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# Child Abuse, Sexual Assault, Community Violence and High School Graduation

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## ABSTRACT

Researchers from a range of disciplines have conducted studies to identify why one in five persons in the United States fails to complete high school. Our research contributes to this literature by exploring the link between violence victimization as a youth on subsequently dropping out of high school and years of schooling completed. This pathway has largely been neglected in prior studies, although about a third of all women and men report being the victim of violence prior to the age of 16. Using data drawn from the *National Comorbidity Survey Replication (NCS-R)* and the *National Survey of American Life (NSAL)*, our analysis reveals that females and males who are the victims violence are more likely to drop out of high school relative to their peers who report that they never were the victims of violence. In addition, these negative effects appear to be driven by the effect of home violence for both genders while men also experience negative effects from community violence.

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**Keywords:** High School Dropout, High School Graduate, Violence, Trauma, Sexual Assault

**JEL Codes:** I21, K4

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## 1 Introduction

The share of American youths who completed high school rose throughout the first part of the 20<sup>th</sup> century from below 25 percent in 1900 to over 80 percent in the early 1970s (Heckman and LaFontaine, 2010). Since that period, high school graduation rates have fallen slightly to 77 percent by 2010 and remain below the OECD average of 84 percent (Murnane, 2013; OECD, 2012).<sup>1</sup> At the same time, failure to complete high school is becoming increasingly costly, given the rising technological demands of the workplace in the U.S. (Murnane *et al.*, 1995). Those who graduate from high school relative to those who complete a GED or drop out have seen their earnings premium increase from 20 percent in 1980 to about 25 percent by 2000 (Murnane, 2013; Heckman and LaFontaine, 2010; Autor *et al.*, 2008). A range of family and community related factors are commonly known to be associated with a higher risk of dropping out of high school, including living in low-income neighborhoods with under-resourced schools, family poverty, and having parents with low levels of education attainment.

However, what has not been examined adequately is the role of exposure to violence early in life on the likelihood of dropping out of high school. For instance, it is widely accepted that suffering from trauma during childhood and adolescence harms many dimensions of a child's development (Fantuzzo and Mohr, 1999; Erickson *et al.*, 1989), but additional research is needed to determine if being the victim of violence as a youth is a significant barrier to high school completion.

Earlier work documents an association between childhood sexual assault or physical violence and educational performance. These studies were based on data sets with limited numbers of respondents who were not nationally representative and included a restricted set of covariates.<sup>2</sup> There is a small and emerging empirical literature making use of larger data sets, some of which are nationally representative, that aims to advance our understanding of the relation between exposure to violence as a youth and school attainment.

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<sup>1</sup>High School Graduates are those who receive a traditional high school diploma from an accredited high school program, whereas a High School Completer indicates a person who either Graduated from high school or obtained an alternative credential such as a GED. The rate of High School Completers in the U.S. was steady from 1970–2000 and rose modestly in the past decade (Murnane, 2013).

<sup>2</sup>One strand of this literature examined the educational consequences of sexual assault during childhood or adolescence (Trickett *et al.*, 1994; Nugent *et al.*, 1998). Another strand focused solely on investigating the potential link between school outcomes and exposure to physical violence as a youth (Wordarski *et al.*, 1990; Kendall-Tackett and Eckenrode, 1996).

Some of these studies focus exclusively on sexual assault (Bruce and Gordon, 2007; Robst, 2010; Rees and Sabia, 2013) while others explore the connection between schooling and a composite measure of victimization that includes both sexual assault and other types of physical violence (Macmillan and Hagan, 2004; Edwards *et al.*, 2003).

Using data drawn from two large national data sets: the National Comorbidity Survey-Replication, 2005 (*NCS-R*) and the National Survey of American Life (*NSAL*), this paper seeks to improve our knowledge about the link between schooling and being the victim of violence as a youth. A distinctive feature of our analysis is that we estimate the association between dropping out of school, as well as years of schooling completed, and victimization from three forms of violence during childhood – home violence, community or neighborhood violence, and sexual assault. Our analysis examines the link between educational attainment and experiencing one of these forms of violence, as well as all the possible combinations of multiple forms of violence victimization.

The *NCS-R* and *NSAL* surveys collect information from respondents on the basis of personal recall regarding the amount of formal schooling they completed and the age of first victimization by type of violence – if they had these experiences. Throughout this study we focus on violence that respondents report suffering from between the ages of 1 and 15. We do this because virtually every state's compulsory education laws require school attendance until at least 16 years of age.<sup>3</sup> By adopting this approach we mitigate the potential for bias in our estimates of the link between violence and schooling caused by persons dropping out of high school and then being victimized. Given this procedure and the rich set of controls available in the data, our estimates offer evidence on whether being the victim of violence during childhood hinders educational attainment.

## 2 Childhood Traumatic Victimization and Schooling

Psychologists (Macmillan and Hagan, 2004; Finkelhor and Browne, 1985) have offered a range of theoretical explanations for the existence of pathways linking traumatic victimization to poor educational attainment. They assert that exposure to traumatic events such as violence can deter investment in education and ultimately lead youths to drop out of school by harming: aspirations, motivation, social skills, and mental efficiency.

For instance, Bandura (1997) and Gecas (1989) claim that violence undermines perceptions of agency and self-efficacy, leading to a more myopic view

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<sup>3</sup>The *NCS-R* and *NSAL* data were collected from 2001–2003 and the average age of the survey participants was about 40 years of age, so the average person was born by 1963. If most persons graduate from high school at the age of 18, then most of the survey participants would have completed high school in 1981. In 1984, the year in which data were first available on compulsory education laws for all states, only one state allowed youths to drop out of school before the age of 16.

of life events. This, in turn, can compromise a young person's willingness to take the initiative to invest in activities that are costly in the near-term but promise the prospect of benefits – both economic and social – in the future, such as education (Bandura *et al.*, 2001).<sup>4</sup>

In addition, numerous studies have documented that maltreatment during childhood – including physical assault (Peterson and Seligman, 1983; Skogan, 1987), witnessing violence in the home (Edleson, 1999), and sexual abuse (Browne and Finkelhor, 1986; Kendall-Tackett *et al.*, 1993; Mullen *et al.*, 1993) – harms mental health which fosters self-destructive behaviors such as abuse of alcohol (Dube *et al.*, 2002) and use of illicit drugs (Dube *et al.*, 2003; Simpson and Miller, 2002; Wilsnack *et al.*, 1997) that diminish motivation to excel in school.<sup>5</sup>

Educational psychologists emphasize that the capacity to interact effectively with peers and teachers is essential to academic functioning and success in the K-12 years. Unfortunately, there is also evidence that maltreated children, including those who have experienced violence, struggle with social competencies (Lynch and Cicchetti, 1991; Shonk and Cicchetti, 2001; van der Kolk *et al.*, 1996) and are less trustful of others (Hall, 2000), both of which hinder learning and cognitive development. In addition, they are more prone to engage in aggressive behaviors (Erickson *et al.*, 1989) to cope with the negative feelings and thoughts that haunt them, and such acts – which often lead to disciplinary problems (Eckenrode *et al.*, 1993) – do not promote educational attainment.

An opposing hypothesis advanced by Bruce and Gordon (2007) suggests that trauma victims during childhood might actually respond in ways that lead to greater educational attainment. They assert that youths can allocate their time and energy to developing and enriching social relations or to acquiring schooling (i.e., human capital), but that the effectiveness of time allocated to generate each of these activities is diminished by being victimized.

