How School, Family, and Community Protective Factors Can Help Youth Who Have Experienced Maltreatment

Andra Wilkinson and Hannah Lantos

Child TRENDS

July 2018

In 2016, the Office of Juvenile Justice and Delinquency Prevention (OJJDP) awarded Child Trends a grant to study the relationship between childhood maltreatment and adolescent and young adult delinquent or criminal behaviors. OJJDP's goal to provide more trauma-informed services aligns well with Child Trends' approach to research, which includes four key components. First, we study the whole child across the life course and across domains of well-being. Second, we study children in their real-life settings and contexts. Third, we strive to rigorously test knowledge and then transfer it to people who will use that knowledge to improve children's lives. Finally, we recognize that children do well not only when interventions address their challenges and deficits, but also when they promote strengths and resilience. Therefore, we study not only the individual, family, and broader contextual factors that place children at risk, but also those that help them thrive. Previous briefs, publications, and reports from Child Trends related to trauma and adolescent development can be found at www.childtrends.org.

This resource was prepared by the authors using Federal funds provided by the U.S. Department of Justice under project #2016-MU MU 0064. Opinions or points of view expressed are those of the authors and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

If you have any questions, please contact the principal investigator, Dr. Andra Wilkinson, at awilkinson@childtrends.org, or the project director, Dr. Hannah Lantos, at hlantos@childtrends.org

Table of Contents

Background 1

Summary of Key Findings 2

Purpose of Study 3

Method 4

Results 5

- Relationship between maltreatment and criminal behaviors 5
- How protective factors change the relationship between maltreatment and criminal behaviors 8

Discussion 12

Conclusion 13

Methods Appendix 15

References 18

How School, Family, and Community Protective Factors Can Help Youth Who Have Experienced Maltreatment

Background

Children who experience abuse and neglect are at higher risk of poor physical and emotional health,[1-3] lower educational attainment,[4] and decreased socioeconomic stability.[5] They are also more likely to engage in delinquent behaviors in adolescence and criminal behaviors in young adulthood, including nonviolent acts like stealing or violent acts such as assault.[6] The likelihood of violent behavior is 40–60 percent higher among adolescents who experienced abuse and neglect (child maltreatment).[7] Related, in our juvenile justice system, 40–90 percent of girls and 25–65 percent of boys report experiencing maltreatment.[8] To better understand how to prevent delinquent or criminal behavior and subsequent recidivism, it is essential that we better understand the relationship between child maltreatment and delinquent or criminal behavior, as well as the protective factors that may buffer a child from engaging in negative behaviors following maltreatment.

While previous studies have found a relationship between child maltreatment and delinquent behavior in adolescence, few have examined the relationship in the general population, over time, whether it changes in young adulthood, or whether it varies by individual characteristics (e.g., sex, race/ethnicity, and sexual orientation). Where research does exist, the results are conflicting on how the relationship varies by sex[9,10] and by race or ethnicity;[11,12,13] the research on variation by sexual orientation is limited.[14] Research is also limited on what factors could interrupt the connection between child maltreatment and later delinquent and criminal behaviors. We refer to these as "protective factors."

This report adds to the field's understanding of the relationship between child maltreatment and delinquent and criminal behavior by exploring the relationship in the general population, over time, from ages 12 to 30, and whether the relationship varies by individual characteristics. Our work also tests the impacts of several potential protective factors.

Youth involved in both the child welfare and justice systems fare worse than those involved in only one of the two systems.

Youth involved in both the juvenile justice and child welfare systems are referred to as "dual-system" youth, and these youth face unique challenges—and often worse outcomes—in their transitions to adulthood. While the majority consists of youth of color and males, females in the justice system are more likely overall to be dual-system youth than males in the justice system. Given that dual-system youth lack many of the resources and supports needed for a successful transition to adulthood, few in this population attend college or complete post-secondary education and often face joblessness and homelessness. Additionally, many dual-system youth experience mental health problems, drug problems, and difficulties at school.[15]

Given these distressing outcomes, it is important to better understand the relationship between maltreatment and delinquent or criminal behavior. Our analyses using a large and nationally representative population—most of whom were engaged in neither system—can help the field

better understand this relationship outside of the typical samples used to explore this relationship. (Samples typically either follow youth in the child welfare system forward, or go backward to the experiences of youth already in the juvenile justice system.)

To better serve dual-system youth, it is critical that employees in juvenile detention centers, policymakers, probation officers, judges, and others understand how maltreatment is linked to later delinquent behaviors. It is also essential for these personnel to know what can be done about this link. For example, a juvenile detention center may start screening for a history of child maltreatment and provide services accordingly to improve outcomes after release and prevent recidivism for youth already involved in the justice system. Some evidence suggests that more therapeutic approaches are more cost-effective.[16] Furthermore, preventing future delinquent or criminal behavior has the potential to significantly improve outcomes and reduce public costs. Incarcerating young people is estimated to cost as much as $21 billion per year.[17] Preventing initial engagement in serious delinquent behaviors for youth who have experienced maltreatment, and reducing ongoing delinquent behaviors in youth already dually involved, have the potential to not only improve youth outcomes but also significantly reduce costs to society.

Protective factors

It is critical to understand factors that can buffer youth who have been abused and neglected from engaging in delinquent behaviors, at both the individual and environmental levels: including through peers, family, schools, and neighborhoods.[18] For example, family support, connections to protective adults, and adults with positive expectations have all been linked to decreased hostility, substance abuse, and violent behavior among young people who had experienced maltreatment.[10,19-21] Researchers further demonstrate that these protective factors can have a cumulative effect, such that a young person's risk of delinquent behavior decreases as their exposure to protective factors rises.[20] In addition to positive social support from family and friends, multiple studies indicate that school engagement is a protective factor that moderates the link between child maltreatment and juvenile delinquency.[20,22,23] While there is some research on the role of different protective factors, the variables at the peer, family, school, and neighborhood levels are rarely all included in the same studies, and different studies have come to conflicting conclusions. In this report, we study variables at all levels in a large, nationally representative, longitudinal dataset.

Questions also remain about whether and how protective factors vary by youth characteristics, so we examine whether protective factors vary across sex, race/ethnicity, and sexual orientation.

Summary of Key Findings

Effect of demographics

- Among youth who experienced maltreatment, males were more likely than females to be involved in later delinquent or criminal behavior.
- There was no evidence that the relationship between maltreatment and later delinquent or criminal behaviors differed by a young person's sexual orientation or race/ethnicity.

Protective factors and nonviolent behaviors

- A connection to school and a high-quality relationship with a mother or father figure had a protective effect, especially for young people who experienced maltreatment.
- A connection to one's neighborhood had a protective effect that did not vary by maltreatment status.

Protective factors and violent behaviors

- A connection to school, high-quality relationships with a mother or father figure, and neighborhood connection had a protective effect that did not vary by maltreatment status.

Effect of demographics for protective factors

- There was no evidence that the protective effects we found varied by sex, race/ethnicity, or sexual orientation.

