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Long-Term Consequences of Child Abuse and Neglect on Adult Economic Well-Being

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Abstract

Child abuse and neglect represent major threats to child health and well-being; however, little is known about consequences for adult economic outcomes. Using a prospective cohort design, court substantiated cases of childhood physical and sexual abuse and neglect during 1967–1971 were matched with nonabused and nonneglected children and followed into adulthood (mean age 41). Outcome measures of economic status and productivity were assessed in 2003–2004 ($N = 807$). Results indicate that adults with documented histories of childhood abuse and/or neglect have lower levels of education, employment, earnings, and fewer assets as adults, compared to matched control children. There is a 14% gap between individuals with histories of abuse/neglect and controls in the probability of employment in middle age, controlling for background characteristics. Maltreatment appears to affect men and women differently, with larger effects for women than men. These new findings demonstrate that abused and neglected children experience large and enduring economic consequences.

Keywords

childhood maltreatment; abuse; neglect; prospective cohort design; economic consequences

Child abuse and neglect are major threats to child health and well-being. In the United States, it is estimated that there were 3.2 million referrals to child protection service agencies for suspected maltreatment and 794,000 cases of children determined to be victims of child abuse or neglect in 2007 (U.S. Department of Health and Human Services, 2009). During 2007, an estimated 1,760 children died as a result of child abuse or neglect (U.S. Department of Health and Human Services, 2009). In addition to this immediate toll, there is increasing evidence that abuse and neglect increase a child's risk of negative consequences across multiple domains of functioning and developmental time points, including psychiatric, social, behavioral (crime and violence), academic, and interpersonal functioning (Bulik, Prescott, & Kendler, 2001; Gilbert et al., 2009; Lansford, Dodge et al., 2002; Lansford, Miller-Johnson et al., 2007; Molnar, Buka, & Kessler, 2001; Widom, 1999; Widom & Kuhns, 1996).

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Declaration of Conflicting Interests

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This article presents a long-term follow-up of the consequences of child maltreatment on economic outcomes in middle adulthood, including employment, earnings, and assets. Many of the consequences referred to above manifest early in life and, thus, one might speculate that these early negative outcomes (such as academic or mental health problems) associated with child maltreatment may have an impact on subsequent economic productivity. For example, several studies have reported that maltreated children are at an increased risk of lower levels of educational achievement and intellectual performance as well as higher rates of truancy, school expulsion, and grade retention and repetition (Boden, Horwood, & Fergusson, 2007; Jonson-Reid, Drake, Kim, Porterfield, & Han, 2004; Lansford, Dodge, et al., 2002; Leiter, 1997; Perez & Widom, 1994). Therefore, it would not be surprising to see a ripple effect from earlier consequences of child maltreatment to long-term consequences for adult functioning, including economic productivity.

Very little is known, however, about this important issue of long-term economic consequences of childhood maltreatment (Gilbert et al., 2009). Two reports describe the "loss of productivity due to unemployment and underemployment" (National Clearinghouse on Child Abuse and Neglect Information, 1998; U.S. Department of Health and Human Services, 2006), without providing any further details. Two studies describe economic consequences of childhood sexual abuse (Hyman, 2000; Mullen, Martin, Anderson, Romans, & Herbison, 1994). Hyman (2000) examined the economic welfare of 1,925 lesbians from the National Lesbian Health Care survey and found adverse effects on earnings. In the sole prospective investigation (Widom, 1998), individuals with documented cases of childhood physical and sexual abuse and neglect and a matched group of nonmaltreated children were followed up into young adulthood (approximate age 29) and asked about their employment status. Significantly, more of the abused and neglected individuals were in menial and semi-skilled occupations than controls (62% vs. 45%). Conversely, more of the controls were working in higher occupational levels, from skilled to professional occupations. However, none of these studies has traced the long-term economic consequences of childhood maltreatment into middle adulthood.

This article describes the first prospective assessment of economic consequences in individuals with documented histories of childhood physical and sexual abuse and neglect and a matched comparison group who were followed up into middle adulthood. Earlier papers from this project have described mental health and behavioral outcomes (Widom, 1989b, 1999; Widom, DuMont, & Czaja, 2007; Widom, Ireland, & Glynn, 1995). This study was designed to overcome many limitations of the prior literature. First, we do not rely on retrospective self-reports or maternal reports about childhood abuse and neglect. Second, we have a large group of closely matched control children without documented histories of maltreatment. Third, we have rich information about a range of economic outcomes for a sample whose mean age is 41.