If a victim's facility in developing social relations is compromised to a greater extent than their ability to successfully engage in schoolwork, they may

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<sup>4</sup>However, it is possible that people exposed to a range of adverse circumstances, due to factors such as race or ethnicity, may – at a young age – become more resilient to other traumatic experiences such as violence victimization if they develop coping mechanisms weakening any potential link between violence and educational attainment. For instance, Macmillan (2001) proposes that black youth face structural discrimination and as a result develop coping mechanisms which make them more resilient to other negative events.

<sup>5</sup>Development theorists (Putnam, 1990; Alexander, 1992; Cole and Putnam, 1992) have extended attachment theory (Bowlby, 1969; Ainsworth, 1967; Ainsworth, 1979) from young children to older youths to explain behavioral responses to early life traumas. They advance the idea that the breakdown in security and trust caused by traumas linked to family, close associates, and possibly community members, damages attachment and undermines proper social development, leading to destructive actions. Research from the National Child Traumatic Stress Network (2010) reveals that over 80% of maltreated children exhibit patterns of insecure attachment, which undermines their ability to develop an understanding of the self relative to others and to engage in appropriate levels of self-regulation.

shy away from out-of-school social interaction and opt to allocate a larger share of their time to schooling. Thus, the greater amount of time committed to schooling, even if the productivity of that time has declined, can lead to more educational attainment on the part of trauma victims than is accumulated by those who are not subjected to such maltreatment during their young years. Evidence consistent with this view is offered by Rees and Sabia (2013) who find that there is no statistically significant relationship between being sexual assaulted during childhood and educational attainment.

On the other hand, reduced cognitive performance may provide an alternative link between traumatic victimization during childhood and dropping out prior to completing high school. Neurobiologists assert that the brain adjusts or is sculpted by external stimuli (Dennett, 1991; Gazzaniga, 1985). In a seminal article, McEwen (1998) advanced the notion that wear and tear to this system – which he termed allostatic load – results from chronic over activity due to persistent stress.

A consensus is emerging based on both neurobiological and epidemiological research that persistent early life stress due to deprived environments, child abuse, and neglect undermine the performance of critical brain structures associated with learning (Anda *et al.*, 2006; Glaser, 2000; Teicher, 2000; Teicher *et al.*, 2002).<sup>6</sup> Thus, traumatic victimization may render the accumulation of knowledge more challenging and may help explain why some children struggle in school and opt to dropout.<sup>7</sup>

### 3 Data and Measurement of Violence and Education

#### 3.1 Data

We analyze restricted data from the *National Comorbidity Survey Replication (NCS-R)* and the *National Survey of American Life (NSAL)*. These surveys were designed to collect information on mental health and its potential determinants – including exposure to traumatic events such as violence – in the

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<sup>6</sup>The constellations of arrangements and structures that enable humans to respond to stressors is called the allostatic system. A fundamental feature of this system is that it turns on when needed and when the source of stress or fear dissipates, it turns off. McEwen (1998) claimed that persistent stress impairs the performance of the hippocampus, the prefrontal cortex, and the amygdala. These structures play a critical role in memory formation and recall, decision making or executive function including delayed gratification, and response to emotional experiences respectively. In support of McEwen there is now extensive empirical literature documenting the harmful effect of persistent stress on cognitive performance (Sharkey, 2010; Weiss and Wagner, 1998; McEwen and Sapolsky, 1995).

<sup>7</sup>For a review of the literature linking systematic stress to impaired cognitive function see (Shonkoff and Garner, 2011). Tough (2012) presents a journalistic expose of the connection between early life traumatic stress and subsequent life outcomes, including school performance, through the neurological channel.

U.S. through face-to-face interviews with respondents conducted in the privacy of their homes. The *NCS-R* is a national survey of racially and ethnically diverse respondents conducted between February 2001 and April 2003. A subsample of 5,692 persons completed the entire survey.<sup>8</sup> The *NSAL* was administered over virtually the same time period to a national sample of 3,570 African-Americans and 1,623 persons of Afro-Caribbean descent living in the United States.<sup>9</sup> Because these datasets are part of the *Collaborative Psychiatric Epidemiology Surveys (CPES)* funded by the National Institute of Mental Health, the questions on violence exposure are identical; therefore, we are able to merge the datasets together.

We restrict the analysis to persons born in the U.S. for several reasons. First, we want to avoid measurement error in gauging exposure to violence due to differences in understanding, defining, and reporting violence between persons born in the U.S. and in other countries. Second, education systems vary across the world causing potential mismeasurement of educational attainment between countries. In addition, cross-national differences in what it means to complete 12 years of schooling as well as different societal norms suggest the education production functions differ, and therefore the expected coefficients in the model may differ also. Our analysis sample includes 5,370 females and 3,522 males.<sup>10</sup>

The *NCS-R* and *NSAL* are well suited for examining the influence of violence on educational attainment for three reasons. First, years of schooling completed are assessed consistently across the two surveys. Second, each data set contains identical questions that are used to identify persons who have been the victims of home violence, community violence, and sexual assault. A third desirable feature of these data is that the surveys collect respondent information on exposure to violence in a life event framework. As a result, if the respondent has ever been exposed to violence, they report the age when it first happened. This information on the timing of events allows us to better identify the link between being the victim of violence and subsequently dropping out of school.

It is possible that measures of childhood exposure to adverse events using retrospective responses to survey questions are inaccurate. The potential

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<sup>8</sup>9,282 persons completed Part 1 of the survey. Based on answers to initial questions, interviewers assigned some individuals to the long-form (Part 2 of the survey). Our analysis uses only respondents who completed the entire survey.

<sup>9</sup>The *NSAL* also included a group of white respondents living in the same communities as the black and Afro-Caribbean respondents. These white respondents were not administered the battery of questions on violence victimization, so they are excluded from our analysis sample.

<sup>10</sup>The survey was conducted in the household. In this case, women were more likely to be home. Restricting the analysis to U.S. born persons removes 1,620 observations who were foreign born and an additional 60 observations who have missing values for where they were born. Additional observations were removed due to missing information on where they grew up (8), whether they grew up with both biological parents (11), whether they were ever mugged (21), beaten up outside the home (162), sexually assaulted or raped (87), and individuals of Asian descent (21).

imprecision associated with retrospective data could be due to many factors including poor recollection, which could worsen with aging, and retrospection bias (i.e., framing responses to explain life outcomes).<sup>11</sup>

However, a body of scientific literature is emerging which suggests that memories of childhood experiences (Corso *et al.*, 2008; Yancura and Aldwin, 2009) are clear and reliable (i.e., do not substantially change with ageing) and are largely independent of gender and mood at survey baseline. Moreover, recollections of childhood occurrences are most accurate for events that are highly emotionally salient – and events that are specific, factual, and unambiguous (i.e., did it happen or not) – such as victimization from traumatic developments (Yancura and Aldwin, 2009). Thus, many scholars now view measures of emotive life-events based on retrospective self-reports as reliable for analysis (Corso *et al.*, 2008; Yancura and Aldwin, 2009; Hardt and Rutter, 2004; Dube *et al.*, 2004).