These findings suggest that connection to school, parents, and one's neighborhood may all have a protective effect in terms of preventing both nonviolent and violent behavior among young people. For nonviolent behaviors, this is particularly strong for youth who experienced maltreatment. There were also no differences by demographics, suggesting that children can benefit from the presence of these protective factors regardless of their sex, race/ethnicity, or sexual orientation.

Purpose of Study

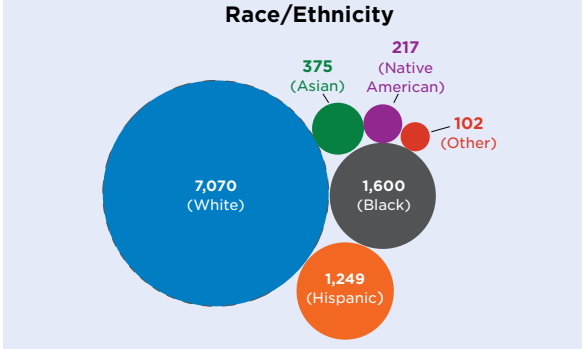
To contribute to our understanding of the role of individual characteristics and protective factors in the relationship between child maltreatment and delinquent or criminal behavior, Child Trends aimed to answer the following questions:

1. What is the relationship between childhood maltreatment and delinquent or criminal behaviors from adolescence into young adulthood?
2. How does this relationship vary by sex, race/ethnicity, and sexual orientation?
3. What potential protective factors could decrease the risk that someone who experienced maltreatment will go on to engage in delinquent or criminal behaviors?
4. Do the effects of any of these potential factors vary by sex, race/ethnicity, and sexual orientation?

Figure 1. Sex, Race/ethnicity, and Sexual Orientation of the Analytic Sample (n=10,613)

Sexual Orientation	
Mostly homosexual	64
Mostly heterosexual	743
Bisexual	166
100% Homosexual	91
100% Heterosexual	9.463

Sex	
Female	5,240
Male	5,373



Method

Sample: These analyses used data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), a large, diverse, and nationally representative sample. Data are from respondents interviewed in the wave I (ages 11 to 19), III (ages 18 to 26), and IV (ages 24 to 32), allowing us to longitudinally examine associations between maltreatment and delinquent or criminal behaviors. Because Add Health includes a large and diverse sample, we can reliably test whether associations between maltreatment and delinquent or criminal behaviors vary by sex, race/ethnicity, and sexual orientation, which would not have been possible with studies using smaller samples.

Measures: The current study used self-reported data on both maltreatment and delinquent or criminal behavior, assessing a wide array of violent and nonviolent delinquent and criminal behaviors. The model included covariates hypothesized to impact either the magnitude or the direction of the link between maltreatment and either delinquent or criminal behavior. The measures for maltreatment, delinquent or criminal behavior, and protective factors in these models are shown in tables 1 through 3, below. The appendix at the end of this document highlights the methods in more detail. All maltreatment questions were asked retrospectively at Waves III and IV. Delinquency and delinquent or criminal behavior questions were asked in all three relevant waves (I, III, and IV) about the previous year. Questions about protective factors were asked in Wave I.

Table 1. Maltreatment Variables in Wave III (ages 18 to 26) and Wave IV (ages 24–32)

Type of maltreatment	Variable
Emotional abuse before age 18	Before your 18th birthday, how often did a parent or other adult caregiver say things that really hurt your feelings or made you feel like you were not wanted or loved?
Physical abuse before age 18	Before your 18th birthday, how often did a parent or adult caregiver hit you with a fist, kick you, or throw you down on the floor, into a wall, or down stairs?
Sexual abuse before age 18	Before your 18th birthday, how often did a parent or other adult caregiver touch you in a sexual way, force you to touch him or her in a sexual way, or force you to have sexual relations?
Supervisory neglect before 6th grade	By the time you started 6th grade, how often had your parents or other adult caregivers left you home alone when an adult should have been with you?
Physical neglect before 6th grade	By the time you started 6th grade, how often had your parents or other adult caregivers not taken care of your basic needs, such as keeping you clean or providing food or clothing?

*All measures reflect experiences from before the survey was conducted, and that respondents are aware occurred and chose to disclose.

Table 2. Variables of Delinquent or Criminal Behavior in Waves I, III, and IV (ages 11–32)

Violent delinquency and criminal behavior	Nonviolent delinquency and criminal behavior
During the past 12 months, did the following happen? If so, how often?	
Pulled a knife or gun on someone	Took an illegal drug using a needle
Were in a group fight	Sold marijuana or other drugs
Shot or stabbed someone	Went into a house or building to steal something
Used or threatened to use a weapon to get something from someone	Stole something worth less than $50/more than $50
Hurt someone badly enough to need bandages or care from a doctor or nurse	Deliberately damaged property that didn't belong to you

Table 3. Example Variables of Potential Protective Factors in Wave I (ages 11–19)

Level	Variable examples
Peer	During the past week, how many times did you just hang out with friends?
Parent	How much do you feel that your (mother/father) cares about you?
School	You feel like you are part of your school.
Neighborhood	People in this neighborhood look out for each other.

Analyses: Our analysis used growth curve models to explore trajectories in delinquent or criminal behavior frequency over time. To answer the research questions, we tested maltreatment as a predictor of the trend in delinquent or criminal behavior frequency over time. Next, we tested whether potential protective factors moderated this association or, in other words, bent the curve. More detail on the specific steps in the analyses are described in the appendix. To understand the results, it is important to realize that the figures shown are *predictions* based on model results. We allowed for only one bend in each of the predicted curves. This means, by definition, that if the predicted curve bends in one direction it will not bend a second time. In other words, a steep increase in the line is followed by a steep decline (and vice versa). This may explain the sudden decreases in some of the models or the lines that do not decrease over time.

Results

Relationship between maltreatment and delinquent or criminal behaviors

Figures 2a and 2b illustrate the link between maltreatment and delinquent or criminal behaviors.

Individuals who experience maltreatment as children are more likely to engage in nonviolent and violent delinquent or criminal behavior, as shown in figures 2a and 2b. Nonviolent behaviors appear to increase as maltreatment frequency increases, whereas violent behaviors appear to increase to the same level regardless of maltreatment frequency.