In addition to determining whether maltreatment affects long-term economic productivity, we also considered whether there are differential effects on economic consequences associated with specific types of child maltreatment. However, because of sample size restrictions, we are only able to examine economic consequences for individuals with documented histories of childhood neglect. Finally, we hypothesized that the economic consequences of child maltreatment might differ between men and women. For example, if the experience of child abuse and/or neglect disrupts the ability to create family ties (Colman & Widom, 2004), women might be especially at risk of poor material outcomes, because single women are at higher risk of poverty than married women (DeNavas-Walt, Proctor, & Smith, 2008). Moreover, previous papers from this study have reported sex differences in outcomes, where maltreated women were at increased risk of alcohol abuse, compared to control women, but this was not the case for men (Widom, Ireland, & Glynn,

1995). Hence, in this study, we examine these relationships and estimate models separately for males and females.

Method

Sample and Participant Selection

Data were collected as part of a prospective cohort design study in which abused and/or neglected children were matched with nonabused and nonneglected children and followed into adulthood. Because of the matching procedure, the participants are assumed to differ only in the risk factor, that is, having experienced childhood abuse or neglect. The controls may also differ from the abused and neglected group on other variables nested with abuse or neglect. Complete details of the study design and subject selection criteria have been described earlier (Widom, 1989a).

The original sample of abused and neglected children was made up of court substantiated cases of childhood physical and sexual abuse and neglect processed from 1967 to 1971 in one Midwestern metropolitan county area. Cases of abuse and neglect were restricted to children 11 years of age or less at the time of the incident and, therefore, represent documented instances of *childhood* abuse or neglect. The sample excluded cases that represented (a) adoption of the child as an infant; (b) involuntary neglect (often resulting from the temporary institutionalization of the legal guardian); (c) placement only—a small group of children who needed a home, not for reasons of abuse or neglect; or (4) failure to pay child support.

Physical abuse cases included injuries such as bruises, welts, burns, abrasions, lacerations, wounds, and fractures, along with some additional signs of physical injury. Sexual abuse charges varied from relatively nonspecific charges of “assault and battery with intent to gratify sexual desires” to more specific charges of “fondling or touching in an obscene manner,” rape, sodomy, incest, and so on. Neglect cases reflected a judgment that the parent's deficiencies in child care were beyond those found acceptable by contemporary community and professional standards. These cases represented extreme failures to provide adequate food, clothing, shelter, and medical attention.

A critical element of the design involved the selection of a comparison group, matched with the maltreated sample on the basis of age, sex, race/ethnicity, and approximate family social class during the time period under study. This matching was important because it is theoretically plausible that any relationship between childhood events and subsequent outcomes is confounded with or explained by social class differences (Case, Fertig, & Paxson, 2005; Currie & Hyson, 1999; Heckman, 2007; MacMillan & Munn, 2001; Paxson & Waldfogel, 1999; Widom, 1989c). The matching procedure used here is based on a broad definition of social class that includes neighborhoods in which children were reared and schools they attended (Watt, 1972). Any potential control group child ($n = 11$) with an official record of abuse or neglect was eliminated, regardless of whether the record was before or after the period of the study.

Children who were under school age at the time of the abuse and/or neglect were matched with children of the same sex, race, date of birth (± 1 week), and hospital of birth using county birth record information. For children of school age, records of more than 100 elementary schools for the same time period were used to find matches with children of the same sex, race, date of birth (±6 months), class in elementary school during the years 1967 to 1971, and home address (preferably within a five-block radius of the abused/neglected child). Overall, matches were found for 74% of the abused and neglected children. Nonmatches occurred for several reasons: (a) for birth record matches, the abused and

neglected child was born outside the county or state or date of birth information was missing and (b) for school records, there was inadequate identifying information for the abused and neglected child or class rosters were not available due to the closure of elementary schools over the years.

The initial phase of the study compared the abused and/or neglected children (N = 908) to the matched comparison group (N = 667) on juvenile and adult criminal arrest records (Widom, 1989b). A second phase involved tracking, locating, and interviewing the abused and/or neglected and comparison groups during 1989–1995 (N = 1,196). Subsequent follow-up interviews were conducted in 2000–2002 (N = 896) and again in 2003–2004 (N = 807). In this article, we use information collected during both the 1989–1995 and the 2003–2004 interviews.