Some researchers (Allen, 2007; Rennison, 2001) investigating the consequences of violence victimization assert that retrospective reports of victimization are likely to be more accurate than information gleaned from reports filed with Child Protective Services, since youths are fearful of reporting and often are coerced into not reporting (Allen, 2007). (Rennison, 2001) offers evidence that reporting to authorities of violent crimes (rape, other forms of sexual assault, burglary, robbery, simple and aggravated assault) are on the order of 40 to 50 percent of the actual prevalence. Thus, many damaging bouts of sexual abuse – as well as domestic and community violence – are likely to go unreported to public officials, but may be identified using self-reported retrospective data.

A special question sequence along with question pace and framing were used in the *NCS-R* and *NSAL* to reduce reporting and recollection errors in the age of first onset of exposure to violence provided by respondents.<sup>12</sup> For instance, these surveys incorporated a special age-at-onset probing strategy to reduce recall bias for questions by asking respondents to provide the life-course moment of first occurrence.

Age-at-onset questions began with one asking the respondent if they remember the exact age the very first time something occurred. Respondents who answered “no” were then asked if it was before a salient event such as ‘before you started school’ or ‘before you became a teenager’ to hone in on the age of first onset. Using this method, age of first onset was set at the upper end of the bound – at the age of 12 for a person saying it occurred before they became a teenager.

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<sup>11</sup>See Widom *et al.* (2004) for a conceptual review of the range of potential sources of bias in using retrospective data of childhood victimization and an appraisal of the evidence on the viability (i.e., reliability, validity) of using such data to draw conclusions about the role of childhood developments in explaining life outcomes.

<sup>12</sup>A detailed discussion of these issues and how the *NCS-R* was designed and administered to address these concerns is provided in the “*NCS-R* screener notes to all users” (2005). In addition, Kessler *et al.* (2005) discuss the benefits of the strategies adopted by the designers of the *NCS-R* to promote accurate collection of sensitive information.



To address concerns about incomplete memory, the framers of the *CPES* questions used declarative sentences prior to administering the questions. Complex questions were broken into a number of sentences. Interviewers were trained to adopt a slow pace in reading questions (two words per second rather than the industry standard of three words per second) so respondents had more time to think and would not answer prematurely. In addition, wording was adopted to prime a memory schema about past experiences.

Survey administrators were required to complete a 40-hour general training program designed by the Survey Research Center at the University of Michigan, followed by additional *CPES* specific training, before going into the field to conduct interviews. The goal of these trainings, and periodic refresher courses, was to ensure proper administration of the *NCS-R* and *NSAL* surveys given their unique features to promote accurate collection of information on prior experiences.

### 3.2 Measurement of Key Variables

#### 3.2.1 Violence Victimization

*NCS-R*, and *NSAL* respondents were asked questions to identify whether they were victims of various forms of violence over the course of their lives. Victims then were asked to report their age at the time of first occurrence of the particular form of violence. We define *violence* in this paper as any of three types of violence captured in the data: *home violence*, *community violence*, and *sexual assault*.

The survey asked respondents did *Someone either have sexual intercourse with you or penetrating your body with a finger or object when you did not want them to, either by threatening you or using force*, and if *Other than rape, did someone touch you inappropriately when you did not want them to*. Individuals who respond affirmatively to either of these questions are classified as having suffered a *sexual assault*. Respondents were classified as having experienced *home violence* if they answered yes to either: *As a child, were you ever badly beaten up by your parents or the people who raised you* or *As a child did you ever witness serious physical fights at home, like when your father beat up your mother?* Persons were identified as having been subject to *community violence* if they reported that they had been either: *Beaten by anyone other than parents* or *mugged, held up, or threatened with a weapon*.

#### 3.2.2 Dropout Status

The *NCS-R* and *NSAL* contain information on years of schooling completed. Respondents were asked: *What is the highest grade of school or year of college you completed?* The instructions to interviewers included the statement if

“High School Graduate”: Code ‘12’ Years. In our analysis a person who is coded as having completed 12 or more years of schooling is classified as a high school graduate. A person with 11 or fewer years of school is classified as a high school dropout.

### 3.2.3 Control Variables

The *NCS-R* and *NSAL* surveys also provide extensive information on demographic factors, personal characteristics, and family features when the respondent was a youth that the literature (Bedard, 2001; Lillard and DeCicca, 2001; Eckstein and Wolpin, 1999; Astone and McLanahan, 1994) reveals are important controls or other determinants for educational attainment. Therefore, we are able to control for a wide array of factors expected to influence whether a person drops out of high school aside from suffering from being the victim of violence. Table A.1 provides a list of all of the variables used in our analyses of educational attainment with summary statistics for all of these variables for both the women’s and men’s analysis samples.

### 3.3 Summary Statistics

Is there an unconditional relationship between being the victim of violence and high school completion? Table 1 reports the share of dropouts and years of education completed among women and men for the entire sample and for the subsamples of (1) those who were not victims of violence before the age of 16 and (2) those that were victims. The table also presents the portion of female and male respondents in the full sample who report being the victim of violence as well as for the sample divided by education level – those who failed to finish high school and those who at least completed high school. The sample dropout rate of 19 percent for both females and males is equivalent to the national high school dropout rate of 19 percent for both female and male students (Heckman and LaFontaine, 2010, Appendix Table A.7). Moreover, 34 percent of women and 29 percent of men in the samples report being the victim of some form of *violence* as a youth. Inspection of the table reveals that the dropout rate is significantly higher – and years of education completed significantly lower – for both female and male victims of *violence*, relative to those who did not report being the victim of *violence* by the age of 16.

Table 1 suggests an association between exposure to violence as a child or adolescent and leaving school before completion. The unresolved question is whether those who are the victims of violence as a youth more likely to drop out of high school after controlling for conventional schooling determinants. In the next section we conduct a formal examination of the link between suffering from violence before reaching the age of 16 and educational attainment.

Table 1: Summary Statistics for Education Outcomes and Violence Victimization

	(1) Women	(2) Men
<b>Dropout Rate</b>		
Full Sample Mean	18.7%	19.3%
No Violence Victimization	17.2%	17.8%
Violence Victimization	21.7%***	22.8%***
<b>Education in Years</b>		
Full Sample Mean	12.96	12.88
No Violence Victimization	13.02	12.94
Violence Victimization	12.83***	12.74**
<b>Violence Victimization</b>		
Full Sample Mean	34.3%	29.0%
HS Dropouts	39.7%	34.4%
HS Graduates and Beyond	33.1%***	27.7%
Observations	5370	3522

**Source:** *National Comorbidity Survey-Replication* and *National Survey of American Life*.

**Notes:** All violence measures capture reports of victimization from age 1 through age 15.  $p$ -values in brackets, \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ , for test of the difference in means between subgroups of Victims of Violence versus not; HS Dropouts versus HS Graduates and Beyond.

## 4 Empirical Procedures and Findings: Violence and Schooling

### 4.1 Model Specification

In order to investigate the impact of violence victimization as a youth on dropping out before completing high school, we begin by estimating the following model of dropping out separately for females and males.

$$Dropout_i = \alpha_0 + \alpha_1(Violence_i) + \alpha_2(X_i) + \varepsilon_i. \quad (1)$$

The dependent variable, *Dropout*, takes on a value of one if individual  $i$  failed to graduate from high school; otherwise it is zero. This specification pools together the different types of violence in the variable *Violence* to evaluate whether being the victim of at least one of the three forms of violence – *sexual assault*, *home violence*, and *community violence* – reduces the likelihood of graduating from high school.

