample has also been used to demonstrate a relationship between ACE and one of the most serious symptoms of mental disorder: hallucinations. More than 17,000 subjects responded to both

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the ACE Questionnaire and the question: “Have you ever had or do you have hallucinations (seen, smelled, or heard things that weren’t really there)?” Childhood trauma, defined by the ACE Questionnaire, was strongly related to the prevalence of

hallucinations; the risk of experiencing hallucinations was increased 1.2-fold to 2.5-fold by the existence of any negative experience category in childhood.<sup>3</sup>

In an article focusing solely on drug use,<sup>4</sup> high scorers on the ACE Questionnaire

were found to be at dramatically higher risk for the compulsive use of the agents studied. Compared with subjects who scored 0 on the questionnaire (ie, those who denied adverse experiences in childhood), subjects who scored 6 were 2.5 times more likely to report current use of cigarettes and 46 times more likely to report intravenous drug use. Those who scored 4 or higher were 5 times more likely to report that they considered themselves to be an “alcoholic.” All findings were significant at the  $p < 0.001$  level. Thus, a strong, stepwise and graded relationship exists between the number of categories of negative events an individual suffers in childhood and the presence of physical disease, mental disorder, and substance abuse in adulthood. What about violence?

### Adverse Childhood Experiences Questionnaire Prior to your 18th birthday:

1. Did a parent or other adult in the household **often or very often** ... Swear at you, insult you, put you down, or humiliate you? **Or** Act in a way that made you afraid that you might be physically hurt?

\_\_\_\_\_ Yes \_\_\_\_\_ No      If yes, enter 1 \_\_\_\_\_

2. Did a parent or other adult in the household **often or very often** ... Push, grab, slap, or throw something at you? **Or Ever** hit you so hard that you had marks or were injured?

\_\_\_\_\_ Yes \_\_\_\_\_ No      If yes, enter 1 \_\_\_\_\_

3. Did an adult or person at least 5 years older than you **ever** ... Touch or fondle you or have you touch their body in a sexual way? **Or** Attempt or actually have oral, anal, or vaginal intercourse with you?

\_\_\_\_\_ Yes \_\_\_\_\_ No      If yes, enter 1 \_\_\_\_\_

4. Did you **often or very often** feel that ... No one in your family loved you or thought you were important or special? **Or** Your family didn’t look out for each other, feel close to each other, or support each other?

\_\_\_\_\_ Yes \_\_\_\_\_ No      If yes, enter 1 \_\_\_\_\_

5. Did you **often or very often** feel that ... You didn’t have enough to eat, had to wear dirty clothes, and had no one to protect you? **Or** Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?

\_\_\_\_\_ Yes \_\_\_\_\_ No      If yes, enter 1 \_\_\_\_\_

6. Was a biological parent **ever** lost to you through divorce, abandonment, or other reason?

\_\_\_\_\_ Yes \_\_\_\_\_ No      If yes, enter 1 \_\_\_\_\_

7. Was your mother or stepmother **often or very often** pushed, grabbed, slapped, or had something thrown at her? **Or Sometimes, often, or very often** kicked, bitten, hit with a fist, or hit with something hard? **Or Ever** repeatedly hit over at least a few minutes or threatened with a gun or knife?

\_\_\_\_\_ Yes \_\_\_\_\_ No      If yes, enter 1 \_\_\_\_\_

8. Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?

\_\_\_\_\_ Yes \_\_\_\_\_ No      If yes, enter 1 \_\_\_\_\_

9. Was a household member depressed or mentally ill, or did a household member attempt suicide?

\_\_\_\_\_ Yes \_\_\_\_\_ No      If yes, enter 1 \_\_\_\_\_

10. Did a household member go to prison?

\_\_\_\_\_ Yes \_\_\_\_\_ No      If yes, enter 1 \_\_\_\_\_

### Adverse Childhood Experiences and Violence

A recent article examined the relationship between self-reported adverse events in childhood and types of aggressive behavior in adolescence.<sup>5</sup> Using 2007 data from the Minnesota Student Survey, on a sample of 136,549 6th-, 9th-, and 12th-grade students, the authors identified 6 different categories of adversity that were embedded in the questions. These were divided along lines of *abuse*—physical and sexual (sexual abuse demarcated as occurring either inside or outside the family)—and *household dysfunction*—family alcohol or drug abuse, and the experience of witnessing physical abuse inside the family. Subjects were then asked to identify their history of involvement with 5 different kinds of violence: delinquency, bullying, physical fighting, dating violence, and weapon carrying on school grounds.