Although there was attrition associated with deaths, refusals, and our inability to locate individuals over the various waves of the study, the composition of the sample has remained relatively constant. The abuse and neglect group represented 56–58% at each time period; Whites were 62–67%; and females were 49–53% of the samples. There were no significant differences between the samples on these variables or in mean age across the three phases of the study.

Procedure

Participants completed the interviews in their homes or, if preferred by the participant, another place appropriate for the interview. The interviewers were blind as to the purpose of the study and to the inclusion of an abused and/or neglected group. Similarly, the subjects were blind to the purpose of the study and were told that they had been selected to participate as part of a large group of individuals who grew up in the area in the late 1960s and early 1970s. After a complete description of the study was provided to the subjects, subjects signed a consent form acknowledging that they were participating voluntarily. Institutional review board approval was obtained for all the procedures involved in this study. For those individuals with limited reading ability, the consent form was read and, if necessary, explained verbally.

Variables and Measures

Child abuse and neglect—Childhood physical and sexual abuse and neglect were assessed through review of official records of cases processed during the years 1967 to 1971.

Outcomes (1989–1995)—During the first interview, participants were asked a series of questions about their education, employment, marital status, and so on, and administered a variety of standardized cognitive and psychiatric tests. Outcome measures (1989–1995) are based on information from this interview. *Highest grade school completed* refers to the highest grade of school that the participant completed. The measure of *job skill* is based on the Hollingshead occupational index (Hollingshead, 1975), ranging from 1 to 9. A job is considered "skilled" if the Hollingshead score is greater than 3, where 3 is considered "semi-skilled." *IQ* (intelligence) is measured by the Quick test (Ammons & Ammons, 1962), an easily administered measure of current level of verbal intelligence where the subject can point to a picture on a card. Quick test scores correlate highly with WAIS (Wechsler adult intelligence scale) full scale (.79–.80) and verbal (.79–.86) IQ scores (Dizzone & Davis, 1973). The Quick test has been used with a variety of subject populations and seems resistant to the type of decrement in performance on intelligence test tasks often associated with psychopathology (Dizzone & Davis, 1973; Gendreau, Gendreau & Roach, 1973;

Sinnett, Holen, & Davie, 1988; Vance, Hankins, & Brown, 1988; Vance, Hankins & Reynolds, 1988).

Economic outcomes (2003–2004)—One of the goals of the third wave of the study was to examine long-term economic productivity of the participants in the study and, thus, information from this wave represents a rich source of economic data not available in other waves of the study. Information was obtained about whether the person (a) was employed—currently employed in a full-time or part-time job; (b) owns a bank account—has money in checking or savings accounts, money market funds, certificates of deposit, government savings bonds, or treasury bills (including individual retirement accounts [IRA]); (c) owns stock—owns shares of stock in publicly held corporations, mutual funds, or investment trusts (including stocks in IRAs); (d) owns a vehicle—owns a car, truck, motor home, trailer, or boat; (e) owns a home—owns the apartment, home, or mobile home where he or she lives or pays rent; and (f) has nonmortgage debt—credit card charges, student loans, medical or legal bills, or loans from relatives. Participants were also asked about earnings (that is, how much he or she earned from all his or her employers before taxes and other deductions during the last calendar year). Participants who did not provide an exact amount were asked whether their earnings fell into one of seven brackets: $0–4,999, $5,000–9,999, $10,000–19,999, $20,000–24,999, $25,000–49,999, $50,000–74,999, or $75,000+. In all, 665 people in the study reported their earnings as a continuous number, and another 90 reported their earnings using the amounts indicated in the brackets. To maximize the number of participants for whom we have complete information on earnings, we report estimates for determinants of imputed earnings where we used the continuous measure, if available, or the midpoint of the bracket if only a bracket was available (for earnings over $75,000, we use the midpoint of $75,000 and the highest reported earnings in our sample, $210,000). When we deleted people with missing continuous earnings data, the estimates were very similar to the group that included those with imputed earnings.

Control variables—Even though the two groups (abuse/neglect and controls) are well matched, it is possible that the controls may differ on other variables associated with childhood abuse and neglect. Thus, in addition to control variables of age, race/ethnicity, and sex, we include controls for family background characteristics. Information on family background characteristics was obtained during the 1989–1995 interviews. Each participant was asked whether he or she had (a) parents who received welfare or food stamps and (b) ever attended Head Start. In addition, participants were asked whether his or her mother had been employed during childhood (yes/no) and about the mother's highest grade of school completed. Because there was substantial missing information regarding fathers' education and employment (due to divorce, separation, lack of knowledge of paternity, or lack of knowledge of fathers' whereabouts), this information is not included among the control variables.