Figure 2a. Predicted Nonviolent Offense Frequency, Moderation by Maltreatment Level

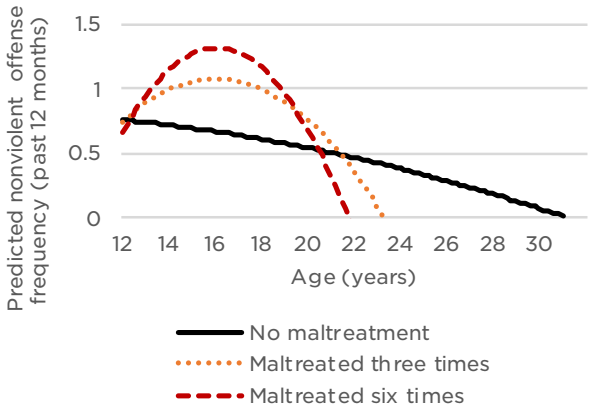
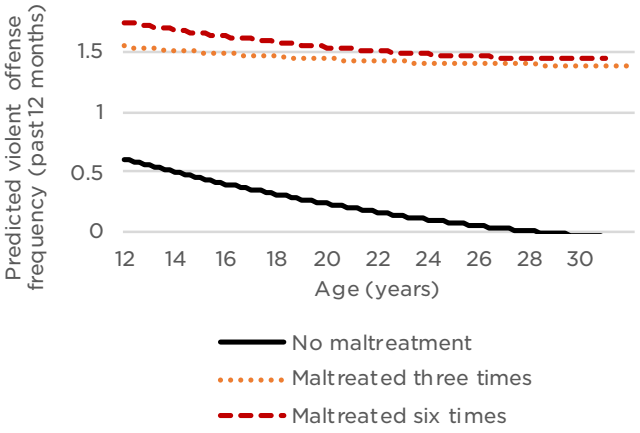


Figure 2b: Predicted Violent Offense Frequency, Moderation by Maltreatment Level

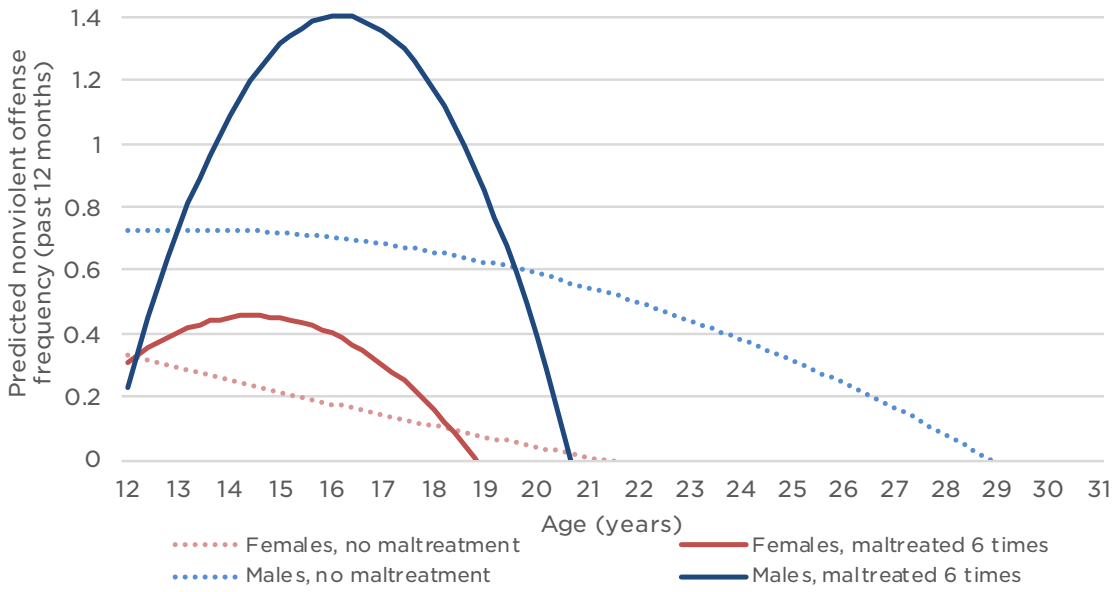


Males who experienced maltreatment as children are more likely than females to engage in nonviolent delinquent or criminal behavior, as shown in Figure 4 (e.g., the interaction term, where maltreatment was interacted with sex, was statistically significant). The graph for violent delinquent or criminal behavior is not shown, as there were no statistically significant differences by sex.

Tips for reading the graphs: In the graphs on the following pages, a few patterns to the lines are consistent across the graphs and worth noting here for ease of interpretation. First, respondents who did not experience maltreatment are always shown in **black**, while participants who did experience maltreatment are shown in color. **Red** captures predicted violent frequency and **orange** captures predicted nonviolent frequency among those who experienced maltreatment. A helpful way to remember this is to imagine a warning label, on which red generally represents a worse outcome than orange. Second, the solid lines always show the high level of the protective factor while the dotted lines always show the low level. Here, we have theorized that higher protective factors places the respondent on more solid developmental footing—therefore, this is the solid line.

When interpreting these graphs, remember that these are *predicted* frequencies. The graphs are visual representations of our statistical model and do not show the actual frequency of delinquent of criminal behaviors by age reported by our sample. Additionally, the shapes of the lines are restricted by the modeling technique used. Finally, the graphs show only statistically significant relationships.

Figure 3. Predicted Nonviolent Offense Frequency across Sex and Maltreatment Levels



From Figure 3, we make three key inferences about the relationship between maltreatment and nonviolent delinquent or criminal behaviors and how they vary by sex, two of which confirm findings from earlier studies.

1. **Females engage in nonviolent delinquent or criminal behavior less often than males.** This is true for females who reported a history of maltreatment (solid red line) and those who did not (dotted red line).

2. **The relationship between maltreatment and predicted nonviolent delinquent or criminal behavior frequency is stronger for males than for females.** This is represented by the larger difference between the solid and dotted blue lines than between the solid and dotted red lines, and is shown statistically with a significant interaction term by sex.

3. **Most delinquent or criminal behaviors take place in adolescence and drop significantly by adulthood, regardless of maltreatment status.** There is an increase in predicted nonviolent delinquent or criminal behavior frequency for both males and females in the mid to late teen years, after which it declines.[a] On average, males are predicted to engage in nonviolent delinquent or criminal behavior well into their 20s, while females cease most of this behavior by their late teens or early 20s. These findings echo what we know from other research about age and delinquent or criminal behavior.

[a] The steep decline is a function of the models used and is a mirror image of the steep increase at the beginning. In all likelihood, this is not parabolic in shape, but our model is forcing that shape in its predictions.

How protective factors change the relationship between maltreatment and delinquent or criminal behaviors

The next stage of the research explored whether any of the hypothesized protective factors at the peer, family, school, and neighborhood levels were associated with fewer delinquent or criminal behaviors. For example, if the presence of a protective factor changes the shapes of any curve in a way that results in less delinquent or criminal behavior, this would provide evidence of a protective effect. If that effect then varies by maltreatment status, there is evidence that different strategies might specifically help the most vulnerable young people. Specifically, we looked at whether the protective factors moderated the relationship between maltreatment and delinquent or criminal behavior. We might see evidence of this if the overall height of the curve (the intercept) dropped for those who had the protective factor versus those who did not, and dropped more for those who experienced maltreatment compared to those who did not. This would mean that the factor was particularly protective for those who experienced maltreatment.