For each negative event identified, there was an increased risk of violence in male subjects, ranging from 35% to 144%. For example, boys were 45 times more likely to have engaged in dating violence (defined by threats, or physical or sexual abuse of a romantic partner) as adolescents when they had been molested by a family member in childhood, and 26 times more likely to do so when they had been sexually abused by a nonfamily member.<sup>5</sup> These results, which strongly link a history of sexual abuse to violence—inclusive of sexual violence—later in life, echo the

**Table 1. Adverse Childhood Experiences (ACE) Questionnaire scores and comparison with normative sample**

ACE score	Current sample (N = 151), %	Normative sample <sup>a</sup> (N = 7970), %	t
0	9.3	38.0	7.22 <sup>b</sup>
1	13.2	26.0	3.56 <sup>b</sup>
2	13.9	15.9	0.67
3	15.2	9.5	2.36 <sup>b</sup>
4 +	48.3	12.5	10.86 <sup>b</sup>

<sup>a</sup> Normative sample from the Centers for Disease Control and Prevention<sup>8</sup> based on 1998 male data from Felitti et al.<sup>3</sup>

<sup>b</sup>  $p < 0.0001$ .

**Table 2. Number of Adverse Childhood Experiences (ACE) by offender type**

Number of ACE	Offense category, no. (%)			
	Child abusers	Domestic violence offenders	Sexual offenders	Stalkers
0	4 (11.4)	8 (17.8)	2 (3.3)	0 (0)
1	7 (20.0)	5 (11.1)	7 (11.5)	1 (10.0)
2	7 (20.0)	7 (15.6)	5 (8.2)	2 (20.0)
3	9 (25.7)	7 (15.6)	5 (8.2)	2 (20.0)
4	8 (22.9)	18 (40.0)	42 (68.9)	5 (50.0)
Total	35 (23.2)	45 (29.8)	61 (40.4)	10 (6.6)

results of meta-analytic research, which found that adult male sexual offenders were more than 3 times as likely to have had histories of sexual abuse in their childhoods, compared with a nonsexual (but criminal) comparison group.<sup>6</sup>

The association between 3 types of negative events in childhood and perpetration of intimate partner violence decades later in adulthood has also been examined.<sup>7</sup> These authors found that 3 adverse experiences (physical abuse, sexual abuse, growing up with a battered mother) were significantly associated with the perpetration of intimate partner violence later in life, and that experiencing any one event increased the risk of later perpetration by 60% to 70%. Tellingly, boys who had been molested by intercourse before age 12 years were nearly 3.5 times more likely to engage in later violence with a romantic partner. Those subjects who endorsed all three adverse experiences in childhood were nearly 4 times as likely to engage in intimate-partner violence as adults.

These results suggest a strong positive relationship between ACE and various forms of pathology, including aggressive behavior, later in life. The current research explores this issue further by determining whether ACE, defined and

measured by the ACE Questionnaire, can be linked to antisocial behavior in a criminal population.

## Methods

The sample was composed of 151 adult male offenders who were court-ordered to receive outpatient psychological treatment subsequent to a conviction in criminal court in San Diego, CA. Their crimes were associated with domestic violence, stalking, child physical abuse, general violence, and sexual deviance. Of these subjects, 35 (23.2%) were classified as nonsexual child abusers; 45 (29.8%) were classified as domestic violence offenders; 61 (40.4%) were sexual offenders, and 10 (6.6%) were stalkers. Criminal categories did not overlap within subjects, and I (JAR), or interns trained by me, provided treatment. Offenders were offered the opportunity to complete the ACE Questionnaire during the course of their treatment. Approximately 85% of the offenders receiving treatment agreed to complete the questionnaire; therefore, this was a convenience sample of a larger population of offenders receiving treatment at the clinic.