Statistical Analysis

Simple bivariate comparisons of the abuse/neglect group and controls are presented in Tables 1 and 2, with *t* tests for continuous variables and chi-square tests for dichotomous variables. Regression analyses were conducted for both the full sample ($N = 807$) and matched pairs only ($N = 358$, those cases where both members of a matched pair were interviewed during this phase of the study). Although the groups (abuse/neglect and controls) were matched originally on a case-by-case basis, we did not have matches for all children. In addition, over the various phases of the study, one member of the pair may have dropped out of the study for any number of reasons. Thus, to safeguard against the possibility of nonrandom attrition from the maltreated and control groups, we have repeated the analyses using the full sample and matched pairs. For space considerations and because

the results of the two analyses are similar, however, we present the results of these analyses only once (see Table 3). For subsequent analyses, we report the results of the matched pair analyses only if there are major discrepancies in the findings.

Comparisons of self-reported information at approximate age 29 (Table 1) reveals differences between the two groups in terms of family background characteristics that might be expected to lead to poorer outcomes among offspring. Although the maltreated participants and controls are well matched in terms of most demographic characteristics, there were some significant differences in reported background characteristics. Mothers of maltreated children had less education and were more likely to have received welfare or food stamps. This is perhaps unsurprising, because there are often many other problems co-occurring in maltreating families that may distinguish them from non-maltreating families. Although theoretically possible, it would be hard to imagine a situation in which families differed only in terms of whether a child was abused or neglected. However, for this reason, we include these family background variables in the regressions to control for these reported differences in family background.

Thus, the basic model we use to estimate the effect of child abuse and neglect on long-term economic productivity takes the form of the equation below:

$$\text{Outcome}=a_0+a_1 \quad \text{Maltreated}+a_2\mathbf{X}+a_3 \quad \text{Quarter}+e,$$

where Outcome represents one of the outcomes of interest, Maltreated is an indicator for a child who had a substantiated case of abuse and/or neglect at baseline, **X** is the vector of background characteristics (sex, race, age, whether the parents ever received welfare or food stamps during the participant's childhood, whether the participant ever attended Head Start, whether the mother was employed during the participant's childhood, and the mother's highest grade of school completed). The models also control for the quarter of the year because participants were interviewed at different dates, and seasonal variations in general economic conditions at the time that they were interviewed could have an impact on their employment probabilities, earnings, and so on. We also estimated models for the specific effects of childhood neglect but are unable to examine the effects of physical and sexual abuse because of the smaller sample size and lower statistical power for those types of child abuse. In addition, we estimated models separately for males and females. Estimating separate models by sex allows all of the variables to have different effects, rather than constraining all effects of sex to work through the abuse/neglect variable. That is, unlike models that only include an interaction between the variable of interest (maltreatment) and sex, estimation of separate regressions allows all of the coefficients on the **X** variables to differ between males and females. For example, maternal education is allowed to have a differential effect on male and female children in this specification. Finally, as another check on our results, we estimated an additional model focusing on the subset of participants whose families had received food stamps or welfare when they were children. Within this subset, maltreated individuals and controls can be expected to be more similar than in the full sample. All of our models are estimated by ordinary least squares if the outcomes are continuous and using logistic regression if the outcomes are dichotomous.

Results

Table 2 presents the results of bivariate analyses and shows that those who were maltreated as children have inferior adult outcomes along most measured dimensions of economic productivity and that estimates are generally similar in the full and matched samples. As of the 1989–1995 assessment, when these individuals were young adults (approximately age

29), participants with histories of childhood maltreatment had obtained a year less of education on average, had lower scores on an IQ test, and were less likely to have a skilled job, compared to controls. Disadvantages persisted into middle age. In 2003–2004, individuals with histories of abuse and neglect were about 14 percentage points less likely to be employed and significantly less likely to own a bank account, stock, a vehicle, or a home, compared to matched controls. For the full sample, abuse/neglect was associated with *less* likelihood of having nonmortgage debt, but this is one outcome where the difference was not significant in the matched pair sample. Where participants reported earnings, individuals with documented histories of abuse and/or neglect reported almost $8,000 less per year on average than controls.

