Published in final edited form as:

J Crim Justice. 2016 June ; 45: 26–31. doi:10.1016/j.jcrimjus.2016.02.005.

Childhood and Adolescent Risk and Protective Factors for Violence in Adulthood

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Abstract

Purpose—We use data from a community sample followed from ages 8 to 48. We focus on the main and risk-buffering effects of childhood and adolescent protective factors for predicting adulthood violence (official records and self reports).

Method—Males (N=436) from the Columbia County Longitudinal Study participated. The youth, their parents, and peers were first interviewed when the youth were age 8; the youth were later interviewed at ages 19, 30, and 48.

Results—Risk factors for adulthood violence included higher aggression and lower family socioeconomic status at ages 8 and 19. Protective factors included anxiety about behaving aggressively (ages 8 and 19), popularity (ages 8 and 19), family church attendance (age 8), lower negative family interactions (age 8), and higher educational aspirations (age 19). For youth with at least one risk factor, the sum of adolescent—but not childhood—protective factors reduced the likelihood of adulthood violence. The most critical adolescent risk-buffering protective factors were anxiety about behaving aggressively and educational aspirations.

Conclusions—Aggression and low family SES, even by age 8, place youth at risk for adulthood violence. Interventions to strengthen critical protective factors must continue into late adolescence to reduce the likelihood of adulthood violence among at-risk youth.

Keywords

adulthood violence; longitudinal; risk factors; protective factors

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We use data from a prospective study of a community sample of males followed from ages 8 to 48. We examine childhood (age 8) and adolescent (age 19) risk and protective factors for adulthood violence. These predictors included individual and family variables posited by developmental-contextual models of the development of aggression, antisocial behavior, violence, and life-course offending (e.g., Catalano & Hawkins, 1996; Farrington & Ttofi, in press; Gottfredson & Hirschi, 1990; Huesmann, 1998; Patterson, 1982; Thornberry, 2005).

The risk and resilience literature provides a framework for developmental-contextual models to specify the risk and protective resources that constitute an individual's developmental environment. Risk factors predict subsequent problems, whereas protective factors predict a decrease in problems. In recent literature on youth violence, there is debate about subtypes of protective effects (see Losel & Farrington, 2012; Farrington, Ttofi, & Loeber, 2014). For example, "direct protective effects" have main effects", predicting lower levels of problem behavior, and "buffering" protective effects predict lower levels of problem behavior more strongly for the youth with the risk factor than for those without it (for even further distinctions among types of protective effects, see Farrington et al., 2014 and Luthar, Cicchetti, & Becker, 2000). Empirical studies have identified risk and protective factors for youth violence across multiple contexts (e.g., family, peer group, neighborhood, school) and at the individual level (e.g., APA, 2013; Boxer, Huesmann, Dubow, et al., 2013; Dahlberg & Krug, 2002; Dubow & Luster, 1990; Farrington et al., 2014; Guerra et al., 2003; Herrenkohl, Tajima, Whitney, & Huang, 2005; Huesmann, Eron, & Dubow, 2002; Losel & Farrington, 2012; Rutter, 1990; Sampson, Morenoff, & Raudenbush, 2005; Smith & Farrington, 2003; Stouthamer-Loeber, Loeber, Wei, Farrington & Wikstrom, 2002; Tolan, Gorman-Smith, & Henry, 2003; Werner & Smith, 1992).

We focus on risk and protective factors at the individual and family levels. Based on studies cited above, at the individual level, the major risk factors for later aggressive and violent behavior are a previous history of aggression, impulsivity, and other externalizing problems, whereas individual protective factors include sociability, above average intelligence/academic achievement, positive academic motivation, positive future orientation, anti-aggressive cognitions, and religiosity. At the family level, risk factors include low socioeconomic status, poor parenting and having aggressive or antisocial parents, whereas the most significant protective factor is a positive family environment (e.g., low physical punishment, low inter-parental aggression, high parental monitoring). No one risk or protective factor by itself explains more than a small portion of individual differences in violent offending, and multiple protective factors from multiple levels appear to buffer the impact of risk factors.