$X$  is a vector of controls that accounts for other factors that may directly or indirectly influence schooling. It contains variables that reflect individual factors (i.e., age, and racial and ethnic heritage) and family characteristics when the respondent was a youth including: whether they were raised by both of their biological parents, their parents' education level, whether their family received public assistance, the number of siblings they had, and the population

Table 2: OLS Estimates of the Effects of Childhood Victimization on Education Attainment

	High School Dropout		Years of Education	
	(1) Women	(2) Men	(3) Women	(4) Men
Violence	0.045*** [0.011]	0.050*** [0.014]	-0.144** [0.063]	-0.173** [0.084]
<i>N</i>	5370	3522	5367	3522
<i>R-Squared</i>	0.162	0.176	0.249	0.255

Source: National Comorbidity Survey-Replication and National Survey of American Life.

Notes: *p*-values in brackets, \**p* < 0.10, \*\**p* < 0.05, \*\*\**p* < 0.01. All specifications include additional controls for: age, age squared, raised by both biological parents, mother is at least a high school graduate, father is at least a high school graduate, number of siblings, family received welfare growing up, and residential location growing up.

density of the area where they grew up (i.e., large city, rural area etc.).

Model (1) is estimated by Ordinary Least Squares – a Linear Probability Model – to gauge the direct and indirect reduced-form impact of violence victimization before the age of 16 on the probability that a person fails to finish 12 years of formal schooling.<sup>13</sup> We repeat the analysis with the years of education completed as the dependent variable.

## 4.2 Empirical Findings: Violence and Education

### 4.2.1 Violence and Dropping Out

Table 2 is a summary table of the estimated coefficient of *Violence* on the probability of dropping out of school and years of schooling completed, for women and men. Inspection of column (1) reveals that women who are the victims of any *violence* before the age of 16 are 4.5 percentage points more likely to drop out of school than comparable women who did not experience any *violence*, while men are 5.0 percentage points less likely to finish high school (column 2).<sup>14</sup> Recall that approximately 19 percent of women and men in the sample drop out (see Table 1). Thus, women who are the victims of *violence* by the age of 16, relative to the average female in the sample, are

<sup>13</sup>As a robustness check we also estimated Models (1) using probit. The results, which are available upon request, are similar.

<sup>14</sup>For all of our models a number of the control variables were significant determinants of dropping out of school before completing high school (see Appendix Table A.1 for the full set of control variable findings for Model (1) including: personal demographics, having poorly educated mothers and fathers, not being raised by both biological parents, having a large number of siblings, growing up in small cities, towns and rural areas, and the family moving a large number of times (a finding first reported by Haveman *et al.*, 1991).

24 percent more likely to dropout (i.e., 4.5/18.7).<sup>15</sup> Males who experience violence as a youth are 26 percent more likely to dropout.

To explore the robustness of our findings on the link between violence victimization and educational attainment, we estimate Model (1) with *Years of Education* as the dependent variable. These results are presented in Table 2 columns 3 and 4 for women and men. Inspection of column (3) reveals that female students who are victims of *violence* before the age of 16 attain 0.14 less years of education compared to those who were not exposed to *any violence*. Males attain 0.17 less years of education if they suffer any violence before the age of 16 relative to those who were not exposed to any *violence*.

## 5 Types of Violence and the Schooling Violence Link

Given the significant prevalence and associated effects of violence on education, we now explore the prevalence of the different types of violence among women and men and the connection between these types of violence and educational attainment. In the top panel of Table 3, we report the share of respondents who reported being the victim of *sexual assault*, *home violence*, and *community violence* by gender. Among women, 21 percent were the victims of *sexual assault* by the age of 16. In contrast, less than 6 percent of men report being the victim of *sexual assault*. Women and men report similar levels of *home violence*, 22 and 19 percent respectively. However, men are much more likely to have experienced *community violence* than women during childhood, 12 percent for men versus 3 percent for women.

In the lower panel of Table 3, we divide our samples of women and men into the eight possible combinations of the three categories of violence victimization. Twenty-four percent of women report experiencing exactly one of the three types of violence. Approximately 11 percent were solely the victims of *sexual assault*, 12 percent suffered only *home violence*, and 1 percent experienced only *community violence*. While a similar share of males experience a single form of violence victimization, 23 percent, the pattern is quite different than that reported by women. For men, 2 percent were victims only of *sexual assault*, 13 percent were the victims solely of *home violence*, and 8 percent experienced only *community violence*.

The last 4 rows of Table 3 reveal that there is a substantial amount of violence comorbidity – victimization from multiple forms of violence – for both females and males. For instance, 11% of females indicated that they were the victims of multiple forms of violence, and virtually all of these persons suffered from a combination that included *sexual assault*. Six percent of males

<sup>15</sup>The percent change in the probability of dropping out reported is the marginal effect of experiencing violence divided by the likelihood of dropping out for the typical person in the analysis sample.

Table 3: Summary Statistics of Types of Violence Victimization

	(1) Women	(2) Men
<b>Prevalence</b>		
Sexual Assault	20.6% (1,104)	5.3% (185)
Home Violence	21.9% (1,178)	18.5% (651)
Community Violence	3.4% (183)	12.3% (433)
<b>Distribution of Combinations of Violence</b>		
No Violence Reported	65.7% (3,527)	71.0% (2,500)
Sexual (only)	10.7% (573)	2.2% (78)
Home (only)	12.2% (655)	13.1% (462)
Community (only)	1.0% (51)	7.6% (269)
Sexual and Home	8.0% (432)	1.4% (49)
Sexual and Community	0.8% (41)	0.7% (24)
Home and Community	0.6% (33)	3.0% (106)
All three types of Violence	1.1% (58)	1.0% (34)
Observations	5,370	3,522

**Source:** *National Comorbidity Survey-Replication* and *National Survey of American Life*.

**Notes:** The number of observations for cell are in parentheses. The distribution of the combinations of violence sum to 100 percent within the column.

reported being the victim of multiple forms of violence and most of these person experienced violence in the home.

It is possible that alternative types of violence may have different impacts on schooling outcomes. Therefore, we estimate a specification that replaces the indicator for being the victim of any form of violence variable in Model (1) with separate indicator variables for each of the three types of violence as well as the full set of interaction terms between these three variables. While we are interested in understanding the interaction effects of multiple forms of violence on education, we acknowledge that in many cases we lack the desired statistical power. Despite the reasonable number of observations, the combination of the

Table 4: OLS Regression Total Estimated Effect of Combinations of Childhood Violence Victimization on Educational Attainment

	High School Dropout		Years of Education	
	(1) Females	(2) Males	(3) Females	(4) Males
Sexual Violence (only)	0.007 [0.015]	0.002 [0.039]	0.153 [0.095]	0.237 [0.280]
Home Violence (only)	0.068*** [0.017]	0.046** [0.020]	-0.330*** [0.090]	-0.291*** [0.110]
Community Violence (only)	0.078 [0.058]	0.039* [0.023]	0.149 [0.315]	0.052 [0.137]
Sexual and Home	0.054*** [0.021]	0.085 [0.061]	-0.277** [0.112]	-0.141 [0.384]
Sexual and Community	-0.095** [0.041]	0.102 [0.069]	0.304 [0.229]	-0.660 [0.659]
Home and Community	0.002 [0.052]	0.081* [0.042]	-0.120 [0.295]	-0.437** [0.222]
Sexual, Home, & Community	0.226*** [0.066]	0.130* [0.073]	-0.807*** [0.287]	-0.334 [0.351]
<i>N</i>	5370	3522	5367	3522
<i>R-Squared</i>	0.167	0.177	0.253	0.257

**Source:** *National Comorbidity Survey-Replication* and *National Survey of American Life*.

**Notes:** *p*-values in brackets, \**p* < 0.10, \*\**p* < 0.05, \*\*\**p* < 0.01.

All specifications include additional controls for: age, age squared, raised by both biological parents, mother is at least a high school graduate, father is at least a high school graduate, number of siblings, family received welfare growing up, and residential location growing up.

dropout rate in the female and male samples of 19 percent and the small share of each sample that experienced the combinations of violence exposure – with the exception of women who experience both *sexual assault* and *home violence* – results in imprecise estimates. We report the number of observations in parentheses in Table 3. Therefore, caution should be used in interpreting these interaction effects since identification is based on a small number of observations.