Table 3 presents the results of regressions estimating the long-term economic consequences of child maltreatment. We conducted separate estimations for each economic outcome or dependent variable, with controls for demographic and background characteristics. Table 3 shows that many of the differences between the maltreated group and controls remain statistically significant, despite controls for demographic and background characteristics—individuals maltreated in their childhood had lower IQ test scores and earnings and were less likely to be in a skilled job (1989–1995), be employed, own stock, own a vehicle, and own a home (2003–2004) compared with the controls. For one outcome (owning a home), a significant odds ratio with the full sample is not significant in the matched pairs sample. For two outcomes (bank account and nonmortgage debt), a nonsignificant odds ratio in the full sample became significant at the 90% level of confidence in the matched sample.

Table 4 presents our findings with regard to the specific effects of childhood neglect on long-term economic consequences. With the exception of owning a bank account ($p < .10$) and having nonmortgage debt (not significant), all of the long-term outcomes assessed here indicated that neglected children experienced worse economic consequences in young and middle adulthood than the controls.

Table 5 presents the results of our analyses estimating models separately for men and women. Our findings suggest that women appear to be more strongly affected by the experience of childhood maltreatment than men. By young adulthood (approximate age 29), maltreated women had completed fewer years of schooling and have lower IQ test scores compared to the control women. In middle adulthood (2003–2004), maltreated women were significantly less likely to be employed, own a bank account, own stock, own a vehicle, and own a home, compared to control women. In 2003–2004, women with histories of abuse and neglect also reported significantly lower earnings than women without such histories. By young adulthood, maltreated men were significantly less likely to be in a skilled job, compared to control men, and there was a nonsignificant trend for abused and neglected men to have lower IQ test scores than controls. In contrast to our findings for abused and neglected women, in middle adulthood, maltreated men were *not* at a significantly greater risk of negative economic consequences compared to control men. Overall, it appears that women are especially vulnerable to the long-term economic effects of being abused or neglected as a child.

Earlier analyses controlled for a number of potential characteristics that covary with child maltreatment and may affect economic consequences. However, it is still possible that unobservable characteristics might be driving these results. To further examine this issue, we estimated economic consequences for the subset of individuals who reported that their families received food stamps or welfare when they were children. This restriction reduces the sample size by about 25%, and as a result, confidence intervals cannot be as precisely estimated. Nevertheless, Table 6 shows that within this subgroup, there are significant effects of maltreatment on earnings, whether someone is in a skilled job and on

employment. There are also effects on IQ test scores, owning a vehicle, and owning a home that approach significance ($p < .10$) and of similar magnitude and direction. These estimates support our contention that our results are estimates of the negative effects of childhood maltreatment and are not driven by biases associated with omitted variables.

Discussion

Much of the research on the effects of child abuse and neglect has focused on the development of social, behavioral, and mental health problems among young adults. Our results show that individuals who have histories of childhood abuse and neglect also suffer enduring economic consequences. Our estimates are robust and control for a number of important observable background characteristics. Consistent with our results, Paxson and Waldfogel (1999, 2002) showed that abuse and neglect are more common in families of lower socioeconomic status, so that maltreatment may exacerbate differences in the prospects of rich and poor children.

The effects on education, employment, occupation, earnings, and assets are large and consequential. For example, the results presented here suggest that the experience of maltreatment reduces peak earnings capacity (these adults are measured close to this point in their life cycles) by about $5,000 per year. Cumulated over a lifetime, this is a large loss. These economic consequences are also large relative to the effects of physical health problems such as chronic conditions and activity limitations on employment that have been estimated in other studies (Currie & Madrian, 1999). Thus, in addition to their social and psychological costs, the approximately one million substantiated cases of child abuse and neglect per year have significant costs in terms of foregone adult economic productivity.

Our findings can be compared to the costs of preventing maltreatment. For example, the Nurse Family Partnership Program (Olds et al., 1999) has demonstrated that home visits by professional nurses that start in infancy and continue through age 2 can reduce the incidence of substantiated cases of maltreatment by 50%. At a cost of about $4,000 per child, the steady-state cost of providing this service to all children would be about $14 billion per year (assuming that there are roughly 3.5 million children born each year). Some might object to paying $4,000 for prevention, whereas the economic benefit would not be obtained until the children reached adulthood. However, based on our findings, if we assume that saving a child from abuse or neglect increases his or her earnings by $5,000 from ages 18 to 60, the present discounted value of these higher earnings in the year of birth would be $30,800. If we further assumed that the intervention would reduce the number of substantiated case of maltreatment from approximately 1 million to 500,000, then the value of the intervention in terms of increased earnings alone would be $15.4 billion, which would more than offset the cost of the intervention program.