School connection

School connection was measured with a summative scale of variables asking respondents how much they felt a part of their school, close to the people at their school, treated fairly by teachers, and so on. Higher scores indicate higher levels of school connectedness, while lower scores indicate lower school connectedness.[b]

Figure 4a. Moderation of the Association between Maltreatment and Nonviolent Offending Frequency by School Connectedness

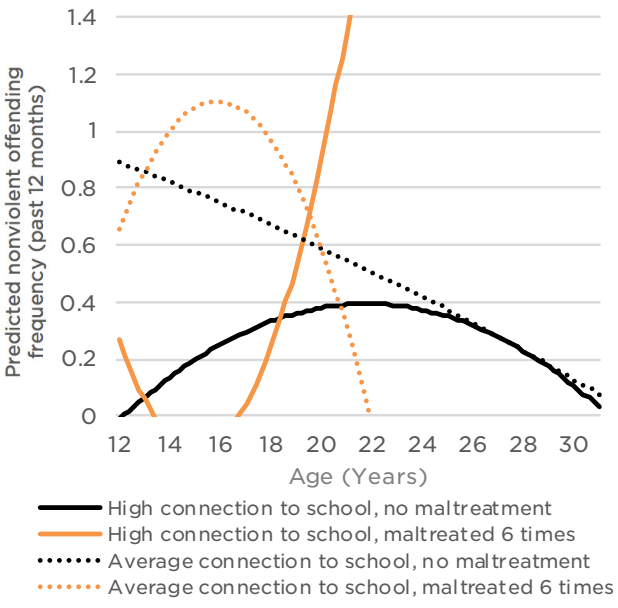
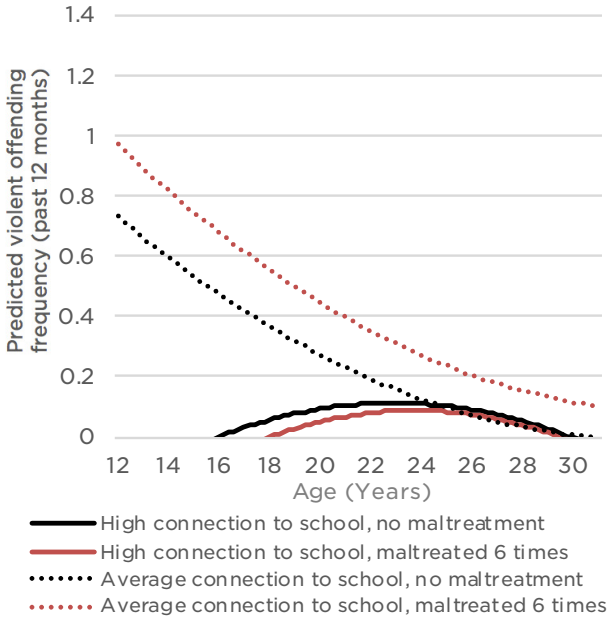


Figure 4b. Moderation of Violent Offending Frequency by School Connectedness



[b] These models compared a strong connection to school with an average connection to school in order to have a more conservative estimate than if we had compared those with a strong connection to those with low or no school connection. We would expect—and found—that respondents with very low levels of school connection fared even worse than our average group, although those results are not shown in the graphs for the sake of clarity.

Figure 4a illustrates that school connection alters the relationship between child maltreatment and nonviolent delinquent or criminal behaviors, especially for those who experienced maltreatment. **For respondents who experienced maltreatment** (orange lines)**, the predicted frequency of nonviolent behavior while enrolled in school was significantly lower for those who had a strong connection to school** (solid line) **compared to those with an average connection to school** (dotted line). This protective effect disappeared by the late teen years, when most students had left or graduated from high school.

Our findings for violent delinquent or criminal behaviors (Figure 4b) indicate **a protective effect of school connection for both respondents who reported maltreatment and those who did not** (the two solid lines). Those with an average connection to school (the two dotted lines) in adolescence were much more likely to engage in violent behaviors during their school years relative to those with a strong connection to school. **The protective effect of a strong connection to school does not persist into adulthood**, but expires around the mid-20s.

Parental relationship quality

Next, we examined the potential protective effect of high-quality relationships with parental figures, compared to no relationships. Parental relationship quality was a summative scale of five separate variables asking respondents to assess how close they felt to their mother or father, how much they thought their parent cared about them, whether their parent was usually warm and loving, the quality of their communication with their parent, and overall satisfaction with their relationship with their parent. We used measures for parental *figures* rather than just biological parents. This allowed us to include biological parents, foster or adoptive parents, and step-parents. We examined the results for father and mother figures separately.

Figure 5a. Moderation of the Association between Maltreatment and Nonviolent Offending Frequency, by Father Relationship

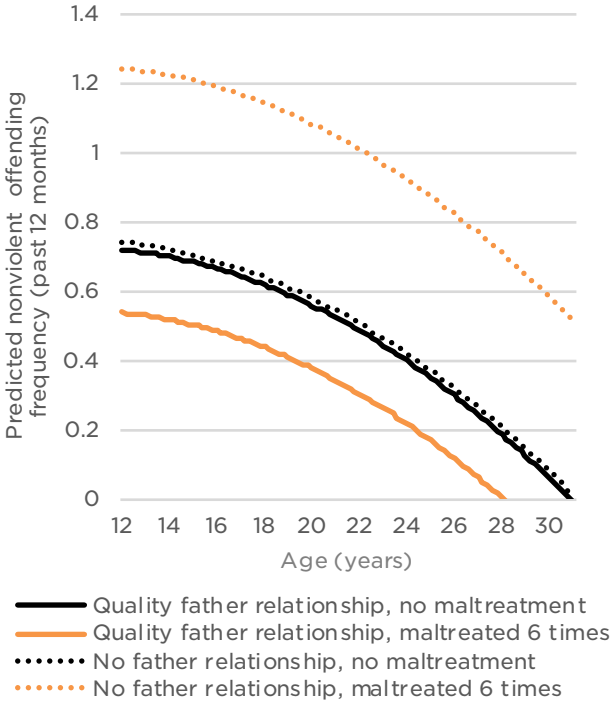
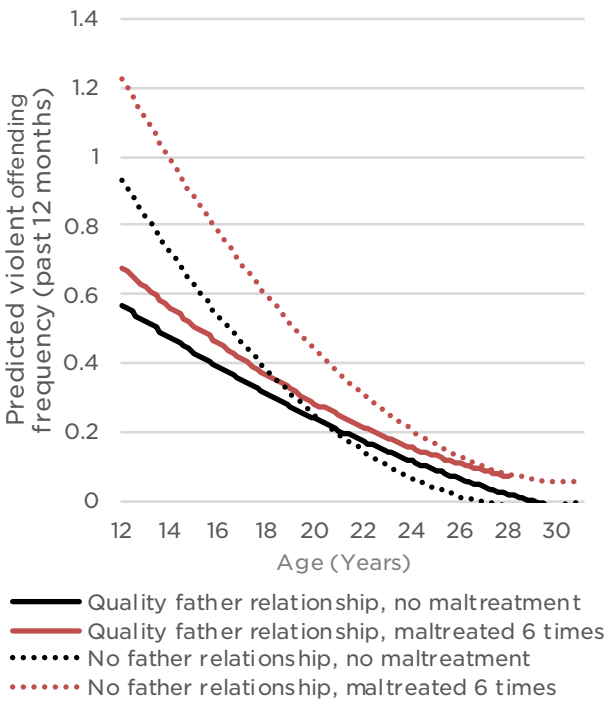


Figure 5b. Moderation of Violent Offending Frequency by Father Relationship



In Figure 5a, for respondents who were maltreated (orange lines), we see a large difference between those with and without a high-quality paternal relationship.[c] Relative to those respondents without a father figure (dotted line), those who did have a high-quality relationship (the solid line) had a significantly lower predicted frequency of nonviolent behavior across all phases of development. While a high-quality relationship with a father figure was protective of violent delinquent or criminal behaviors regardless of maltreatment status (Figure 5b), for nonviolent behavior, high-quality relationships appear to be protective only for young people who experienced child maltreatment.