For ease of interpretation, we report the total estimated effect of each of the seven possible combinations of violence during childhood – relative to not reporting any violence victimization before the age of 16 – in Table 4. Columns (1) and (2) display the estimated effects on high school dropout rates, while columns (3) and (4) report on the effects on years of education completed. Women and men who are victims of *sexual assault*, but no other forms of violence, are no more likely to drop out of school or attain less years of schooling than those who report suffering from no forms of violence before

the age of 16.<sup>16</sup> Being the victim solely of *community violence* also is unrelated to educational attainment for women, but this form of violence victimization significantly enhances the probability of failure to complete high school for men. We find that women and men who are victims solely of *home violence* are 6.8 percentage points and 4.6 percentage points respectively more likely to drop out of school. Moreover, victims of *home violence*, both females and males, completed significantly less years of school.

Women who were the victims of both *sexual assault* and *home violence* were significantly more likely to drop out of school and to complete less years of education – which highlights the adverse impact of experiencing *home violence* during adolescence on the educational attainment of females. However, our findings reveal that females who are the victims of both *sexual assault* and *community violence* are significantly less likely to drop out of school before finishing high school than those females who were not victims of violence. A possible explanation for this is that girls who have suffered from *sexual assault* focus on schoolwork, while girls who have been the victims of *community violence* – whether by their own accord or parental decree – spend more time at home, both of which enhance the likelihood of finishing high school.

Males who are the victims of both *home violence* and *community violence* are significantly more likely to drop out before finishing high school and complete significantly less years of schooling than men who were not victims of violence during childhood. While the total estimated effects on dropping out are similar in magnitude for those who suffer *sexual assault* in addition to either *home violence* or *community violence*, the results are not statistically significant and therefore indistinguishable from those who are not the victims of violence during childhood.

Being the victim of all three forms of violence prior to the age of 16, compared to those who are not victims of any form of violence, has a significant detrimental effect on educational attainment for women and men. The magnitude of the adverse effect on schooling for this group of women is striking. Women who are the victims of each of the forms of violence are 22.6 percentage points more likely to drop out of school before completing high school and finish almost an entire year less of schooling than women who do not experience any violence before the age of 16.

In addition to examining the total estimated effect of a particular combination of violence victimization relative to experiencing no violence, we examine the interaction effects and test for differences between types of victimization.<sup>17</sup> For men, none of the interaction terms were statistically significant. This is consistent with the prior stated concern about the lack of power, but it does

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<sup>16</sup>This finding, for females, is consistent with evidence reported by Rees and Sabia (2013) and the conceptual framework offered by Bruce and Gordon (2007).

<sup>17</sup>These test statistics are available upon request from the authors. We summarize the results in the text for brevity.



suggest that there is no substantive difference in the effect on educational attainment from being the victim of one form of violence compared to more than one form. The results for females generally follow this same pattern with three notable exceptions. First, women who were the victims of all three forms of violence completed significantly less years of education than women who suffered from only a single form of violence as a child. Second, women who were the victims of both *sexual assault* and *community violence* were less likely to drop out than females who were only victims of *sexual assault*. Third, women who were the victims of *home violence* and *community violence* were significantly less likely to drop out than female who were solely the victim of home violence. These later two effects could be the result of community violence altering the behavior of girls or the introduction of family rules that promoted educational attainment.

Table 5A: OLS Regression Total Estimated Effect of Combinations of Childhood Violence Victimization on Educational Attainment: Respondents Age 40 and Younger

	High School Dropout		Years of Education	
	(1) Females	(2) Males	(3) Females	(4) Males
Sexual Violence (only)	0.020 [0.021]	0.064 [0.057]	0.028 [0.122]	-0.337 [0.394]
Home Violence (only)	0.074*** [0.024]	0.041 [0.028]	-0.378*** [0.109]	-0.428*** [0.131]
Community Violence (only)	0.110 [0.073]	0.068** [0.031]	-0.101 [0.377]	-0.179 [0.152]
Sexual and Home	0.045 [0.028]	-0.021 [0.087]	-0.225 [0.143]	0.761 [0.485]
Sexual and Community	-0.105** [0.045]	0.120 [0.080]	0.396* [0.240]	-0.739 [0.772]
Home and Community	-0.059 [0.056]	0.070 [0.053]	-0.298 [0.315]	-0.250 [0.217]
Sexual, Home, & Community	0.250*** [0.075]	0.147* [0.087]	-0.787*** [0.277]	-0.480 [0.396]
<i>N</i>	5370	3522	5367	3522
<i>R-Squared</i>	0.129	0.139	0.227	0.243

Source: National Comorbidity Survey-Replication and National Survey of American Life.

Notes: *p*-values in brackets, \**p* < 0.10, \*\**p* < 0.05, \*\*\**p* < 0.01.

All specifications include additional controls for: age, age squared, raised by both biological parents, mother is at least a high school graduate, father is at least a high school graduate, number of siblings, family received welfare growing up, and residential location growing up.

Table 5B: OLS Regression Total Estimated Effect of Combinations of Childhood Violence Victimization on Educational Attainment: Respondents Over Age 40

	High School Dropout		Years of Education	
	(1) Females	(2) Males	(3) Females	(4) Males
Sexual Violence (only)	-0.010 [0.023]	-0.013 [0.051]	0.303** [0.149]	0.555 [0.372]
Home Violence (only)	0.060** [0.024]	0.051* [0.029]	-0.270* [0.142]	-0.181 [0.169]
Community Violence (only)	-0.002 [0.090]	0.005 [0.034]	0.765 [0.511]	0.325 [0.251]
Sexual and Home	0.072** [0.031]	0.172** [0.080]	-0.425** [0.177]	-0.825 [0.514]
Sexual and Community	-0.108 [0.111]	0.095 [0.143]	-0.048 [0.790]	-0.958 [1.202]
Home and Community	0.172 [0.108]	0.116* [0.066]	0.333 [0.618]	-0.906* [0.466]
Sexual, Home, & Community	0.142 [0.128]	0.099 [0.123]	-0.695 [0.746]	-0.147 [0.600]
<i>N</i>	5370	3522	5367	3522
<i>R-Squared</i>	0.209	0.222	0.290	0.295

**Source:** *National Comorbidity Survey-Replication* and *National Survey of American Life*.

**Notes:** *p*-values in brackets, \**p* < 0.10, \*\**p* < 0.05, \*\*\**p* < 0.01.

All specifications include additional controls for: age, age squared, raised by both biological parents, mother is at least a high school graduate, father is at least a high school graduate, number of siblings, family received welfare growing up, and residential location growing up.