Given that the costs we focus on in this article are only some of the social costs of maltreatment, these estimates suggest that a home visiting program or another empirically validated prevention program of similar cost could easily pay for itself. If one considers it a benefit to improve the lives of children (beyond increasing their earnings and economic welfare), then the cost–benefit analysis looks even more favorable.

To our knowledge, this is the first study to systematically examine the long-term economic consequences of childhood abuse and neglect into middle adulthood. Future research might now begin to examine possible mediating variables. For example, one might speculate that the reduced earnings in maltreated children might be partially accounted for by the reduced education in young adulthood. If it turns out to be the case, then greater efforts might be directed at encouraging abused and neglected children to stay in school. Similarly, gender

differences might be accounted for by differences in the effects of child abuse and neglect on relationships.

Limitations

The strength of our study is that it follows abused and neglected children over a very long time period, longer than any other prospective longitudinal study of maltreated children. However, several limitations should be noted. First, although use of documented cases of childhood abuse and neglect is an advantage, these cases most likely represent an extreme and do not capture cases of abuse and neglect that did not come to the attention of authorities. Second, the cases of abuse and neglect occurred in the late 1960s and early 1970s in the Midwestern United States, and therefore, our results may not generalize to all cases of abuse and neglect. Third, our sample is skewed toward the lower end of the socioeconomic spectrum, and therefore, findings cannot be generalized to middle-class samples. Finally, the main weakness of our study is that maltreated children and controls were not exactly alike at baseline in terms of their family background characteristics. In particular, it seems likely that children with histories of maltreatment are more likely to come from homes of single mothers on welfare. However, controlling for this known difference between the families, or focusing only on this subgroup, does not affect our substantive conclusions. It is important to recognize that there are likely to be other aspects of dysfunction in households where children are neglected or abused, which do not exist in control households. Hence, our results must be interpreted as evidence regarding the effect of growing up in such households, rather than narrowly interpreted as evidence of the effect of a particular incident of abuse. However, the evidence presented here presents a compelling argument for intervening with children in these families in an effort to ameliorate their future outcomes.

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Table 1

Background Characteristics of the Maltreated Group and Matched Controls

	Full Sample (*N* = 807)			Matched Pairs (*N* = 358)		
Background Characteristics	**Abuse/Neglect**	**Control**	**Statistical Test**	**Abuse/Neglect**	**Control**	**Statistical Test**
Female (%)	54.4	50.7	$\chi^2 = 1.06$	54.7	54.7	–
Non-White (%)	39.1	37.2	$\chi^2 = 0.28$	44.1	44.1	–
Age (2003–2004) [*M* (*SD*)]	41.3 (3.5)	41.1 (3.6)	$t = 0.61$	41.1 (3.6)	41.1 (3.6)	–
Parents received welfare/food stamps (%)	72.3	40.7	$\chi^2 = 81.45^{***}$	69.3	36.9	$\chi^2 = 37.73^{***}$
Ever attended Head Start (%)	13.1	9.2	$\chi^2 = 3.03^{\dagger}$	11.7	8.9	$\chi^2 = 0.754$
Mother employed during childhood (%)	58.5	65.0	$\chi^2 = 3.56^{\dagger}$	57.5	67.6	$\chi^2 = 3.86^{*}$
Mother's highest grade completed [*M* (*SD*)]	11.0 (2.2)	11.5 (2.4)	$t = 3.05^{**}$	10.7 (2.3)	11.6 (2.6)	$t = 3.10^{**}$

Note: *t* tests used for continuous variables. Chi-square (χ^2) statistic used for dichotomous variables. Numbers in analyses vary due to missing information on some variables.

$^{\dagger}p < .10$.

$^{*}p < .05$.

$^{**}p < .01$.

$^{***}p < .001$.

Table 2

Bivariate Characteristics of the Abused and Neglected Group and Matched Controls for the Full and Matched Pair Samples