Figure 6b shows the predicted frequencies for engaging in violent behavior based on the presence of a high-quality relationship with a father figure. The results show that those with a high-quality relationship (solid lines) have lower predicted violent behavior frequencies than those without a father relationship. They do not show an increased protective effect by maltreatment status; essentially, having a relationship with a father figure is protective regardless of maltreatment status. Importantly, these patterns are likely only true until the early to mid-20s, when all lines begin to overlap, indicating that there are likely no longer differences between the groups.

Figure 6a. Moderation of the Association between Maltreatment and Nonviolent Offending Frequency, by Mother Relationship

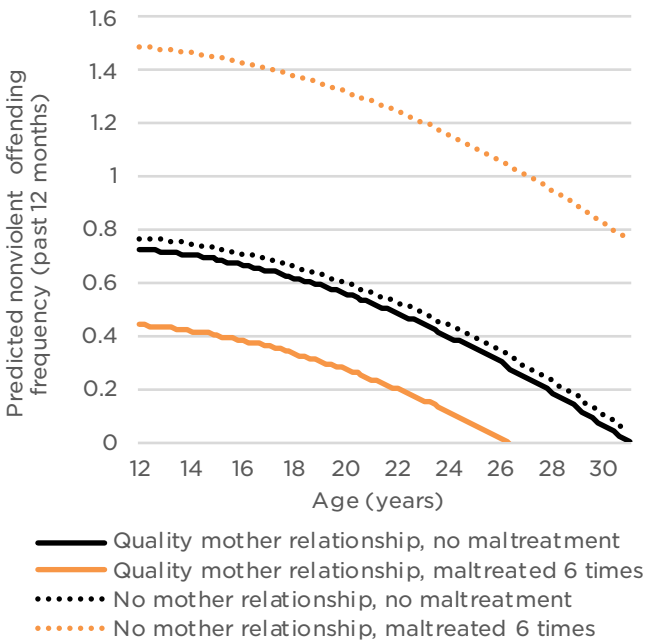
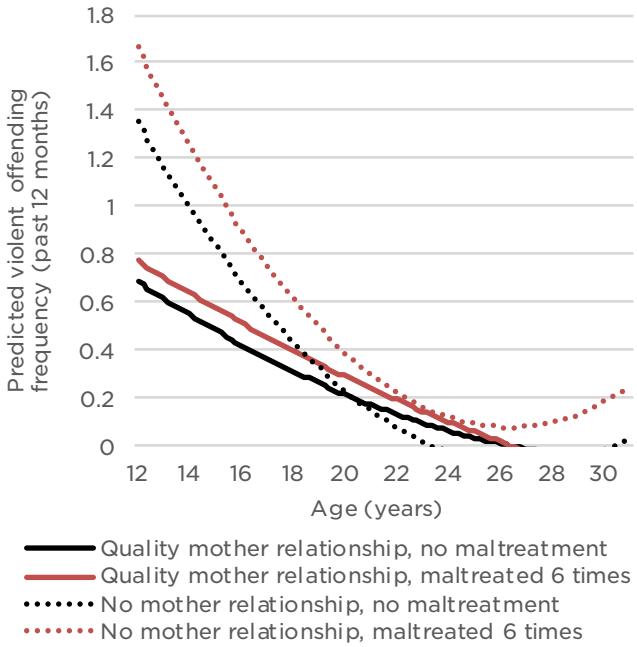


Figure 6b. Moderation of Violent Offending Frequency by Mother Relationship



Figures 6a and 6b show the predicted frequencies for nonviolent and violent behavior across levels of child maltreatment and maternal relationship quality. These figures look similar to those describing father figures in their height, shape, and ordering. As with the results for a high-quality relationship with a father figure, Figure 7a shows that a high-quality relationship with a mother

[c] A caveat is needed here: The child maltreatment variable includes maltreatment by parents or adult caregivers (e.g., coaches, religious leaders), but we do not know which specific adult figures mistreat children. It is possible that a child can be maltreated by a coach while still reporting high-quality parental relationships; or by a father figure while still having a high-quality relationship with a mother figure. (This is why parental relationship quality was separated into mother and father figures).

figure appears protective against nonviolent behavior across all phases of development for those youth who experienced maltreatment. In Figure 7b, we see a general protective effect for a high-quality relationship with a mother figure for violent behavior regardless of maltreatment status until the early to mid-20s.

Neighborhood collective efficacy

Neighborhood collective efficacy was a summative scale of variables asking adolescents how much they knew the people in their neighborhood, how much they felt that people in the neighborhood look out for each other, how safe they felt in their neighborhood, and so on.[d] Higher scores indicate higher levels of neighborhood collective efficacy while lower scores indicate a lower level.

Figure 7a. Moderation of Nonviolent Offending Frequency by Neighborhood Collective Efficacy

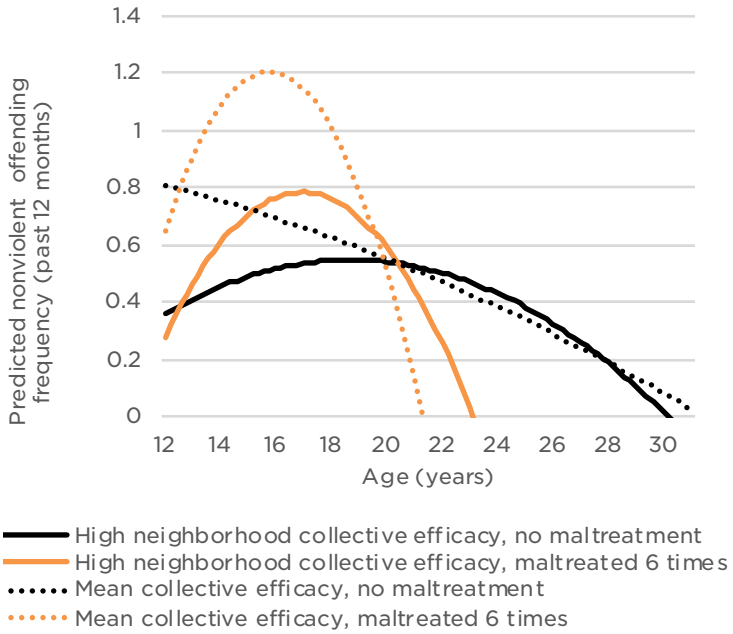
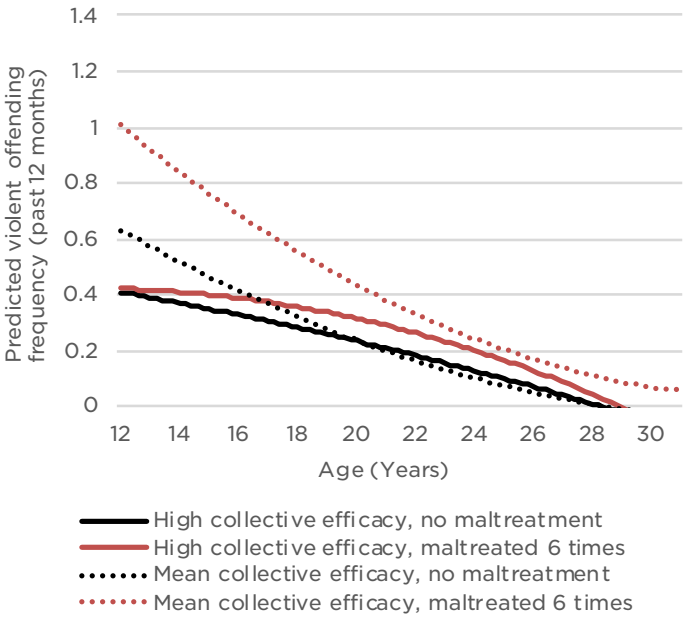