We examine two risk factors (aggression and low family socioeconomic status) in childhood and adolescence for predicting violent offending in adulthood, and whether protective factors at the same developmental periods have direct or risk-buffering effects on adulthood violence. The strengths of studying these issues in the Columbia County Longitudinal Study are: the prospective research design includes interviews at four developmental periods (childhood, late adolescence, early adulthood, middle adulthood); data were collected using multiple methods (e.g., parent reports, peer nominations, self-reports, official criminal

records); and the participants were the entire population of third grade males in a socioeconomically heterogeneous county in the U.S.

Method

Participants and Procedures

The Columbia County Longitudinal Study was initiated by Eron, Walder, and Lefkowitz (1971) as a longitudinal study of 436 boys and 420 girls who were in the third grade in 1960 (modal age = 8) in Columbia County, New York, a semi-rural area.¹ All 38 public and private third-grade classrooms in the county participated. Over 90% of the sample was Caucasian. In this first wave, 85% of the participants' mothers and 71% of their fathers also were interviewed. The participants came from a broad range of socioeconomic backgrounds (based on Warner, Meeker, and Eells's (1960) scale), and displayed a wide range of intelligence. We report only on the males in this paper. In 1970–1972, 211 males were re-interviewed. They had a modal age of 19 years and had completed 12.6 years of education on average. In 1981–1982, 198 of the males were re-interviewed (modal age 30). During 1999–2002, 268 males (61% of the original sample) were re-interviewed; their mean age was 48.46 years old; their average education level was between some college and a college degree; their average occupational attainment was middle-class status (based on Stevens and Hoisington's (1987) occupational prestige scores); and 69% of the original participants were living with their spouses.

Data collection procedures have been reported elsewhere (e.g., Dubow, Boxer, & Huesmann, 2009; Eron et al., 1971; Lefkowitz et al., 1977; Huesmann, Dubow, & Boxer, 2009; Huesmann, Eron, & Dubow, 2002; Huesmann et al., 1984). Age 8 data were derived from classroom-based peer-nominations and parent interviews. At age 19, participants were administered self-report measures and peer nominations were again obtained in individual interviews at a field office. At ages 30 and 48, interviews were conducted by computer in a field office and by mail/telephone for participants who could not come to the office.

Attrition Information

At age 48, we interviewed 61% ($n = 268$) of the original sample of males. A comparison of means on age 8 scores revealed no significant difference in father's occupational status; however, compared to participants who were re-interviewed at age 48, participants who were not re-interviewed had higher aggression, lower popularity, and lower IQ at age 8. These effect sizes ranged from $r = .14$ to $r = .19$. However, the plots of the distributions for these age 8 variables revealed that many of the high aggressive participants were re-sampled and there was no substantial restriction of range.

¹We chose to include males only in this report because only two females were ever arrested for a violent offense, and females were significantly less likely to report physical violence than males.

Measures

Adulthood Violence

Self-report of violence: Severe physical aggression was assessed at ages 30 and 48 through participants' self-reports of how often in the last year they engaged in each of four behaviors (e.g., choked someone, slapped or kicked someone, punched or beaten someone, knifed or shot at someone or threatened to do it; 1 = never to 4 = a lot ($\alpha = .66$); because scores on some items may not be correlated with scores on other items, we view this measure as a reliable hierarchical index rather than a scale; see Streiner, 2003). At age 30, 193 participants completed the measure; 27% had non-zero scores. At age 48, 243 completed the measure; 25% had non-zero scores. We averaged the scores across the two time periods, and then dichotomized them into the lower 75% and upper 25% of severe physical aggression.

Official criminal arrest records for violent offenses: During the 2000 data collection, criminal history data were obtained from the New York State Criminal Justice Archive; driver's licence records were obtained from the NY State Department of Motor Vehicles. The criminal records include all arrests reported to the state agency since the participants were age 18. We coded for arrests corresponding to the two adulthood time points related to the interview dates: 1973–1982 (modal ages 21 to 30, early adulthood); and 1983–2000 (modal ages 31 to 48, middle adulthood). The New York State Criminal Justice Archive only contains records for persons who had been arrested in New York state; we do not have data on arrests that may have occurred in other states. We assessed whether each participant was a New York State resident during each of the crime reporting periods. We counted them as a resident: a) if they had a criminal record during the period; b) if they had a New York driver's license during the period or a subsequent period; or c) if we found that they had a home address in NY state during the period. We found that 319 were residents during early adulthood, 82 of them (25.7%) were official offenders, and 21 (6.6%) were arrested for a violent offense (one involving physical force against a person); 308 were residents during middle adulthood, 48 of them (15.6%) were official offenders, and 11 (3.6%) were arrested for a violent offense. Overall, 26 males had been arrested for a violent offense during adulthood.