It is possible that the link between violence victimization and schooling varies across age cohorts with the connection being less pronounced for older persons than younger individuals because of misreporting bias and changing social norms. Older persons might be less inclined to report that they have been a victim of violence. If older dropouts are less likely than younger dropouts to reveal that they were victims of violence as a youth then the estimated connection between violence and dropping out will be smaller for the older cohort. In addition, it may also be the case that for the older cohort the social norm was to find a way to overcome life’s hurdles – to be more resilient – relative to younger persons. On the other hand, if younger persons who are victims of violence are more willing to seek help in addressing these developments – and society provides them with more services to assist them – violence victimization may have a smaller effect on educational attainment for the younger cohort.

To examine the generality of our findings across age groups we split the data into “older” (at least 40 years of age) and “younger” (under the age of 40) subsamples. Then, we estimated the model with each of the three forms of violence and the set of interaction terms separately for each of these data sets. These results for total estimated effects are reported in Tables 5A and 5B for the younger and older cohorts respectively. For women, whenever the full sample estimate for a form of violence victimization on the probability of dropping out was statistically insignificant it remained that way for both subsamples. When the full sample estimate was significant, the sign is always the same for the younger and older cohorts, but in three cases the estimated effect is insignificant for one of the two subsamples – twice for the younger age cohort and once for the older cohort.

Amongst men, the full sample estimate for a type of violence on the probability of completing high school was statistically insignificant on three occasions, and in two of these situations the estimated effect was insignificant for both the young and old subsamples. On all four cases where the full sample estimate is statistically significant, the estimated effect is significant for one of the age cohorts but not for the other. Moreover, half of the time it is the older cohort that is statistically significant and half of the time it is the younger cohort that is statistically significant. Thus, there is no clear pattern, for women or men, suggesting that the effect of violence on completing high school varies in a systematic way based on the age of respondents.

## 6 Concluding Remarks

One in five persons in the United States fails to complete high school. High school dropouts earn wages that are about 20 percent lower than persons with similar attributes who graduated from high school. Researchers from a range of disciplines have conducted studies that have identified an array of factors that help to explain why youths drop out of school. Our research contributes to this literature by exploring the link between violence victimization as a youth on subsequently dropping out of high school, a pathway that largely has been neglected in prior studies.

Using data drawn from the National Comorbidity Survey Replication (*NCS-R*) and the National Survey of American Life (*NSAL*) our study offers evidence that, tragically, sexual assault, home violence, and community violence are common forms of violence victimization that youths experience in the U.S. Over a third of all females and 29 percent of males report experiencing at least one of these three types of violence prior to the age of 16.

Our analysis reveals that females and males who are the victims of any type of violence are more likely to drop out of high school than their peers who were not victimized by violence. We also find that being the victim of

specific forms of violence significantly reduce the likelihood of completing high school, *home violence* for women and men as well as *community violence* for men. The association between *home violence* and educational attainment may be partially due to unobservable characteristics of the household that are correlated with households where children are more likely to experience home violence. Moreover, we find that men and women who are the victims of all three types of violence as a youth or adolescent suffer a large adverse impact on graduating from high school relative to their peers who report that they never were the victims of violence. Thus, policies that reduce the prevalence of violence victimization among youths or assist children in coping with violence also can have the collateral benefit of lowering the national dropout rate.

**A Appendix**

Table A.1: Sample Means and Linear Probability Coefficients of Control Variables on Dropping Out-Violence Victimization Before Age 16

	Means		Linear Probability Coefficients	
	(1)	(2)	(3)	(4)
	Females	Males	Females	Males
Latino	4.8%	5.1%	0.063** [0.026]	0.046 [0.032]
Black	51.4%	43.9%	0.064*** [0.011]	0.049*** [0.014]
Other Race	1.9%	1.9%	0.071* [0.040]	0.127** [0.057]
Age	43.1	42.8	-0.015*** [0.002]	-0.016*** [0.002]
Age Squared			0.000*** [0.000]	0.000*** [0.000]
Both Biological Parents	64.3%	70.3%	-0.024* [0.013]	-0.021 [0.017]
Mother HS or More Education	54.9%	60.1%	-0.097*** [0.013]	-0.077*** [0.018]
Mother Education Missing	13.4%	14.6%	0.150*** [0.023]	0.147*** [0.028]
Father HS or More Education	42.1%	47.6%	-0.020 [0.012]	-0.056*** [0.016]
Father Education Missing	29.5%	24.0%	0.070*** [0.017]	0.074*** [0.024]
Total # Siblings	3.24	3.12	0.018*** [0.003]	0.022*** [0.004]
Total # Siblings Missing	1.5%	1.5%	0.054 [0.044]	0.110* [0.058]
Family on Welfare as Youth	17.3%	14.9%	0.034** [0.017]	-0.009 [0.021]
Family on Welfare as Youth Missing	2.5%	2.0%	-0.005 [0.036]	0.078 [0.060]
Grew up in Large City	29.5%	28.5%	-0.004 [0.015]	-0.002 [0.018]
Grew up Rural Area	38.3%	37.0%	0.038*** [0.014]	0.049*** [0.017]
Grew up Small City	17.6%	18.2%	0.020 [0.016]	0.037* [0.020]
Grew Up Other	1.6%	1.3%	-0.026 [0.036]	0.090 [0.062]
Constant			0.369*** [0.045]	0.411*** [0.056]
<i>N</i>	5370	3522	5370	3522
<i>R-Squared</i>			0.162	0.176

**Notes:** Columns (3) and (4) are the linear probability coefficients associated with the first two columns of Table 2.

Robust standard errors in brackets \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

## References

- Ainsworth, M. D. S. 1967. *Infancy in Uganda*. Baltimore: Johns Hopkins.
- Ainsworth, M. D. S. 1979. "Attachment as Related to Mother-Infant Interaction". *Advances in the Study of Behaviour*. 9. DOI: 10.1016/S0065-3454(08)60032-7.
- Alexander, P. C. 1992. "Application of Attachment Theory to the Study of Sexual Abuse". *Journal of Consulting and Clinical Psychology*. 60(2): 185–195. URL: [apa.org/journals/ccp/60/2/185.pdf](http://apa.org/journals/ccp/60/2/185.pdf).
- Allen, D. W. 2007. "The Reporting and Underreporting of Rape". *Southern Economic Journal*. 73(A203): 623–641.
- Anda, R. F., V. J. Felitti, J. D. Bremner, J. D. Walker, C. Whitfield, B. D. Perry, S. R. Dube, and W. H. Giles. 2006. "The Enduring Effects of Abuse and Related Adverse Experiences in Childhood: A Convergence of Evidence from Neurobiology and Epidemiology". *European Archives of Psychiatry and Clinical Neuroscience*. 256(3): 174–186. DOI: 10.1007/s00406-005-0624-4.
- Astone, N. M. and S. S. McLanahan. 1994. "Family Structure, Residential Mobility, and School Dropout: A Research Note". *Demography*. 31(A204): 575–584. URL: [www.jstor.org/stable/2061791](http://www.jstor.org/stable/2061791).
- Autor, D. H., L. F. Katz, and M. S. Kearney. 2008. "Trends in U.S. Wage Inequality: Revising the Revisionists". *The Review of Economics and Statistics*. 90(A202): 300–323. DOI: 10.1162/rest.90.2.300.
- Bandura, A. 1997. *Self-efficacy: The Exercise of Control*. New York: Freeman.
- Bandura, A., C. Barbaranelli, G. V. Caprara, and C. Pastorelli. 2001. "Self-efficacy Beliefs as Shapers of Children's Aspirations and Career Trajectories". *Child Development*. 72(1): 187–206. DOI: 10.1111/1467-8624.00273.
- Bedard, K. 2001. "Human Capital versus Signaling Models: University Access and High School Dropouts". *Journal of Political Economy*. 109(4): 749–775. DOI: 10.1086/322089.
- Bowlby, J. 1969. *Attachment and Loss*. London: Hogarth.
- Browne, A. and D. Finkelhor. 1986. "The Traumatic Impact of Child Sexual Abuse: A Review of the Research". *Psychological Bulletin*. 99(1): 66–77. DOI: 10.1037/0033-2909.99.1.66.
- Bruce, C. and D. V. Gordon. 2007. "The Impact of Childhood Sexual Abuse on the Education Attainment and Adult Earnings of Canadian Women". Discussion Paper 2007-11, Department of Economics, University of Calgary.
- Cole, P. M. and F. W. Putnam. 1992. "Effect of Incest on Self and Social Functioning: A Developmental Psychopathology Perspective". *Journal of Consulting and Clinical Psychology*. 60(A202): 174–184. DOI: 10.1037/0022-006X.60.2.174.

