



Adverse Childhood Experiences and Offender Risk to Re-offend in the United States: A Quantitative Examination

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Abstract

Adverse childhood experiences, such as witnessing physical abuse, being physically abused, and observing alcohol and drug abuse at a young age, has a significant, negative impact on a child's later life. The Adverse Childhood Experiences (ACE) scale was created to measure how these negative experiences affect children and their later adjustment. ACE scores have been linked to future violence, likelihood of incarceration, mental health issues, and a host of other future outcomes. The current analysis examined the degree to which ACE scores could predict risk for re-offense in convicted offenders. This study compared offender ACE scores against their Level of Service Inventory-Revised (LSI-R) scores, a common inventory used to assess the level of offender risk. Regression analysis revealed that offender ACE scores significantly predicted offender risk for re-offense. The results demonstrate that the adverse childhood experiences are predictive of an offender's risk to re-offend.

Keywords: Adverse Childhood Experiences; Level of Service Inventory-Revised; Offender Risk; Assessment

Introduction

The effective management, treatment, and supervision of individuals incarcerated in prison, or serving sentences on probation or parole, requires a comprehensive assessment of the offender's individualized risk and needs. Accurate risk assessment not only provides correctional staff with valuable information on how best to supervise the offender, but also the most appropriate level or intensity of treatment interventions. Lowenkamp, Latessa, and Holsinger (2006) found that placing low-risk offenders with high-risk offenders significantly increased the recidivism rate for low-risk offenders. In their meta-analysis,

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Andrews and Dowden (2006) found that there were a number of protective and risk factors that help reduce or exacerbate an offenders risk to re-offend, respectively. These factors include, for example, education level, vocational skills, and self-control. Andrews and Dowden (2006) concluded that the more protective factors an offender possess, the lower their risk to re-offend. Many of the protective factors Andrews and Dowden (2006) explained are skills and knowledge an individual acquires throughout childhood. Children learn self-control, the value of education, and language ability from their family and peers early in life. Negative childhood experiences can hinder the child's ability to acquire these valuable protective factors. Criminologists have linked early childhood behavior and traits to future offending (Kratzer & Hodgins, 1997; Lipsey & Derzon, 1998). Antisocial behaviors found in youth have been linked to future criminal behavior, loitering, gambling, drinking, and low self-control (Gottfredson & Hirschi, 1990; Paternoster & Brame, 1998). Therefore, any negative experience that hinders a child from developing the protective factors can have a sizable effect on their future risk of involvement in the criminal justice system. Smith and Stern (1997) stated that:

We know that children who grow up in homes characterized by lack of warmth and support, whose parents lack behavior-management skills, and whose lives are characterized by conflict or maltreatment will more likely be delinquent, whereas a supportive family can protect children even in a very hostile and damaging environment. (pp. 383-384)

Growing up in a home that experiences violence can have a large effect on future behavior. Farrington, Barnes, and Lambert (1996) examined 400 boys from South London from ages 8 to 46, and found that having a convicted family member predicted the boys' future incarceration. Building on this longitudinal study, Farrington, Jolliffe, Loeber, Stouthamer-Loeber, and Lalb (2001) examined 1,500 boys from Pittsburgh from ages 7 to 25. Once again Farrington et al. (2001) found that having an incarcerated family member predicted the boys' future incarceration. Moreover, the study concluded that the father's incarceration had the largest effect on their sons.

Furthermore, victims of childhood neglect and abuse often become perpetrators of crime as adults (Kingree, Phan, & Thompson, 2003; Smith & Thornberry, 1995; Widom & Maxfield, 2001). Widom and Maxfield (2001) performed a longitudinal study comparing children with cases of maltreatment to controls. The maltreated children had 27 percent higher likelihood of being arrested as juveniles and a 42 percent higher likelihood of being arrested as an adult compared to the controls, suggesting that early childhood abuse and neglect have a large impact on future offending.

Criminologists have also found that being abused physically as a child predicts future offending. Maxfield and Widom (1996) examined court records to identify more than 900 children who had been abused or neglected before the age of 11. Comparing this group to a control group matched on age, race, gender, and place of residence showed that 20 years later the abused and neglected children were more likely to be arrested as juveniles and adults than the control group. Widom and Ames (1994) also demonstrated that sexual abuse also predicted future offending.