Variables	Full Sample				Matched Pairs			
Outcomes: 1989–1995	***N***	**Abuse/Neglect**	**Control**	**Statistical Test**	***N***	**Abuse/Neglect**	**Control**	**Statistical Test**
Highest grade completed [*M* (*SD*)]	807	11.2 (1.9)	12.1 (2.4)	$t = 5.80^{***}$	358	11.3 (1.9)	12.3 (2.4)	$t = 4.81^{***}$
IQ test score [*M* (*SD*)]	807	35.7 (6.1)	38.8 (5.7)	$t = 7.35^{***}$	354	35.1 (6.5)	39.2 (5.7)	$t = 6.26^{***}$
Skilled job (%)	791	37.4	54.1	$\chi^2 = 21.96^{***}$	344	39.1	58.5	$\chi^2 = 15.07^{***}$
Outcomes: 2003–2004								
Employed (%)	796	63.2	77.4	$\chi^2 = 18.54^{***}$	348	64.6	81.7	$\chi^2 = 13.09^{***}$
Owns a bank account (%)	797	54.0	65.9	$\chi^2 = 11.49^{***}$	358	53.4	66.1	$\chi^2 = 5.78^{*}$
Owns stock (%)	803	15.4	31.7	$\chi^2 = 30.29^{***}$	354	15.3	33.3	$\chi^2 = 15.73^{***}$
Owns a vehicle (%)	805	65.5	80.4	$\chi^2 = 21.71^{***}$	356	65.2	79.8	$\chi^2 = 9.52^{**}$
Owns a home (%)	805	34.5	50.7	$\chi^2 = 21.40^{***}$	356	34.8	47.8	$\chi^2 = 6.13^{*}$
Has nonmortgage debt (%)	797	51.0	58.4	$\chi^2 = 4.36^{*}$	346	60.1	53.8	$\chi^2 = 1.43$
Imputed Earnings ($) [*M* (*SD*)]	755	18,888 (1,055)	27,149 (1,203)	$t = 5.16^{***}$	326	19,213 (1,818)	28,341 (1,818)	$t = 3.55^{**}$

Note: *t* tests used for continuous variables. Chi-square (χ^2) statistic used for dichotomous variables. Numbers vary in analyses because of missing information. There are a maximum of 179 matched pairs (total number of individuals in matched pairs = 358).

$^{*}p < .05$.

$^{**}p < .01$.

$^{***}p < .001$.

Table 3

Regressions Predicting Long-Term Economic Outcomes Associated With Child Maltreatment

	Full Sample			Matched Sample		
Variables	**Coefficient**	***SE***	***t* Value**	**Coefficient**	***SE***	***t* Value**
Highest grade completed, 1989–1995	–0.29	–0.15	–1.93†	–0.52	0.24	–2.18*
IQ test score, 1989–1995	–1.29	0.44	–2 94**	–2.04	0.68	–3.02**
Imputed earnings ($), 2003–2004	–5,108	1,805	–2.83**	–6,552	2,844	–2.30**

	Odds ratio	**95% CI**	**z score**	**Odds ratio**	**95% CI**	**z score**
Skilled job, 1989–1995	0.66	.47–.91	–2.54**	0.52	0.32–0.84	–2.66**
Employed, 2003–2004	0.61	0.42–0.86	–2.75**	0.46	0.26–0.80	–2.76**
Owns a bank account, 2003–2004	0.83	0.59–1.15	–1.13	0.83	0.50–1.37	–1.73†
Owns stock, 2003–2004	0.63	0.42–0.95	–2.20*	0.53	0.28–1.01	–1.91*
Owns a vehicle, 2003–2004	0.63	0.44–0.91	–2.45**	0.58	0.34–0.99	–1.97*
Owns a home, 2003–2004	0.60	0.44–0.83	–3.07**	0.72	0.44–1.17	–1.34
Has nonmortgage debt, 2003–2004	0.86	0.62–1.19	–0.91	1.56	0.95–2.55	1.75†

Note: CI = confidence interval; SE = standard error. Ordinary least square regressions for continuous variables. Logistic regressions for dichotomous dependent variables. Regressions include controls for sex, race/ethnicity, and age, whether the parents ever received welfare or food stamps during the participant's childhood, whether the participant ever attended Head Start, whether the mother was employed during the participant's childhood, mother's highest grade of school completed, and quarter of the year the participant was interviewed.

***$p \leq .001$.

†$p < .10$.

*$p \leq .05$.