Composite adulthood violence classification: We created a composite adulthood violence classification based on whether the participant had ever been arrested in adulthood for a violent offense and/or was in the upper 25% on the severe physical aggression score. Of the 372 males who were interviewed during at least one adult time point and/or who were NY state residents during at least one of these times (so we could compute an adulthood criminal history record for them), 276 (74%) were classified as non-violent and 92 (26%) were classified as violent.²

²We chose to include any male for whom at least one of the following adulthood data points was available: self-report of severe physical aggression at age 30, self-report of aggression at age 48, official arrest records in early adulthood, or official arrest records in middle adulthood. We realize that the risk of opting against list-wise deletion is that we might misclassify potential violent adults as non-violent. This could occur, for example, if a non-interviewed participant was a NY state resident for whom we had an official record but did not have a violent arrest, yet had he been interviewed, would have self-reported an incident of violence.

Risk Factors at Ages 8 and 19

Aggression: At age 8, aggression was measured using a peer nomination procedure (Eron et al., 1971) comprised of 10 items covering physical (e.g., “Who pushes and shoves other children?”), verbal (e.g., “Who says mean things?”), acquisitive (e.g., “Who takes other children’s things without asking?”), and indirect (e.g., “Who makes up stories and lies to get other children into trouble?”) acts. The score represents the proportion of times the child was nominated by classmates on the ten items. At age 19, because participants had left high school, they first were presented with a list of those original participants who had attended school with them at age 8, and were asked to identify those whom they currently knew “well enough to answer some questions about” (9 of the original items were included). Each individual’s score was computed as the number of times he/she was nominated on the nine questions divided by the number of times he or she could have been nominated (i.e., the number of participants who now knew the individual well). At each age, we also dichotomized scores into low risk (lower 75%) and high risk (upper 25%).

Family socioeconomic status (SES): We created a composite SES variable of three measures at age 8: (a) Father’s occupational level (coded on a 10-point scale of 0 = laborers to 9 = professionals); (b) Parents’ educational level (ranging from 1 = under 7 years to 7 = graduate/professional training); and (c) Value of family housing (ranging from 1 = inexpensive rental to 4 = expensive owned). The composite score was derived through latent variable measurement modeling (Dubow, Boxer, & Huesmann, 2008). Individual scores were standardized, multiplied by factor weights observed in the measurement model, and summed to create the family background composite (high scores reflected higher SES). We also dichotomized scores into high risk (lower 25%) and low risk (upper 75%). At age 19, participants reported their father’s occupation, which was coded using Warner et al.’s 7-point scale (1 = laborers to 7 = professionals); in addition to the continuous score, we dichotomized scores into high risk (lower 25%) and low risk (upper 75%).

Protective Factors at Ages 8 and 19—For each of the following measures, we used continuous scores, and we also dichotomized scores so that the upper 25% represents high levels of the protective factor compared to the lower 75% of the sample.

Individual-level factors: A) Using peer nominations at both ages, **popularity** represents the proportion of times the participant was nominated by his or her classmates on two popularity items -- “Who would you like to have as a best friend?” and “Who would you like to sit next to in class?” B) **Anxiety about behaving aggressively.** At ages 8 and 19, Eron et al.’s (1971) “anxiety over aggression” measure was used. Two peer-rated items measured this construct: “Who says ‘excuse me’ even when they have done nothing wrong?” and “Who will never fight even when picked on?” This measure has shown good validity (e.g., inverse correlations with aggression and positive correlations with popularity (Eron & Huesmann, 1984; Huesmann & Eron, 1986). C) **Intellectual achievement/aspirations.** At age 8, the child’s IQ was assessed with the California Short-Form Test of Mental Maturity (Sullivan, Clark, & Tiegs, 1957). At age 19, after most participants had already graduated from high school, we assessed educational aspirations using participants’ responses to the item, “What is the greatest amount of education you expect to have during your life?” along a 6-point

scale (1 = less than high school to 6 = graduate education) (Lefkowitz et al., 1977). D) **Depression** was measured only at age 19, using the participant's score on the MMPI Depression subscale (Hathaway & McKinley, 1940). The lower 25% of the distribution was designated as having a protective factor.