Childhood maltreatment and neglect has also been linked to future recidivism (Cottle, Lee, & Heilbrun, 2001). In a meta-analysis Cottle, Lee, and Heilbrun (2001) found that childhood neglect and abuse was a significant predictor of future recidivism. Moreover,

Dembo et al. (1998) found that childhood neglect was a stronger predictor of future recidivism than childhood abuse. These analyses demonstrate that early adverse childhood experiences do have a large impact on future life outcomes.

ACE

The Adverse Childhood Experiences scale (ACE) has incorporated the existing research on traumatic events leading to adverse future adjustment as adults into a single, concise tool. The ACE scale was created by a longitudinal study involving over 17,000 patients at the Kaiser Permanente Medical Care Program in San Diego (Anderson & Blosnich, 2013). Researchers developed a questionnaire asking about numerous adverse childhood experiences, which includes emotional and physical abuse, emotional and physical neglect, and questions regarding household dysfunction. With collaboration with members of the Center for Disease Control, the World Health Organization, and other public health officials from around the world the ACE scale has become a standardized scale (Anda, Butchart, Felitti, & Brown, 2010).

Studies examining the ACE scale have found that many negative experiences are unfortunately quite prevalent such as parental conflict, substance abuse among family members, incarcerated family members, as well as emotional, physical, and sexual abuse (Anda et al., 2010; Anda & Brown, 2010; Felitti et al., 1998). Higher scores on the ACE scale has been shown to lead to future incarceration (Ravello, Abeita, & Brown, 2008), recidivism (Manchak, Skeem, & Douglas, 2008), violence as an adult (Pournaghash & Feizabadi, 2009), and substance abuse (Bowles, DeHart, & Webb, 2012). Moreover, the ACE scale has been linked to future health outcomes, such as increased cigarette use (Vander Weg, 2011), anxiety (Reiser, McMillan, Wright, Asmundson, 2014), mental health symptoms (Mersky, Topitzes, & Reynolds, 2013), and migraines (Tietjen, Khubchandani, Herial, Shah, 2012). The ACE has also been associated with increased likelihood of being a victim of intimate partner violence for women and being an abuser for men (Whitfield, Anda, Dube, and Felitti, 2003), and higher ACE scores have been associated with increased mental health problems as adults (Felitti et al., 1998).

Illuminating results have been found when the ACE scale was administered to inmates. De Ravello, Abeita, and Brown (2008) administered the ACE scale to 36 incarcerated Native American women in New Mexico. They concluded that higher ACE scores were associated with increased violent crime arrests, suicide attempts, and intimate partner violence. Messina and Grella (2006) interviewed 500 incarcerated women in California. The findings of the study demonstrated that increased exposure to ACE events increased the likelihood of 12 health-related outcomes, including a 15 percent increase in reporting fair/poor health and a 40 percent increase in reported mental health problems.

The ACE scale has also been administered to inmates in Japan. Matsuura, Hashimoto, and Toichi (2009) examined 91 juvenile females that were in a correctional facility in Japan. They concluded that self-esteem, aggression, and ACE scores were all highly interrelated. The authors illustrated that ACE scores, along with self-esteem and aggression, were associated with depression for the incarcerated females. Perez, Jennings, Piquero, and Baglivio (2016) examined 64,329 juveniles in Florida. They scholars found that the vast majority of youth in the study has some exposure to an ACE measure (over 83 percent) and that higher ACE scores predicted higher levels of aggression and impulsivity in the youth.

Levenson, Willis, and Prescott (2014) examined the association of ACE scores and males that were under civil commitment across the United States. The authors studied the ACE scores for 679 males that were civilly committed for sexual crimes. They found that compared to males in the general population, the civilly committed males were four times more likely to come from a home with emotional neglect. Levenson, Willis, and Prescott (2014) also found that less than 16 percent of the offenders had no ACE score. Finally, the scholars demonstrated that higher scores on the ACE scale were associated with high risk scores of the civilly committed males.