- Corso, P. S., V. J. Edwards, X. Fang, and J. A. Mercy. 2008. "Health-Related Quality of Life Among Adults Who Experienced Maltreatment During Childhood". *American Journal of Public Health*. 98(6): 1094–1100. DOI: 10.2105/AJPH.2007.119826.
- Dennett, D. C. 1991. *Consciousness Explained*. Boston: Little Brown.
- Dube, S. R., R. F. Anda, V. J. Felitti, V. J. Edwards, and J. B. Croft. 2002. "Adverse Childhood Experiences and Personal Alcohol Abuse as an Adult". *Addictive Behaviors*. 27(5): 713–725. DOI: 10.1016/S0306-4603(01)00204-0.
- Dube, S. R., V. J. Felitti, M. Dong, D. P. Chapman, W. H. Giles, and R. F. Anda. 2003. "Childhood Abuse, Neglect, and Household Dysfunction and the Risk of Illicit Drug Use: The Adverse Childhood Experiences Study". *Pediatrics*. 111(3): 564–72. DOI: 10.1542/peds.111.3.564.
- Dube, S. R., D. F. Williamson, T. Thompson, R. F. Anda, and V. J. Felitti. 2004. "Assessing the Reliability of Retrospective Reports". *Child Abuse and Neglect*. 28(7): 729–737.
- Eckenrode, J., M. Laird, and J. Doris. 1993. "School Performance and Disciplinary problems among Abuse and Neglected Children". *Developmental Psychology*. 29(1): 53–62. DOI: 10.1037/0012-1649.29.1.53.
- Eckstein, Z. and K. I. Wolpin. 1999. "Why Youths Drop Out of High School: The Impact of Preferences, Opportunities, and Abilities". *Econometrica*. 67(6): 1295–1339. DOI: 10.1111/1468-0262.00081.
- Edleson, J. L. 1999. "Children's Witnessing of Adult Domestic Violence". *Journal of Interpersonal Violence*. 14(8): 839–70.
- Edwards, V. J., G. W. Holden, V. J. Felitti, and R. F. Anda. 2003. "Relationship Between Multiple Forms of Childhood Maltreatment and Adult Mental Health in Community Respondents: Results from the Adverse Childhood Experiences Study". *The American Journal of Psychiatry*. 160(8): 1453–1460.
- Erickson, M. F., B. Egeland, and R. Pianta. 1989. "The Effects of Maltreatment on the Development of Young Children". In: *Child Maltreatment: Theory and Research on the Causes and Consequences of Child Abuse and Neglect*. Ed. by D. Cicchetti and V. Carlson. New York: Cambridge University Press. 647–684.
- Fantuzzo, J. W. and W. K. Mohr. 1999. "Prevalence and Effects of Child Exposure to Domestic Violence". *The Future of Children*. 9(3): 21–32. DOI: 10.2307/1602779.
- Finkelhor, D. and A. Browne. 1985. "The Traumatic Impact of Child Sexual Abuse: A Conceptualization". *American Journal of Orthopsychiatry*. 55(4): 530–541. DOI: 10.1111/j.1939-0025.1985.tb02703.x.
- Gazzaniga, M. S. 1985. *The Social Brain: Discovering the Networks of the Mind*. New York: Basic Books.
- Gecas, V. 1989. "The Social Psychology of Self-Efficacy". *Annual Review of Sociology*. 15: 291–316. DOI: 10.1146/annurev.so.15.080189.001451.

- Glaser, D. 2000. "Child Abuse and Neglect and the Brain: A Review". *Journal of Child Psychology and Psychiatry*: 97–116.
- Hall, J. M. 2000. "Women Survivors of Childhood Abuse: The Impact of Traumatic Stress on Education and Work". *Issues in Mental Health Nursing*. 21(5): 443–471. DOI: 10.1080/01612840050044230.
- Hardt, J. and M. Rutter. 2004. "Validity of Adult Retrospective Reports of Adverse Childhood Experiences: Review of the Evidence". *Journal of Child Psychology and Psychiatry*. 45(2): 260–273. DOI: 10.1111/j.1469-7610.2004.00218.x.
- Haveman, R., B. Wolfe, and J. Spaulding. 1991. "Childhood Events and Circumstances Influencing High School Completion". *Demography*. 28(1): 133–157. DOI: 10.2307/2061340.
- Heckman, J. J. and P. A. LaFontaine. 2010. "The American High School Graduation Rate: Trends and Levels". *The Review of Economics and Statistics*. 92(2): 244–62. DOI: 10.1162/rest.2010.12366.
- Kendall-Tackett, K. A. and J. Eckenrode. 1996. "The Effects of Neglect on Academic Achievement and Disciplinary Problems: A Developmental Perspective". *Child Abuse and Neglect*. 20(3): 161–169. DOI: 10.1016/S0145-2134(95)00139-5.
- Kendall-Tackett, K., L. M. Williams, and D. Finkelhor. 1993. "Impact of Sexual Abuse on Children: A Review and Synthesis of Recent Empirical Studies". *Psychological Bulletin*. 113(1): 164–180. DOI: 10.1037/0033-2909.113.1.164.
- Kessler, R. C., P. Berglund, O. Demler, R. Jin, K. R. Merikangas, and E. E. Walters. 2005. "Lifetime Prevalence and Age-of-Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication". *Archives of General Psychiatry*. 62(6): 593–602. DOI: 10.1001/archpsyc.62.6.593.
- Lillard, D. R. and P. P. DeCicca. 2001. "Higher Standards, More Dropouts? Evidence Within and Across Time". *Economics of Education Review*. 20(5): 459–473. DOI: 10.1016/S0272-7757(00)00022-4.
- Lynch, M. and D. Cicchetti. 1991. "Patterns of Relatedness in Maltreated and Non-Maltreated Children: Connections Among Multiple Representational Models". *Development and Psychopathology*. 3(2): 207–226. DOI: 10.1017/S0954579400005241.
- Macmillan, R. 2001. "Violence and the Life Course: The Consequences of Victimization for Personal and Social Development". *Annual Review of Sociology*. 27(1): 1–22. DOI: 10.1146/annurev.soc.27.1.1.
- Macmillan, R. and J. Hagan. 2004. "Violence in the Transition to Adulthood: Adolescent Victimization, Education, and Socioeconomic Attainment in Later Life". *Journal of Research on Adolescence*. 14(2): 127–158. DOI: 10.1111/j.1532-7795.2004.01402001.x.
- McEwen, B. S. 1998. "Protective and Damaging Effects of Stress Mediators". *The New England Journal of Medicine*. 338(3): 171–179. DOI: 10.1056/NEJM199801153380307.