Contextual-level factors: A) **Quality of family interaction at age 8** (Dubow et al., 2008) was assessed by a composite score of four measures: 1) Parental rejection is the sum of scores on 10 items about how "unsatisfied" the parent is with the child, e.g., "Are you satisfied with your child's manners? Does your child read as well as he/she should?"; 2) Parents' endorsement of hitting the child as a form of punishment was the sum of parents' endorsement of physical punishment in response to two vignettes depicting child transgressions; 3) Parental disharmony measures the amount and seriousness of disputes between the parents. It is the sum of 10 items of the form, "Do you or your spouse ever leave the house during an argument?"; and 4) Parental aggression. Eron et al. (1971) adapted 4 items from the Walters and Zak (1959) aggression measure that assesses the parent's tendency to become angry in variety of situations. The composite score was derived through latent variable measurement modeling. Individual scores were standardized, multiplied by factor weights observed in the measurement model, and then summed to create the negative family interaction composite (lowest 25% of the sample represents a protective factor). B) **Religiosity at ages 8 and 19.** Frequency of church attendance (0= never, 1= few times/year, 2= about 1/month, 3= few times/month, 4= once or more/week) was measured at age 8 via parent report and at age 19 via self-report.

Results

Table 1 includes data for men who were interviewed either at age 30 or 48 and/or were New York residents during either time period, and compares those classified as non-violent vs. violent on the continuous risk and protective factors from childhood and adolescence. *T*-tests showed that both risk factors at ages 8 and 19 discriminated the non-violent from the violent men: violent men had higher earlier levels of aggression and lower earlier levels of family socioeconomic status. In addition, four age 8 protective factors distinguished between the violent and non-violent men: non-violent men had higher aggression anxiety, were marginally more popular, had parents who attended church more frequently, and had marginally fewer negative family interactions. Three age 19 protective factors distinguished between the violent and non-violent men: non-violent men had higher aggression anxiety, were more popular, and had higher levels of educational aspirations.

Next, we computed forward stepwise logistic regressions ($p < .10$ required for entry) to explore the independent effects of the predictors. We ran four analyses with the standardized risk or protective factors from each time period separately. Overall, the models predicted criminal violence significantly ($\chi^2(2)$ ranged from 9.39 to 36.74, $p < .01$; Hosmer-Lemeshow tests were non-significant). Lower SES and higher aggression at age 8 independently increased the risk of violence in adulthood, but the effect was marginal for aggression (AOR=2.37, $p < .001$ for SES; AOR=1.24, $p < .10$ for aggression). In adolescence, lower SES and higher aggression independently increased the risk of violence in adulthood (AOR=1.93, $p = .001$ for SES; AOR=2.04, $p < .001$ for aggression). Thus, having at least one

risk factor at either earlier time point at least marginally increased the risk of violence during adulthood. Exploring age 8 protective factors, having parents who attended church more often and experiencing fewer negative family interactions reduced the risk of violence during adulthood, (AOR=.73, $p<.05$ for church attendance; AOR=.79, $p<.10$ for family interactions) though the effect was marginal for family interactions. At age 19, higher educational aspirations and aggression anxiety independently reduced the risk of violence in adulthood (AOR=.66, $p=.01$ for educational aspirations; AOR=.47, $p=.01$ for aggression anxiety).

Next, we explored interactive effects of cumulative childhood and adolescent risk and protective factors on adulthood violent offending. First, we calculated cumulative risk and protective factor sum scores based on the risk and protective factor variables that were significantly related to adulthood violence from the t -test results. For the risk factor sum variable, we summed the four dichotomized risk scores (family SES and peer-nominated aggression in both childhood and adolescence; 1 = upper quartile; 0 = lower 75%), so the sum risk score could range from zero to 4.³ We then dichotomized the risk factor sum score to differentiate between those participants who had no risk factors ($n=87$) and those who had at least one risk factor ($n=124$). Because the measured protective factors varied in childhood and adolescence, we summed the dichotomized protective factors separately for each time point (four variables in childhood, three in adolescence), and then trichotomized the sum of the protective factors at ages 8 and 19 into groups of participants with zero, one, and two or more protective factors (this trichotomization allowed for the maximum number of groups with at least five individuals in each cell when the protective factors were crossed with the two risk groups).