Pournaghash and Feizabadi (2009) examined the ACE scale's ability to predict future violence by creating a questionnaire comprised of items from the ACE scale. The researchers gave the questionnaire to 50 couples that attended family court in Tehran, Iran. Using regression analysis, Pournaghash and Feizabadi (2009) found that higher scores on the ACE questionnaire predicted violence as an adult. Pournaghash and Feizabadi's (2009) study provides evidence that the ACE scale can be used in different countries and across different cultures. Furthermore, Pournaghash and Feizabadi (2009) demonstrated that items from the ACE scale can be used to understand a particular phenomenon (in this case future violence). Therefore, higher ACE scores have been demonstrated to be a strong predictor of future negative outcomes for adults.

LSI-R

The Level of Service Inventory – Revised (LSI-R; Andrews & Bonta, 1995) is the most used criminal risk assessment tool in the United States (DeLisi & Conis, 2013). The LSI-R consists of 54 items that cover 10 topical areas. The topical areas include criminal history, financial status, education and employment history, family and marital status, alcohol and drug use, accommodations, leisure and recreation activities, peers and companions, emotional and personal status, and attitudes. The LSI-R is designed to gauge the level of risk an offender has to re-offend. The LSI-R was designed to be administered by trained correctional staff, and is given in a semi-structured interview style which takes around 45 minutes (Vose, Cullen, & Smith, 2008). The items in the LSI-R are scored either as Yes or No or on a scale of 0 to 3. Scores are then added up to indicate the level of risk the offender poses with higher scores on the LSI-R indicating higher risk (Andrews & Bonta, 1995).

The LSI-R has been demonstrated to be a highly accurate predictor of an offender's risk for recidivism. Examining published articles from 1970-1994, Gendreau, Little, and Goggin (1996) found that the LSI-R was the most beneficial inventory used to measure offender recidivism. Moreover, the LSI-R has been found to be an accurate assessment instrument for different races and ethnicities (Holsinger, Lowenkamp, & Latessa, 2003; Schlager & Simourd, 2007), genders (Coulson, Ilacqua, Nutbrown, Giulekas, & Cudjoe, 1996), and levels of criminality (Loza & Simourd, 1994).

The current analysis used similar techniques as Pournaghash and Feizabadi (2009). The authors used the ACE scale on a sample of offenders to explore the relationship of the ACE scale to the LSI-R. Regression analysis was used to determine if higher ACE scale scores could predict future violent behavior (as defined by the offender's LSI-R score).

Methods

Participants for the Study

Participants for the current study consisted of 141 individuals on probation and parole from a Midwestern community-based corrections agency. Table 1 displays the demographic information of the participants. Controls for age, gender, and race were included in the regression analysis to explore if the ACE score could be influenced by the demographic makeup of the offenders. The average age of the participants for the study was 33.99 (S.D. = 10.40). The current analysis was comprised of 82 males (58.2%) and 59 females (41.8%). A t-test was conducted in order to measure whether or not there was a significant difference in ACE scores between genders. The t-test revealed that average ACE scores were not different for females ($M = 4.04$, $SE = 3.11$) than males ($M = 4.02$, $SE = 2.93$). The difference was not significant $t(146) = -.051$, $p > .05$; and the effect size was insignificant ($r = .00$). Finally, the racial and ethnic makeup for the current analysis was similar to that found in the region from which the sample originated. Because of the low number of Hispanic and Asian participants, the current analysis created racial categories of white and nonwhite. Whites comprised 79.4% ($n = 112$) and nonwhites comprised 20.6% ($n = 29$) of the participants in the current study.

Table 1: Descriptive Statistics

	<i>Mean</i>	<i>Minimum</i>	<i>Maximum</i>	<i>S.D.</i>
Age	33.99	57.00	18.00	10.40
LSI-R Score	30.91	46.00	6.00	7.74
ACE Score	4.03	10.00	0.00	2.61

Instruments

The participants for the current study voluntarily completed the ten item ACE questionnaire. The ACE has 10 true-false statements which measure various adverse experiences the participant would have during their childhood (Table 2). For each yes response to a question the participant would be given one point. Therefore, participant total ACE scores could range from 0 to 10. To test the consistency of the ACE questionnaire a Cronbach's alpha was analyzed. The Cronbach's alpha was .76, which indicates a reliable scale (Kline, 1999).