Figure 7b. Moderation of Violent Offending Frequency by Neighborhood Collective Efficacy



Figures 7a and 7b show results for neighborhood collective efficacy. Both figures show moderation of delinquent or criminal behaviors (both nonviolent and violent) by levels of neighborhood collective efficacy, indicating a protective effect. Figure 8a shows that the predicted frequencies of nonviolent delinquent or criminal behaviors are higher for those who experienced child maltreatment (orange lines) compared to those who did not (black lines), peaking in late adolescence. A strong connection to one's neighborhood (solid lines) appears protective of nonviolent behavior, both for those who did and did not experience maltreatment. Figure 8b shows that high levels of collective efficacy (solid lines) are protective until the early to mid-20s, for both those who have been maltreated and those who have not.

[d] In these models, we compared a high neighborhood collective efficacy with an average level to have a more conservative estimate than if we had compared those with high collective efficacy to those with low or no collective efficacy. We would expect—and found—that respondents with very low levels of collective efficacy fared even worse in adolescence than our average group, although those results are not shown in the graphs for the sake of clarity.

The generally protective effect of neighborhood collective efficacy appears to expire for both nonviolent and violent behavior in the early 20s, which could indicate that youth are moving out of the neighborhoods they lived in during adolescence. This is particularly important because other protective factors (all measured at Wave I) also support these arguments based on time. Specifically, the protective effect of school connectedness and parental relationship quality also fades when respondents are older. This could be because youth have less exposure to such protective factors once they graduate, leave school, or leave home. Although the protective effect of parental relationship quality for nonviolent behavior appeared to persist across all phases of development, this could be due to a modeling constraint. The protective effect only affected the levels of the curves (intercepts), rather than their shapes over time (slopes); these associations warrant further research to determine whether the protective effect truly does persist and is not due to modeling constraints.

Peer social support

Peer support was measured with the following question: "During the past week, how many times did you just hang out with friends?" There was no evidence that an increase in the number of times spent with friends during the week was associated with reductions in either violent or nonviolent delinquent or criminal behaviors. This may indicate that the effect of peers may be positive or negative. In fact, in one model, more time spent with friends was associated with increased delinquent or criminal behavior for those who did not experience child maltreatment, suggesting that this variable would be important to combine with other measures—such as a friend's behaviors—if used in the future. The data source used for this brief did not include such measures.

Discussion

The current study addressed four key research questions about the link between child maltreatment and subsequent delinquent or criminal behavior. Our first question aimed to explore the relationship between maltreatment and delinquent or criminal behaviors from adolescence into young adulthood. We found that individuals who experienced child maltreatment had consistently higher predicted frequencies of engaging in both nonviolent and violent behaviors, relative to youth who did not experience child maltreatment. For nonviolent behaviors, there was a step-wise increase in delinquent or criminal behaviors: As the number of maltreatment episodes increased, so did the offending behavior. In contrast, youth who experienced any maltreatment at all reported more engagement in violent delinquent or criminal behaviors; there was a similar response regardless of the frequency of maltreatment.

Our second research question examined whether patterns between child maltreatment and delinquent or criminal behavior differed by sex, race, or sexual orientation. We found significant differences by sex, with males who experienced maltreatment being more likely to engage in nonviolent behaviors than females. This suggests that the higher prevalence of delinquent or criminal behavior among males relative to females cannot be solely attributed to a greater penchant for risk behavior among males, but could instead reflect an increased need for treatment and counseling for boys whose offending behavior may be externalizing responses to abuse and neglect during childhood.[24] The same could be said for our finding that maltreated LGBQ youth were more likely to engage in nonviolent delinquent or criminal behaviors than non-LGBQ youth, although the difference was small.

For race/ethnicity, we found no significant differences in the association between child maltreatment and delinquent or criminal behavior. In many ways, this null finding is incredibly important. Maltreatment has potentially negative consequences for all children and increases their likelihood of engaging in delinquent or criminal behavior regardless of race or ethnicity. However, how children are treated following their engagement in both nonviolent and violent delinquent or criminal behavior does differ by many individual characteristics. Compared to their white counterparts, black and Latino children are more likely to be suspended from school (even as early as pre-kindergarten)[25,26] and more likely to have contact with the police;[27] when they do have contact with police, they are also more likely to be arrested and engaged with the juvenile justice system.[28] These findings lend urgency to the need to reexamine areas in which inequalities persist in the trajectory from maltreatment to juvenile delinquency and criminal behaviors. Specifically, identifying and responding to a child's past or present experiences of maltreatment can have a strong impact on equity, as can providing opportunities for culturally appropriate responses, strong relationships, youth voice, counseling, reflection, or restorative justice practices.[29,30]

Our third research question sought to determine the extent to which protective factors at the family, friend, school, or neighborhood levels could impact the association between maltreatment and delinquent or criminal behavior. School connectedness, high-quality relationships with both a mother and a father figure (modeled separately), and neighborhood collective efficacy were all protective. However, some factors were protective specifically for youth who experienced maltreatment, while others were generally protective for all youth who reported the protective factor. For example, school connectedness was particularly protective against nonviolent delinquent or criminal behavior for those who had experienced maltreatment, while it was more generally protective for violent outcomes. The fact that spending time with friends was not associated with reductions in predicted delinquent or criminal behaviors may be driven by two underlying mechanisms: 1) Simply spending time with friends may not be an appropriate measure for the quality of those relationships; and 2) teenagers who spend more time with friends may also spend more time unsupervised or getting into trouble. Time spent with friends may not be an appropriate measure to gauge positive, pro-social behaviors; other measures that can tease apart what teenagers do with their friends—and why they are friends—may be more likely to be protective.

Finally, for our fourth research question, we found no evidence that the protective factors assessed varied by sex, race, or sexual orientation. Again, we consider this null finding to be very important in that it indicates that these same protective factors are critical for all children and young adults regardless of sex, race/ethnicity, and sexual orientation. Practitioners who serve children who have experienced maltreatment must identify and promote these protective factors for all children.