In addition to considering categories of ACE individually, following Felitti et al.,<sup>3</sup> two groups were formed on the basis of

ACE scores. Those who scored four or more were placed in a high-scoring group, whereas those who scored less than four were categorized as a low-scoring group. Scores on the ACE Questionnaire from the current sample were compared with scores reported for the men in the normative sample obtained from the CDC.<sup>8</sup> In addition, the different offender groups were compared both in terms of the types of ACE they reported and their overall ACE scores.

All analyses were conducted using statistical analysis software (Statistical Program for Social Sciences version 18, SPSS Inc, Chicago, IL).

## Results

On average, the sample reported 3.73 (standard deviation, 2.69) categories of ACE, with a modal value of 3. Table 1 displays the results for the current sample and compares them with the normative results from the CDC<sup>8</sup> and Felitti et al.<sup>3</sup> As can be seen from the Table, there were differences overall between the 2 populations at all levels but for the value of 2, for which the percentage reporting 2 negative events was essentially equal. The offenders reported higher levels of ACE overall than the normative population did and were less likely to report no ACE.

For comparisons between groups of offenders, the results are displayed in Table 2. There was a difference overall in the number of ACE reported by the groups  $\chi^2(12) = 26.60$ ,  $p = 0.009$ . Examination of the standardized residuals indicates that more of the sexual offenders reported 4 or more ACE than did the child abusers, whereas the domestic violence offenders were more likely to report no ACE than were the sexual offenders.

Table 3 displays the frequency of each type of ACE in the current sample, as well as data from the normative sample for comparison. The comparison indicates that, with the exceptions of emotional and physical neglect, all types of ACE were more prevalent in the offender sample than in the normative sample. This is especially true for the ACE items physical abuse and parental criminality.

Comparisons between offender groups in terms of the incidence of various ACE indicate that the only significant difference is on the prevalence of sexual abuse

(Table 4). Standardized residuals indicate that the sexual offenders and child abusers had higher than expected rates of sexual abuse, whereas stalkers had lower than expected rates. It is interesting that none of this latter group reported experiencing sexual abuse.

**Discussion**

Compared with a normative group of adult male subjects, we found among our group of criminals much higher rates of traumatic events. That is, four times as many subjects in our sample endorsed four or more adverse experiences in their early lives. Every negative event queried by the ACE Questionnaire, with the exception of a history of neglect, was found at significantly higher rates in the histories of our offenders.

Our results are strikingly similar to those regarding negative events in the histories of other “problem” patient populations—the obese, those who engage in risky behavior, those who contract disease conditions, those who abuse substances, and those who are mentally ill. It is apparent that something dramatic results from early abuse experiences. In the case of criminal behavior, a theory might hold wherein accumulating adverse experiences in one’s childhood decreases an individual’s subsequent ability to form secure attachments to others. We noted in an earlier review higher levels of promiscuity, and contraction of sexually transmitted disease among those who scored 4 or more on the ACE Questionnaire.<sup>3</sup> Additionally, boys who had been sexually abused were as much as 45 times more likely to engage

in dating violence as adolescents than were boys without such a history.<sup>5</sup> Finally, physically or sexually abused boys, or those who had witnessed the abuse of their mothers in childhood, were significantly more likely, decades later, to threaten or physically abuse their romantic partners.<sup>7</sup> Sexual promiscuity, intimate-partner violence, and intimate-partner threatening are also more frequent. To us, these results suggest that in some boys, the intensely negative feelings stimulated by poor treatment from their attachment figures are associated with either an avoidance of intimacy, or a “bleeding out” of the feelings into their intimate relationships, in the form of violence.

In light of these findings, it is perhaps not surprising that purely “offense-specific” models of treatment, which pay little heed to the early lives of offenders, have shown scant effects in decreasing recidivism.<sup>9,10</sup> (For a contrary conclusion, see Hanson et al.<sup>11</sup>) What about these early events is so damaging? What about them leads to such difficulties? It is our belief that mediating variables between the adverse event and the criminal outcome are neurobiologic dysregulation and attachment pathology. There is now abundant empirical literature demonstrating the regulatory effect of social experiences, in early life, on neurodevelopment—a field of research that has been called “interpersonal neurobiology.” Experiences of abuse, neglect, and differences in parenting style are the primary pathways through which environment influences brain functioning. The development of the brain’s hypothalamic-pituitary-adrenal axis, for example, is strongly socially regulated in the early years of life in rodents,<sup>12</sup> primates,<sup>13</sup> and humans.<sup>14</sup> A second article being prepared for publication will examine the link between early adversity and dysregulation in this axis—hypocortisolism and hypercortisolism (unpublished data, 2012). Hypothalamic-pituitary-adrenal dysregulation will then be linked to the development of attachment pathology, and the links between attachment pathology and criminal behavior will be examined. It is our belief that treatment interventions that focus on the outcome variable (crime) without attempting to heal these neurobiologic wounds are destined to fail. To reduce criminal behavior one must go back to the past in treatment, as Freud ad-