**$p \leq .01$.

Table 4

Results of Regressions Predicting Long-Term Outcomes as a Consequence of Childhood Neglect

		Among Neglected Children and Controls Only		
Variables	***N***	**Coefficient**	***SE***	***t* Value**
Highest grade completed, 1989–1995	719	–0.34	0.15	–2.23*
IQ test score, 1989–1995	714	–1.43	0.46	–3.05**
Imputed earnings ($), 2003–2004	674	–7,005	1,805	–3.88***

Variables		**Odds ratio**	**95% CI**	**z score**
Skilled job, 1989–1995	704	0.64	0.45–0.91	–2.48*
Employed, 2003–2004	709	0.59	0.40–0.86	–2.70**
Owns a bank account, 2003–2004	709	0.74	0.52–1.05	–1.69†
Owns stock, 2003–2004	716	0.56	0.35–0.88	–2.50*
Owns a vehicle, 2003–2004	717	0.62	0.42–0.92	–2.40*
Owns a home, 2003–2004	717	0.55	0.39–0.79	–3.28***
Has nonmortgage debt, 2003–2004	711	0.81	0.57–1.15	–1.16

Note: CI = confidence interval; SE = standard error. Ordinary least square regressions for continuous variables. Logistic regressions for dichotomous dependent variables. Regressions include controls for sex, race/ethnicity, and age, whether the parents ever received welfare or food stamps during the participant's childhood, whether the participant ever attended Head Start, whether the mother was employed during the participant's childhood, mother's highest grade of school completed, and quarter of the year the participant was interviewed.

† $p < .10$.

* $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$.

Table 5

Regressions Predicting Long-Term Economic Outcomes Associated With Child Maltreatment for Men and Women Separately

	Men			Women		
Variables	**Coefficient**	***SE***	***t* Value**	**Coefficient**	***SE***	***t* Value**
Highest grade completed, 1989–1995	–0.14	.20	–0.68	–0.50	0.23	–2.18*
IQ test score, 1989–1995	–1.14	0.66	–1.73†	–1.34	0.61	–2.19*
Imputed earnings ($), 2003–2004	–5,060	3,125	–1.62	–5,584	1,926	–2.90**

	Odds ratio	**95% CI**	**z score**	**Odds ratio**	**95% CI**	**z score**
Skilled job, 1989–1995	0.58	0.36–0.96	–2.14*	0.69	0.42–1.13	–1.47
Employed, 2003–2004	0.69	0.37–1.28	–1.17	0.53	0.34–0.84	–2.67**
Owns a bank account, 2003–2004	1.22	0.74–2.00	0.79	0.58	0.36–0.93	–2.28*
Owns stock, 2003–2004	0.80	0.42–1.54	–0.66	0.49	0.28–0.85	–2.52*
Owns a vehicle, 2003–2004	1.18	0.69–2.03	0.60	0.29	0.16–0.51	–4.29***
Owns a home, 2003–2004	0.67	0.41–1.10	–1.58	0.49	0.31–0.77	–3.10**
Has nonmortgage debt, 2003–2004	0.81	0.49–1.35	–0.81	0.80	0.50-1.29	–0.90

Note: CI = confidence interval; SE = standard error. Ordinary least square regressions for continuous variables. Logistic regressions for dichotomous dependent variables. Regressions include controls for sex, race/ethnicity, and age, whether the parents ever received welfare or food stamps during the participant's childhood, whether the participant ever attended Head Start, whether the mother was employed during the participant's childhood, mother's highest grade of school completed, and quarter of the year the participant was interviewed.

† $p < .10$.

* $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$.

Table 6

Regressions Predicting Long-Term Economic Outcomes Associated With Child Maltreatment Among Participants With Parents on Welfare

	Among Participants With Parents on Welfare		
Variables	**Coefficient**	***SE***	***t* Value**
Highest grade completed, 1989–1995	–0.08	.19	–0.41
IQ test score, 1989–1995	–1.03	0.61	–1.68†
Imputed earnings ($), 2003–2004	–5,722	2,432	–2.35*

	Odds ratio	**95% CI**	**z score**
Skilled job, 1989–1995	0.56	0.13	–2.48*
Employed, 2003–2004	0.60	0.14	–2.17*
Owns a bank account, 2003–2004	0.99	0.22	–0.03
Owns stock, 2003–2004	0.62	0.18	–1.64
Owns a vehicle, 2003–2004	0.66	0.15	–1.79†
Owns a home, 2003–2004	0.65	0.15	–1.88†
Has nonmortgage debt, 2003–2004	0.90	0.20	–0.48

Note: CI = confidence interval; SE = standard error. Ordinary least square regressions for continuous variables. Logistic regressions for dichotomous dependent variables. Regressions include controls for sex, race/ethnicity, age, whether the parents ever received welfare or food stamps during the participant's childhood, whether the participant ever attended Head Start, whether the mother was employed during the participant's childhood, mother's highest grade of school completed, and quarter of the year the participant was interviewed.

† $p < .10$.

* $p \leq .05$.