Conclusion

Understanding the link between child maltreatment and delinquent or criminal behaviors in adulthood can improve delinquency prevention efforts and inform service provision in juvenile justice settings by making clear what kinds of experiences are associated with delinquent or criminal behavior and what types of supports may weaken that link. Reducing these behaviors overall and supporting adolescents in juvenile justice settings with specific approaches that target needed protective factors may foster positive youth development, improve school and community safety, and decrease public costs for adjudication of offenses, incarceration, and healthcare and other social services.

This study represents a step in the right direction that can inform practice. For instance, the results indicate that if a young person has experienced abuse and neglect, attempts to increase their connection to their neighborhood or school and/or improve the quality of their relationship with their parents could prevent initial or further engagement in delinquent or criminal behaviors. Beyond informing prevention, these findings can also inform how and where to target limited resources (for example, by focusing on supporting youth who appear to be missing multiple protective factors rather than youth who seem connected to school). Further research on protective factors that can dampen the link between child maltreatment and later delinquent or criminal behavior is needed to confirm and expand these results, and to continue informing policy and practice. Finally, these results underscore the importance of interagency collaboration and the availability of a seamless system of care. These factors allow juvenile justice providers to gain insight into the trauma or child welfare experiences of youth whom they serve, and vice versa. This will facilitate identifying and appropriately responding to youth who have experienced both maltreatment and delinquency. Two centers that have developed promising work are the Georgetown Crossover Youth Program Model[e] and the Robert F. Kennedy National Resource Center for Juvenile Justice[f] (for its work on dual status youth).

[e] Georgetown CYPM: http://cjjr.georgetown.edu/our-work/crossover-youth-practice-model/
[f] RFK Dual Status Youth references: https://rfknrcjj.org/our-work/dual-status-youth-reform/

Methods Appendix

Sample: In this study, Child Trends used data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), a large, diverse, and nationally representative sample. Add Health started with a sample of U.S. adolescents who were in grades 7–12 in the 1994–95 school year, and these young people have been repeatedly surveyed over the past two decades. This analysis used data from respondents in the first wave (ages 11 to 19), third wave (ages 18 to 26), and fourth wave (ages 24 to 32). Using this dataset allowed us to examine associations between maltreatment and delinquency, not just during adolescence but into young adulthood as well. Another benefit of using the Add Health data is that it is a large and diverse sample. Therefore, we can reliably test whether, and how, associations between maltreatment and delinquency vary by sex, race/ethnicity, and sexual orientation. Most other studies are unable to take this approach because information is lacking for these subpopulations.

Table A1. Descriptive data on analytic sample

	N or mean	Weighted % or SD
Sex		
Male	5,373	50.6%
Female	5,240	49.4%
Race/ethnicity		
Hispanic	1,249	11.8%
Black	1,600	15.1%
Asian	375	3.5%
Native American	217	2.0%
Other	102	1.0%
White	7,070	66.6%
Sexual Orientation		
Lesbian, Gay, Bisexual, Queer	1,305	12.3%
Age at Wave I	15.4	1.8
Age at Wave III	21.8	1.9
Age at Wave IV	28.3	1.9
Nonviolent delinquent or criminal behaviors (any)		
Nonviolent delinquent or criminal frequency at Wave I	3,449	32.5%
Nonviolent delinquent or criminal frequency at Wave III	1,983	18.7%
Nonviolent delinquent or criminal frequency at Wave IV	1,145	10.8%
Violent delinquent or criminal behaviors (any)		
Violent delinquent or criminal frequency at Wave I	3,113	29.3%
Violent delinquent or criminal frequency at Wave III	1,308	12.3%
Violent delinquent or criminal behaviors (any)		
Violent delinquent or criminal frequency at Wave IV	650	6.1%
Maltreatment (any)	7,145	67.3%

Table A1, cont. Descriptive data on analytic sample

	N or mean	Weighted % or SD
Control variables		
Public assistance in household before age 18	1,673	15.8%
Ever repeated or been held back a grade	2,150	20.3%
Ever suspended, expelled, or dropped out	142	1.3%
Ever used alcohol, cigarettes, or illicit substances	6,181	58.2%
Ever in a foster home	173	1.6%

The following table describes how maltreatment and delinquent or criminal behavior frequency vary by sex, race/ethnicity, and sexual orientation. Native Americans reported the highest frequency of childhood maltreatment, while whites reported the lowest (M = 3.56 vs. 2.54, respectively). Youth who self-reported as LGBQ had higher average nonviolent delinquent and criminal behavior frequency compared to non-LGBQ youth (M=1.10 vs. 0.82). Native Americans also reported the highest average violent delinquent and criminal behavior frequency, while whites reported the lowest (M = 1.26 vs. 0.57). Males reported a higher average frequency of both violent and nonviolent offenses compared to females.

Table A2. Variation in frequency of maltreatment, nonviolent and violent delinquent and criminal behavior frequency in adolescence, by individual characteristics

	Average maltreatment frequency		Average nonviolent delinquent or criminal behavior frequency in adolescence		Average violent delinquent or criminal behavior frequency in adolescence	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Sex						
Male	2.51	2.48	1.13***	1.93	0.97***	1.87
Female	2.78***	2.92	0.58	1.47	0.45	1.28
Race/ethnicity (white=referent)						
Hispanic	2.88**	3.22	1.07*	2.33	1.13***	2.74
Black	2.64	3.10	0.65*	1.78	1.01***	2.28
Asian	3.31***	4.03	0.97	2.65	0.63	2.06
Native American	3.56***	3.18	1.26*	2.05	1.26***	2.11
Other	2.52	2.12	1.09	2.11	0.58	1.62
White	2.54	2.40	0.84	1.58	0.57	1.24
Lesbian, Gay, Bisexual, Queer						
No	2.53	2.65	0.82	1.74	0.72	1.67
Yes	3.40***	2.93	1.10***	1.99	0.67	1.59

Note: * p<0.05; ** p<0.01; *** p<0.001

Measures: The variables used in this study are self-reported for both maltreatment and delinquency. Both protective services reports and policing of delinquent behaviors can be concentrated in low-income communities of color.[8] Therefore, using nationally representative data includes populations not always represented or proportionally represented in administrative data. Further, self-reported data may include certain people who are not counted by administrative data sources—either because the experiences they had were serious but went undetected, or because they were minor and/or infrequent and were not reported. Further, the Add Health study asked respondents *how many times* they had experienced maltreatment, rather than a simple "yes" or "no." Recent evidence indicates that the frequency of maltreatment may matter more than the type of maltreatment, as the types of maltreatment tend to co-occur.[6,31] The study also inquired about a wide array of both violent and nonviolent delinquent behaviors. These nuanced and detailed measures of maltreatment and delinquency enabled us to use advanced analytic methods to explore the associations between them. Details on the measures we used were shown in tables 1–3.