- McEwen, B. S. and S. R. M. Sapolsky. 1995. "Stress and Cognitive Function". *Current Opinion in Neurobiology*. 5(2): 205–216. DOI: 10.1016/0959-4388(95)80028-X.
- Mullen, P., J. Martin, J. Anderson, J. Romans, and G. Herbison. 1993. "Childhood Sexual Abuse and Mental Health in Adult Life". *British Journal of Psychiatry*. 163(6): 721–732. DOI: 10.1192/bjp.163.6.721.
- Murnane, R. J. 2013. "U.S. High School Graduation Rates: Patterns and Explanations". *Journal of Economic Literature*. 51(2): 370–422. DOI: 10.1257/jel.51.2.370.
- Murnane, R. J., J. B. Willett, and F. Levy. 1995. "The Growing Importance of Cognitive Skills in Wage Determination". *The Review of Economics and Statistics*. 77(2): 251–66. URL: <http://www.jstor.org/stable/210986>.
- National Center for Education Statistics. 2011. "Digest of Education Statistics, Table 116". Percentage of High School Dropouts among Persons 16 through 24 Years Old (status dropout rate), by Sex and Race/Ethnicity: Selected Years, 1960 Through 2010. URL: [http://nces.ed.gov/programs/digest/d11/tables/dt11%5C\\_116.asp](http://nces.ed.gov/programs/digest/d11/tables/dt11%5C_116.asp).
- National Child Traumatic Stress Network. 2010. *Complex Trauma in Children and Adolescents*. White Paper.
- National Comorbidity Survey-Replication. 2005.  *Screener notes to all users*. URL: [http://www.hcp.med.harvard.edu/ncs/notes%5C\\_screener.php](http://www.hcp.med.harvard.edu/ncs/notes%5C_screener.php).
- Nugent, M., A. Labram, and L. McLoughlin. 1998. "The Effects of Child Sexual Abuse on School Life". *Educational and Child Psychology*. 15(4): 68–78. URL: [psycnet.apa.org/psycinfo/1999-00219-006](http://psycnet.apa.org/psycinfo/1999-00219-006).
- Organization for Economic Co-operation and Development (OECD). 2012. *Education at a Glance 2012: OECD Indicators*. Paris and Washington, D.C.: Organization for Economic Co-operation and Development. DOI: 10.1787/199.
- Peterson, C. and M. E. P. Seligman. 1983. "Learned helplessness and Victimization". *Journal of Social Issues*. 39(2): 103–116. DOI: 10.1111/j.1540-4560.1983.tb00143.x.
- Putnam, F. W. 1990. "Disturbances of 'Self' in Victims of Childhood Sexual Abuse". In: *Incest-Related Syndromes of Adult Psychopathology*. Ed. by R. P. Kluff. Washington, DC: American Psychiatric Press. 113–131.
- Rees, D. I. and J. J. Sabia. 2013. "Forced Intercourse, Mental Health, and Human Capital". *Southern Economics Journal*. 80(2): 324–344. DOI: 10.4284/0038-4038-2013.015.
- Rennison, C. M. 2001. "Criminal Victimization 2000: Changes 1999–2000 with Trends 1993–2000". 1–16. Washington, DC: U.S. Department of Justice, NCJ-187007.
- Robst, J. 2010. "Childhood Sexual Victimization, Educational Attainment, and The Returns To Schooling". *Education Economics*. 18(4): 407–421. DOI: 10.1080/09645290903102837.

- Sharkey, P. 2010. "The Acute Effect of Local Homicides on Children's Cognitive Performance". *Proceedings of the National Academy of Sciences of the United States*. 107(26): 11, 733–11, 738. DOI: 10.1073/pnas.1000690107.
- Shonk, S. M. and D. Cicchetti. 2001. "Maltreatment, Competency Deficits, and Risk for Academic and Behavioral Maladjustment". *Developmental Psychology*. 37(1): 3–17.
- Shonkoff, J. P. and A. S. Garner. 2011. "The Lifelong Effects of Early Childhood Adversity and Toxic Stress". *Pediatrics*. 129(1): 232–46.
- Simpson, T. L. and W. R. Miller. 2002. "Concomitance Between Childhood Sexual and Physical Abuse and Substance Use Problems: A Review". *Clinical Psychology Review*. 22(1): 27–77. DOI: 10.1016/S0272-7358(00)00088-X.
- Skogan, W. G. 1987. "The Impact of Victimization on Fear". *Crime and Delinquency*. 33(1): 135–154. DOI: 10.1177/0011128787033001008.
- Teicher, M. H. 2000. "Wounds That Time Wouldn't Heal: The Neurobiology of Childhood Abuse". *Cerebrum*. 2(4): 50–67.
- Teicher, M. H., S. L. Andersen, A. Polcari, C. M. Anderson, and C. P. Navalta. 2002. "Developmental Neurobiology of Childhood Stress and Trauma". *Psychiatric Clinics of North America*. 25(2): 397–426. DOI: 10.1016/S0193-953X(01)00003-X.
- Tough, P. 2012. *How Children Succeed*. Harcourt: New York.
- Trickett, P. K., C. McBride-Chang, and F. W. Putnam. 1994. "The Classroom Performance and Behavior of Sexually Abused Females". *Development and Psychopathology*. 6(1): 183–194. DOI: 10.1017/S0954579400005940.
- van der Kolk, B. A., D. Pelcovitz, S. Roth, F. Mandel, A. McFarlane, and J. L. Herman. 1996. "Dissociation, Somatization and Affect Dysregulation: The Complexity of Adaptation to Trauma". *American Journal of Psychiatry*. 153(7): 83–93.
- Weiss, M. J. S. and S. H. Wagner. 1998. "What Explains the Negative Consequences of Adverse Childhood Experiences on Adult Health?: Insights from Cognitive and Neuroscience Research". *American Journal of Preventive Medicine*. 14(4): 356–360. DOI: 10.1016/S0749-3797(98)00011-7.
- Widom, C. S., K. G. Raphael, and K. A. DuMont. 2004. "The Case for Prospective Longitudinal Studies In Child Maltreatment Research: Commentary on Dube et al". *Child Abuse and Neglect*. 28(7): 715–722. DOI: 10.1016/j.chiabu.2004.03.009.
- Wilsnack, S. C., N. D. Bogeltanz, A. D. Klassen, and T. R. Harris. 1997. "Childhood Sexual Abuse and Women's Substance Abuse: National Survey Findings". *Journal of Studies on Alcohol*. 58(3): 264–271. DOI: 10.15288/jsa.1997.58.264.
- Wordarski, J. S., P. D. Kurtz, J. M. Gaudin, and J. M. Howling. 1990. "Maltreatment and the School-Age Child: Major Academic, Socioemotional and Adaptive Outcomes". *Social Work*. 35(6): 506–513. DOI: 10.1093/sw/35.6.506.

- Yancura, L. A. and C. M. Aldwin. 2009. "Stability and Change in Retrospective Reports of Childhood Experiences Over a 5-Year Period: Findings from the Davis Longitudinal Study". *Psychology and Aging*. 24(3): 715–721. DOI: 10.1037/a0016203.