Using these risk and protective sum variables, we computed two forward stepwise logistic regressions ($p<.10$ required for entry) to predict adulthood violent offending-- one for age 8 protective factors and one for age 19 protective factors. As shown in Table 2, both logistic regressions predicted criminal violence significantly and fit the data well (Hosmer-Lemeshow tests were non-significant). Protective factors at age 19, but not at age 8, interacted with risk group to affect the prediction of adult violence (AOR=.306, $p<.001$).

The bottom panels in Table 2 show what these interactions mean. As the number of age 8 protective factors increased for at-risk males, the chances of becoming a violent adult did not change significantly ($\chi^2(2)=2.17$, $p>.10$); however, a protective effect was present for males with no risk factors. As the number of age 8 protective factors increased for these males, the chances of becoming a violent adult decreased substantially.⁴ In contrast, age 19 protective factors significantly reduced the chances of "at risk" males becoming violent adults ($\chi^2(2)=12.93$, $p<.01$), but had no effect on whether "non-at-risk" males grew up to be violent men ($\chi^2(2)=0.56$, $p>.10$). We conclude that the sum of adolescent protective factors

³The risk sum variable required the participant to have been interviewed at each time period, so we did not introduce bias for those only interviewed at age 8, and we were left with a sample of 211 males.

⁴Note that the risk x age 8 protective factor interaction in the previous logistic regression was not significant. That result was obtained using a forward stepwise entry procedure ($p<.10$ for entry). A simultaneous entry procedure yielded a significant risk x age 8 protective factor interaction effect.

serves as buffer against the negative effects of risks, while childhood protective factors are not protective in the presence of risk.

We next examined which specific protective factors (four from childhood, three from adolescence) played a protective role. In the top panel of Table 3, we show that none of the specific age 8 protective factors decreased the chances of becoming a violent adult for those males with at least one risk factor. High age 8 aggression anxiety and age 8 popularity acted as a protective factors for boys with no risk factors but for not for boys with at least one risk factor. In fact, high aggression anxiety at age 8 unexpectedly predicted a greater chance of becoming a violent adult for "at-risk" males. However, the lower panel of Table 3 shows that high aggression anxiety and high educational aspirations at age 19 reduced the chances of becoming a violent adult for males with at least one risk factor ($\chi^2(1)=7.02$, $p<.01$ for aggression anxiety, and $\chi^2(1)=8.65$, $p<.01$ for educational aspirations). However, no protective factors decreased the chances of becoming a violent adult among youth with no risks.

In summary, specific protective factors during adolescence, but not childhood, reduced the likelihood of adulthood violence among participants with at least one risk factor, while specific protective factors during childhood, but not adolescence, reduced the likelihood of adulthood violence among participants with no risk factors

Discussion

Like the other studies in this special issue, we examined two childhood risk factors consistently shown to predict subsequent violence and criminality among youth and young adults: aggression and low family socioeconomic status (e.g., APA, 2013; Herrenkohl et al., 2012; Loeber & Farrington, 1998). Indeed, both at ages 8 and 19, these risk factors independently predicted violence in adulthood. Also, various age 8 and 19 individual and family variables reduced the risk of adulthood violence. Following Losel and Farrington (2012), we found direct independent protective effects (main effects) at age 8 for two family variables (attending church with one's family and experiencing fewer negative family interactions); at age 19, two individual-level variables (higher levels of educational aspirations and aggression anxiety) independently reduced the risk for adulthood violence. These results for predicting violence through age 48 extend previous studies of risk and direct protective effects of similar variables on violence in late adolescence/early adulthood (see the special issue of the *American Journal of Preventive Medicine*, volume 43).

We note some minor differences between the results reported here and those in our previous publications. For example, Huesmann et al. (2002) found that age 8 peer-nominated aggression was the best predictor of violent criminal arrests at age 30, whereas an index of family SES was only a marginally significant predictor. Here, we found that a broader index of family SES was a significant predictor and aggression a marginally significant predictor of a combined measure of adulthood violence by age 48 (criminal arrests and self reports). So, the differences appear to be due to the specific measures of the predictors as well as the measures of adulthood violence.