Analyses: We conducted these analyses in four steps. First, we organized the data by age (11 to 32), rather than by year of data collection (1994 to 2008) to examine changes in delinquent or criminal behavior across ages. Second, we tested relationships between the frequency of maltreatment and two different measures of delinquent or criminal behaviors (violent and nonviolent behaviors) using linear mixed effects models. This analytic technique allowed us to estimate the relationship between maltreatment and delinquent or criminal behaviors as a curve from age 11 to age 32. Third, we tested whether—and, if so, how—the curves differed by sex, race/ethnicity, and sexual orientation by adding interaction terms to test moderation. Finally, we tested whether our hypothesized malleable protective factors (e.g., school engagement) moderated or bent the curve—or, in other words, whether including these protective factors (as interaction terms) in our models changed the slope or the intercept of the curve showing the relationship between maltreatment and delinquent behaviors. With this modeling approach, we could use simple slopes to visually display the results. Using linear mixed effects models also allowed us to control for things we were not measuring that are time invariant and could influence the results (e.g., genetics, cognitive ability) because we were examining individual change over time—thereby differencing out individual characteristics that we did not measure that do not change over time.

References

1. Archer G, Pinto Pereira S, Power C. Child maltreatment as a predictor of adult physical functioning in a prospective British birth cohort. BMJ Open. 2017. doi:10.1136/bmjopen-2017-017900.

2. Sacks R, Takemoto E, Andrea S. Childhood maltreatment and BMI trajectory: The mediating role of depression. *Am J Prev Med*. 2017;53(5):625-633.

3. Norman R, Byambaa M, De R, Butchart A, Scott J, Vos T. The long-term health consequences of child physical abuse, emotional abuse, and neglect: A systematic review and meta-analysis. *PLoS Med*. 2012;9(11).

4. Hardner K, Wolf M, Rinfrette E. Examining the relationship between higher educational attainment, trauma symptoms, and internalizing behaviors in child sexual abuse survivors. *Child Abuse Negl*. 2017.

5. Snehal M, Pereira P, Li L, Power C. Child maltreatment and adult living standards at 50 years. *Pediatrics*. 2017;139(1).

6. Finkelhor D, Turner H, Hamby S, Ormrod R. *Polyvictimization: Children's Exposure to Multiple Types of Violence, Crime, and Abuse*. 2011.

7. Hussey J, Chang J, Kotch J. Child maltreatment in the United States: Prevalence, risk factors, and adolescent health consequences. *Pediatrics*. 2006;118:933-942.

8. Goodkind S, Shook JJ, Kim KH, Pohlig RT, Herring DJ. From child welfare to juvenile justice: Race, gender, and system experiences. *Youth Violence Juv Justice*. 2013;11(3):249-272. doi:10.1177/1541204012463409

9. Topitzes J, Mersky J, Reynolds A. From child maltreatment to violent offending: An examination of mixed- gender and gender- specific models. *J Interpers Violence*. 2012;27(12):2322-2347. doi:10.1177/0886260511433510

10. Folger SF, Wright MOD. Altering risk following child maltreatment: Family and friend support as protective factors. *J Fam Violence*. 2013;28(4):325-337. doi:10.1007/s10896-013-9510-4

11. Lansford JE, Miller-Johnson S, Berlin LJ, Dodge KA, Bates JE, Pettit GS. Early physical abuse and later violent delinquency: A prospective longitudinal study. *Child Maltreat*. 2007;12(3):233-245. doi:10.1177/1077559507301841

12. Widom CS. The Cycle of Violence. *Science*. 1989;244(4901):160-166. doi:10.2307/1702789

13. Widom CS, Czaja S, Wilson HW, Allwood M, Chauhan P. Do the long-term consequences of neglect differ for children of different races and ethnic backgrounds? *Child Maltreat*. 2013;18(1):42-55. doi:10.1177/1077559512460728

14. Sterzing PR, Edleson J, Fisher A, Gartner RE. *OFFICE OF JUSTICE PROGRAMS Polyvictimization Prevalence Rates for Sexual and Gender Minority Adolescents: Breaking Down the Silos of Victimization Research Polyvictimization Prevalence Rates for Sexual and Gender Minority Adolescents: Breaking Down the Silos of Victimization Research*.; 2017. https://www.ncjrs.gov/pdffiles1/nij/grants/251353.pdf. Accessed March 26, 2018.

15. Herz D, Lee P, Lutz L, et al. *Addressing the Needs of Multi-System Youth: Strengthening the Connection between Child Welfare and Juvenile Justice*.; 2012. https://cjjr.georgetown.edu/wp-content/uploads/2015/03/MultiSystemYouth_March2012.pdf. Accessed March 26, 2018.

16. Washington State Institute for Public Policy. *The Juvenile Justice System in Washington State: Recommendations to Improve Cost-Effectiveness*. Olympia, WA; 2002.

17. Justice Policy Institute. *Sticker Shock: Calculating the Full Price Tag For Youth Incarceration*. Washington, DC; 2014.

18. Bronfenbrenner U. *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge, MA: Harvard University Press; 1981.

19. Brown SM, Shillington AM. Childhood adversity and the risk of substance use and delinquency: The role of protective adult relationships. *Child Abuse Negl*. 2017;63:211-221. doi:10.1016/j.chiabu.2016.11.006

20. Herrenkohl TI, Tajima EA, Whitney SD, Huang B. Protection against antisocial behavior in children exposed to physically abusive discipline. *J Adolesc Heal*. 2005. doi:10.1016/j.jadohealth.2003.09.025

21. Salzinger S, Rosario M, Feldman R. Physical child abuse and adolescent violent delinquency: The mediating and moderation roles of personal relationships. *Child Maltreat*. 2007;12(3):208-219. doi:10.1177/1077559507301839

22. Tyler K, Johnson KA, Brownridge DA, -Lincoln Tyler N. A Longitudinal Study of the Effects of Child Maltreatment on Later Outcomes among High-risk Adolescents. 2008. http://digitalcommons.unl.edu/sociologyfacpub.

23. Bender K. The mediating effect of school engagement in the relationship between youth maltreatment and juvenile delinquency. *Child Sch*. 2012. doi:10.1093/cs/cdr001

24. Nolen-Hoeksema S. Emotion regulation and psychopathology: The role of gender. *Annu Rev Clin Psychol*. 2012;8:161-187. doi:10.1146/annurev-clinpsy-032511-143109.

25. Loveless T. The 2017 Brown Center report on American education: How well are American students learning? *Brookings Inst*. 2017;3(6).

26. U.S. Department of Education Office for Civil Rights. Data snapshot: Early childhood education. *Civ Rights Data Collect*. 2014;(2).

27. Crutchfield RD, Skinner ML, Haggerty KP, McGlynn A, Catalano RF. Racial disparity in police contacts. *Race Justice*. 2012;2(3). doi:10.1177/2153368712448063

28. Sickmund M, Puzzanchera C. *Juvenile Offenders and Victims: 2014 National Report*. Pittsburgh, PA; 2014.

29. Gregory A, Skiba RJ, Mediratta K. Eliminating disparities in school discipline: A framework for intervention. *Rev Res Educ*. 2017;41(1):253-278. doi:10.3102/0091732X17690499

30. Gregory A, Bell J, Pollock M. *How Educators Can Eradicate Disparities in School Discipline: A Briefing Paper on School-Based Interventions*. Bloomington, Indiana; 2014.

31. Font SA, Berger LM. Child maltreatment and children's developmental trajectories in early to middle childhood. *Child Dev*. 2015;86(2):536-556. doi:10.1111/cdev.12322