The LSI-R is the most widely used assessment tool for measuring offender risk in the United States and Canada (DeLisi & Conis, 2013). The LSI-R consists of 54 questions in 10 topical areas, such as criminal history, education and employment, alcohol and drug use, and family status. For example, questions on the LSI-R include: (1) What is your opinion of the law, police and courts? (2) Have you ever escaped or attempted to escape from a youth or adult correctional facility?, and (3) How has your conviction changed your relationships? Based on the offender's response to the questions on the LSI-R the offenders will be assigned as low-risk (for low LSI-R scores) to high-risk (for high LSI-R scores).

Analysis

The ACE scale measures the number of traumatic childhood events for an offender and the LSI-R measures the likelihood of re-offense. Therefore, the current analysis examined if traumatic experiences can help predict future risk for re-offense. Regression analysis was used to measure if traumatic events can predict future risk of re-offense. Controls for age, race, and gender were included in the regression analysis to explore if the ACE could predict LSI-R scores for different ages, races, and genders.

Table 2: ACE Questionnaire

1. Did a parent or other adult in the household 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?
2. Did a parent or other adult in the household often...push, grab, slap, throw something at you? Or Ever hit you so hard that you had marks or were injured?
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 Try to or actually have oral, anal, or vaginal sex with you?
4. Did you 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?
5. Did you 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?
6. Were your parents ever separated or divorced?
7. Was your mother or stepmother often pushed, grabbed, slapped, or had something thrown at her? Or Sometimes or 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?
8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?
9. Was a household member depressed or mentally ill or did a household member attempt suicide?
10. Did a household member go to prison?

Findings

Regression analysis was conducted to find if the ACE questionnaire would predict LSI-R scores. Table 3 illustrates the results of the regression analysis. From model 1 the ACE score was significant and positive ($\beta = .245$, $p < .01$). As the ACE score increased, the LSI-R score increased. The ACE questionnaire does predict higher LSI-R scores.

Model 2 was conducted with age as a control variable. The ACE score was significant and positive ($\beta = .245$, $p < .01$). With age as a control the ACE score predicted higher LSI-R scores. Age was not significant. Model 3 was conducted with gender as a control. Once again the ACE score was significant and positive ($\beta = .246$, $p < .01$). The ACE score predicted higher LSI-R scores controlling for gender. The ACE score was significant and positive ($\beta = .245$, $p < .01$). Model 4 included a control for race. The

ACE score was significant and positive ($\beta = .245, p < .01$). After controlling for race, as the ACE score increased, the LSI-R increased.

Model 5 was conducted with all of the controls in the model. This was done to explore how the combination of age, gender, and race would affect the significance of the ACE scale score. The ACE score was significant and positive ($\beta = .246, p < .01$). As the ACE score increased, the LSI-R score increased. Once again, the more adverse childhood experiences that an offender had the higher the risk level of the offender. The analysis of the current study demonstrates that early negative experience can predict future risk.

Table 3: Regression Analysis for LSI-R (N = 140)

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
	β (S.E.)	β (S.E.)	β (S.E.)	β (S.E.)	β (S.E.)
ACE Score	.24** (.24)	.24** (.24)	.25** (.24)	.24** (.24)	.25** (.24)
Age		-.001 (.06)			.00 (.06)
Gender			-.07 (1.29)		-.07 (1.30)
Race				.07 (1.57)	.07 (1.58)
R ²	.06	.06	.06	.06	.07

*p < .05; **p < .01; ***p < .001

Discussion

The ACE scale has been demonstrated to be associated with a plethora of negative social outcomes as adults. Studies have illustrated that higher ACE scores are predictive of future incarceration (De Ravello, Abeita, & Brown, 2008), recidivism (Manchak, Skeem, & Douglas, 2008), violence as an adult (Pournaghash & Feizabadi, 2009), and substance abuse (Bowles, DeHart, & Webb, 2012). The ACE scale has also demonstrated that increased scores are linked to poor health, increased chronic disease, premature mortality, poor mental health, and functional limitations as adults (Amato, 1991; Bauldry et al., 2012; Bonomi et al., 2008; Felitti et al., 1998; Stack, 1990). Moreover, increased ACE scores have been found to predict increased levels of violence as adults (Pournaghash & Feizabadi 2009; Whitfield, Anda, Dube, & Felitti, 2003).