Rutter (1990) and Losel and Farrington (2012) described risk-buffering protective factors as those factors that reduce the likelihood of negative outcomes in the presence of the risk factor but have less of an impact when the risk factor is not present. We did not find that the number of protective factors in childhood reduced adulthood violence for the at-risk youth; rather, the number of childhood protective factors reduced the likelihood of violence among youth with no risks. However, adolescent protective factors did play a risk-buffering role: for adolescents with at least one risk factor, 52% of those with zero protective factors were classified as violent in adulthood; 28 % were so classified if they had 1 protective factor; and only 6% were classified as violent if they had 2 or more protective factors. The number of protective factors had no effect on adulthood violence for adolescents who had no risk factors. Similar results have been reported by Stattin, Romelsjo, and Stenbacka (1997) who studied over 7,000 Swedish men during late adolescence (ages 18–20) and examined their criminal records between ages 18 and 36. Among men with high behavioral risks (e.g., antisocial behavior, academic problems) in late adolescence, individual-level variables (e.g., emotional maturity, intelligence) reduced the likelihood of criminality, but these resources did not play a protective role for those at low behavioral risk. Using data from the Cambridge Study in Delinquent Development, Farrington and Ttofi (2012) found that in childhood, good family supervision reduced the effect of early problem behaviors on criminal convictions through age 50, and good child-rearing and small family size reduced the effect of poor housing on adult convictions. Although we did not find risk-buffering effects of childhood protective factors, our findings for risk-buffering effects of age 19 educational aspirations and aggression anxiety reflect that bonding to society and self-regulation during late adolescence are critical for prosocial attachments that reduce the likelihood of violence in the presence of earlier risk. This is consistent with a variety of developmental and life-course models of offending (see Farrington & Ttofi, 2014).

Findings that late adolescent protective factors play a significant role in reducing risk for adulthood violence are important in the design of intervention programs. Although intervention programs to reduce delinquency, conduct problems, and violence have been targeted at children successfully (see APA, 2013; Farrington, in press), our findings suggest the need to continue to provide follow-up contact into adolescence to ensure that the success in reducing risks and enhancing protective factors continues into emerging adulthood. In cases where there is a high number of risk factors for violence and an absence of protective factors, these adolescents are candidates for empirically validated, intensive, home-based intervention approaches such as multisystemic therapy and functional family therapy, which have been shown to reduce criminal behavior and substance use (see Boxer & Goldstein, 2012).

Acknowledgments

This research has been supported by funding from the Columbia County Tuberculosis and Health Association and the Hudson (NY) Lions Club (1960 wave); the National Institute of Mental Health (1960, 1970 and 1981 waves); and the National Institute of Child Health and Human Development (2000 wave; R01 HD36056).

The authors wish to acknowledge the pioneering contributions of Leonard Eron, Monroe Lefkowitz, and Leopold Walder to the Columbia County Longitudinal Study.