**Table 3. Types of Adverse Childhood Experiences (ACE) compared with normative data**

ACE type	Current sample (N = 151), %	Normative sample <sup>a</sup> (N = 7970), %	t
Psychological abuse	52.3	7.6	19.58 <sup>b</sup>
Physical abuse	41.1	29.9	2.97 <sup>c</sup>
Sexual abuse	27.2	16.0	3.70 <sup>b</sup>
Emotional neglect	50.3	12.4	13.62
Physical neglect	21.9	10.7	4.37
Household substance abuse	47.7	23.8	6.79 <sup>b</sup>
Household mental illness	25.8	14.8	3.75 <sup>c</sup>
Mother physical abuse	27.8	11.5	6.15 <sup>b</sup>
Criminal behavior in household	20.5	4.1	9.73 <sup>b</sup>
Parental divorce	53.6	21.8	8.66 <sup>a</sup>

<sup>a</sup> Normative sample data from the Centers for Disease Control and Prevention.<sup>8</sup>

<sup>b</sup> p < 0.001.

<sup>c</sup> p < 0.05.

**Table 4. Types of Adverse Childhood Experiences (ACE) by offender types<sup>a</sup>**

ACE type	Child abusers	Domestic violence offenders	Sexual offenders	Stalkers
Psychological abuse	37.1	42.2	65.6	70.0
Physical abuse	28.6	42.2	45.9	50.0
Sexual abuse <sup>b</sup>	28.6	15.6	39.3	0
Household substance abuse	37.1	44.4	55.7	50.0
Household mental illness	17.1	26.7	29.5	30.0
Mother physical abuse	25.7	20.0	36.1	20.0
Criminal behavior in household	17.1	17.8	26.2	10.0
Parental divorce	42.9	51.1	60.7	60.0

<sup>a</sup> Data are percentages.

<sup>b</sup> p < 0.01.

monished us nearly 100 years ago. Fortunately, evidence exists in support of both attachment-based interventions designed to normalize brain functioning<sup>15</sup> and in the efficacy of psychoanalytic treatment.<sup>16</sup>

The current study is limited by its use of self-report data. As with all such studies, there is an inherent weakness when relying solely on the informant's self-report.

However, it is important to note that the current results are consistent with the general literature regarding adverse events in the childhoods of offenders.<sup>6</sup>

We chose to focus in this article on sociologic explanations for crime, in the form of childhood adversity, and paid little attention to other "causes," for example, neurobiologic dysfunction or the interaction between genetics and a harsh environment (eg, a difficult temperament in a young boy). Because, to our knowledge, the ACE Questionnaire has not been used previously with a population of criminals, we wanted, first, to simply demonstrate an association between score on the questionnaire and crime. A subsequent article, as we have mentioned, focusing on the neurobiologic effects of childhood trauma, is being written.

Another limitation was the broad definition of childhood used with the ACE Questionnaire. It may be that adverse experiences before the age of six years, for example, have different effects from those experienced later. Such possible differential effects should be the subject of future research. ❖

**It is our belief that treatment interventions that focus on the outcome variable (crime) without attempting to heal these neurobiologic wounds are destined to fail.**

#### Disclosure Statement

*The author(s) have no conflicts of interest to disclose.*

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### More Rational Treatment

Like all other diseases the disease of crime is one which is more rationally treated by prevention than by curative methods. Will not the law-maker join hands with the medical practitioner and endeavor, even at the sacrifice of his own interests, to prevent the diseases he treats?

— George Frank Lydston, 1858-1923, American Urologist