When examining incarcerated individuals, the ACE has been associated with increased violent crime arrests, suicide attempts, intimate partner violence, poor mental health, depression, aggression, and impulsivity (De Ravello, Abeita, & Brown, 2008; Matsuura, Hashimoto, & Toichi, 2009; Messina & Grella, 2006; Perez, Jennings, Piquero, & Baglivio, 2016). Moreover, Levenson, Willis, and Prescott (2014) found that higher ACE scores were associated with increased risk scores for civilly committed males in the United States.

The current analysis examined if an increased ACE score was associated with an increased score in the LSI-R. The LSI-R is risk assessment tool that was designed to explore the level of risk an offender has to re-offend. The LSI-R has been demonstrated to be a highly accurate predictor of an offender's risk for recidivism (Gendreau, Little, &

Goggin, 1996), and to be an accurate assessment instrument for different races and ethnicities (Holsinger, Lowenkamp, & Latessa, 2003; Schlager & Simourd, 2007), genders (Coulson, Ilacqua, Nutbrown, Giulekas, & Cudjoe, 1996), and levels of criminality (Loza & Simourd, 1994). The current analysis did find that higher ACE scores were associated with increased scores on the LSI-R.

The present findings add to, and supports, prior literature. The LSI-R is the most used criminal risk assessment tool in the United States (DeLisi & Conis, 2013) and has been demonstrated to be predictive of risk of recidivism (Gendreau, Little, & Goggin, 1996). At the same time, researchers have found the high scores on the ACE scale to be predictive of a host of negative outcomes (Amato, 1991; Bauldry et al., 2012; Bonomi et al., 2008; Felitti et al., 1998; Stack, 1990). The current analysis illustrates that high ACE and LSI-R scores are associated with similar outcomes. An increased ACE score is predictive of an increased LSI-R score.

The ACE is a 10-item scale that can be implemented quickly and by individuals not formally trained to administer more complicated assessments, such as the LSI-R. Although we do not foresee that the ACE questionnaire would replace a formal risk assessment tool, such as the LSI-R, the present findings would support that the ACE questionnaire could be used as an initial screening tool prior to implementing a more time intensive, comprehensive risk evaluation process. For example, the 10-item ACE questionnaire is self-administered and could be easily included in an offender's initial packet of information used at sign up for probation or parole. Information from this simple, self-administered tool could provide quick and valuable information about the offender's risk and needs, as well as providing valuable information for the more time intensive, comprehensive risk assessments like the LSI-R. This finding is significant for correctional workers and mental health providers because once an offender is identified as having a high ACE score then various therapeutic resources and services could be implemented to address this past trauma, potentially reducing that individuals risk for future recidivism.

Ethical Considerations

We do not advocate at the current moment that ACE scores replace other risk assessment tools, such as the LSI-R. However, the ACE scale could provide a quick reference as to the risk an inmate poses before more assessment can be done. Currently, the authors are not aware of any correctional institution that uses the ACE scale as an initial assessment tool. Prior research on the ACE scale has focuses on the mental health of inmates (Messina & Grella, 2006), depression (Matsuura, Hashimoto, & Toichi, 2009), or suicide attempts and violence before entering a correctional setting (De Ravello, Abeita, & Brown, 2008). Therefore, further studies are needed to examine the link of increased ACE scores, the LSI-R, and other risk assessment scales.

Moreover, the authors of the current analysis do not intend to suggest that individuals who experiences negative childhood events will always experience negative outcomes as adults. Many individuals will not have negative outcomes as adults. The ACE score could be used as one of many assessments to gauge the risk of an offender. The ACE scale can be used quickly to get an initial risk assessment of an offender.

Limitations

This study was conducted in an urban, Midwestern setting. Although this was the intention and design of this study, the results may not be generalizable to larger, metropolitan or more rural settings. Future research is recommended into investigating whether or not the present findings can be replicated, and therefore generalizable, to these additional settings. The sample population used for this study was also comprised primarily of Caucasian participants (79.4%). Although this percentage closely matches the cultural ratio found in the area in which the study was conducted, it is not representative of other, more diverse communities. Therefore, further research is also recommended to investigate whether or not the present findings can be replicated with more culturally diverse populations.

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