References

- American Psychological Association. Gun violence: Prediction, prevention and policy. 2013. Retrieved from <http://www.apa.org/pubs/ifo/reports/gun-violence-prevention.aspx>
- Boxer, P.; Goldstein, SE. Treating juvenile offenders: Best practices and emerging critical issues. In: Grigorenko, E., editor. *Handbook of Juvenile Forensic Psychology and Psychiatry*. Springer; US: 2012. p. 323-340.
- Boxer P, Huesmann LR, Dubow EF, Landau SF, Gvirsman SD, Shikaki K, Ginges J. Exposure to violence across the social ecosystem and the development of aggression: A test of ecological theory in the Israeli-Palestinian conflict. *Child Development*. 2013; 84:163–177. [PubMed: 22906188]
- Catalano, RF.; Hawkins, JD. The social development model: A theory of antisocial behavior. In: Hawkins, JD., editor. *Delinquency and Crime: Current Theories*. Cambridge: Cambridge University Press; 1996. p. 149-197.
- Dahlberg, LL.; Krug, EG. Violence: A global public health problem. In: Krug, EG.; Dahlberg, LL.; Mercy, JA.; Zwi, AB.; Lozano, R., editors. *World report on violence and health*. Geneva: World Health Organization; 2002. p. 1-21.
- Dubow EF, Boxer P, Huesmann LR. Childhood and adolescent predictors of early and middle adulthood alcohol use and problem drinking: The Columbia County Longitudinal Study. *Addiction*. 2008; 103:36–47. DOI: 10.1111/j.1360-0443.2008.02175.x [PubMed: 18426539]
- Dubow EF, Boxer P, Huesmann LR. Long-term effects of parents' education on children's educational and occupational success: Mediation by family interactions, child aggression, and teenage aspirations. *Merrill-Palmer Quarterly*. 2009; 55:224–249. DOI: 10.1353/mpq.0.0030 [PubMed: 20390050]
- Dubow EF, Luster T. Adjustment of children born to teenage mothers: The contribution of risk and protective factors. *Journal of Marriage and the Family*. 1990; 52:393–404.
- Eron LD, Huesmann LR. The relation of prosocial behavior to the development of aggression and psychopathology. *Aggressive Behavior*. 1984; 10:201–211.
- Eron, LD.; Walder, LO.; Lefkowitz, MM. *The Learning of Aggression in Children*. Boston: Little Brown; 1971.
- Farrington, DP. The developmental evidence base prevention. In: Towl, G.; Crighton, D., editors. *Forensic psychology*. 2. Oxford: Blackwell; in press
- Farrington, DP.; Ttofi, MM. Protective and promotive factors in the development of offending. In: Bliessner, T.; Beelman, A.; Stemmler, M., editors. *Antisocial behavior and crime: Contributions of developmental and evaluation research to prevention and intervention*. Cambridge, MA: Hogrefe; 2012. p. 71-88.
- Farrington, DP.; Ttofi, MM. Developmental and life-course theories of offending. In: Marizot, J.; Kazemian, L., editors. *The development of criminal and antisocial behavior: Theoretical foundations and practical implications*. NY: Springer; in press
- Farrington DP, Ttofi MM, Loeber R. Protective factors against delinquency. 2014 Manuscript submitted for publication.
- Gottfredson, MR.; Hirschi, T. *A General Theory of Crime*. Stanford, CA: Stanford University Press; 1990.
- Guerra NG, Huesmann LR, Spindler A. Community violence exposure, social cognition, and aggression among urban elementary school children. *Child Development*. 2003; 74:1561–1576. [PubMed: 14552414]
- Hathaway, SR.; McKinley, JC. *The MMPI Manual*. New York: Psychological Corporation; 1940.
- Herrenkohl TI, Tajima EA, Whitney SD, Huang B. Protection against antisocial behavior in children exposed to physically abusive discipline. *Journal of Adolescent Health*. 2005; 36:457–465. [PubMed: 15901510]
- Huesmann, LR. The role of social information processing and cognitive schema in the acquisition and maintenance of habitual aggressive behavior. In: Geen, RG.; Donnerstein, E., editors. *Human Aggression: Theories, Research, and Implications for Social Policy*. San Diego, CA: Academic Press; 1998. p. 73-109.

- Huesmann LR, Dubow EF, Boxer P. Continuity of childhood, adolescent, and early adulthood aggression as predictors of adult criminality and life outcomes: Implications for the adolescent-limited and life-course-persistent models. *Aggressive Behavior*. 2009; 35:136–149. DOI: 10.1002/ab.20300 [PubMed: 19189380]
- Huesmann, LR.; Eron, LD., editors. *Television and the Aggressive Child: A Cross-National Comparison*. Hillsdale, NJ: Lawrence Erlbaum Associates; 1986.
- Huesmann LR, Eron LD, Dubow EF. Childhood predictors of adult criminality: Are all risk factors reflected in childhood aggressiveness? *Criminal Behavior and Mental Health*. 2002; 12:185–208. DOI: 10.1002/cbm.496
- Huesmann LR, Eron LD, Lefkowitz MM, Walder LO. The stability of aggression over time and generations. *Developmental Psychology*. 1984; 20:1120–1134. DOI: 10.1037/0012-1649.20.6.1120
- Lefkowitz, MM.; Eron, LD.; Walder, LO.; Huesmann, LR. *Growing Up to Be Violent: A Longitudinal Study of the Development of Aggression*. New York: Pergamon; 1977.
- Loeber R, Farrington DP. Never too early, never too late: Risk factors and successful interventions for serious and violent juvenile offenders. *Studies on Crime and Crime Prevention*. 1998; 7:7–30.
- Losel F, Farrington DP. Direct protective and buffering protective factors in the development of youth violence. *American Journal of Preventive Medicine*. 2012; 43(2S1):S8–S23. [PubMed: 22789961]
- Luthar SS, Cicchetti D, Becker B. The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*. 2000; 71:543–562. [PubMed: 10953923]
- Patterson, GR. *A Social Learning Approach. Coercive Family Processes*. Vol. 3. Eugene, OR: Castalia; 1982.
- Rutter, M. Psychosocial resilience and protective mechanisms. In: Rolf, J.; Masten, AS.; Cicchetti, D.; Nuechterlein, KH.; Weintraub, S., editors. *Risk and protective factors in the development of psychopathology*. New York: Cambridge University Press; 1990. p. 181–214.
- Sampson RJ, Morenoff JD, Raudenbush S. Social anatomy of racial and ethnic disparities in violence. *American Journal of Public Health*. 2005; 95:224–232. [PubMed: 15671454]
- Smith CA, Farrington DP. Continuities in antisocial behavior and parenting across three generations. *Journal of Child Psychology and Psychiatry*. 2003; 44:1–18.
- Stattin H, Romelsjö A, Stenbacka M. Personal resources as modifiers of the risk of future criminality: an analysis of protective factors in relation to 18-year-old boys. *British Journal of Criminology*. 1997; 37:198–223.
- Stevens G, Hoisington E. Occupational prestige and the 1980 U.S. labor force. *Social Science Research*. 1987; 6:74–105. DOI: 10.1016/0049-089X(87)90019-6
- Stouthamer-Loeber M, Loeber R, Wei E, Farrington DP, Wikstrom PH. Risk and promotive effects in the explanation of persistent serious delinquency in boys. *Journal of Consulting and Clinical Psychology*. 2002; 70:111–123. [PubMed: 11860037]
- Streiner DL. Being inconsistent about consistency: When coefficient alpha does and doesn't matter. *Journal of Personality Assessment*. 2003; 80:217–222. [PubMed: 12763696]
- Sullivan, ET.; Clark, WW.; Tiegs, EW. *California Short Form Test of Mental Maturity*. Los Angeles: California Test Bureau; 1957.
- Thornberry TP. Explaining multiple patterns of offending across the life course and across generations. *The ANNALS of the American Academy of Political and Social Science*. 2005 Nov.602:156–195. DOI: 10.1177/0002716205280641
- Tolan PH, Gorman-Smith D, Henry DB. Developmental ecology of urban males' youth violence. *Developmental Psychology*. 2003; 39:274–291. [PubMed: 12661886]
- Walters RH, Zak MS. Validation studies of an aggression scale. *Journal of Psychology*. 1959; 47:209–218.
- Warner, WL.; Meeker, M.; Eells, K. *Social Class in America*. New York: Harcourt; 1960.
- Werner, EE.; Smith, RS. *Overcoming the odds: High-risk children from birth to adulthood*. Ithaca, NY: Cornell University Press; 1992.

Highlights

- Data come from a community sample followed from ages 8 to 48
- Childhood aggression and low family SES placed youth at risk for adulthood violence
- Adolescent protective factors reduced the likelihood of adulthood violence

Table 1

Predicting the Adult Violence Classification of Men Separately from their Scores on the Assessed Risk and Protective Factors in Childhood and Adolescence

	Means		t-value	Logistic Regression	
	Violent (<i>n</i> = 96)	Non-violent (<i>n</i> = 276)		AOR	<i>p</i>
Childhood risk factors					
Family socioeconomic status	−0.18	0.66	5.78***	0.42	<.001
Peer-nominated aggression	.180	.140	2.23*	1.24	.08
					Logistic χ^2 (2) = 36.7, <i>p</i> < .001
Childhood protective factors					
Family's religious attendance	2.00	2.36	2.03*	0.73	.02
Quality of family interaction	0.09	0.01	1.94 [†]	1.27	.08
IQ	96.31	99.05	1.57		ns
Peer-nominated popularity	.202	.234	1.68 [†]		ns
Peer-nominated aggression anxiety	.13	.150	2.36*		ns
					Logistic χ^2 (2) = 9.4, <i>p</i> < .01
Adolescent risk factors					
Family socioeconomic status	3.28	4.42	4.34***	0.52	.001
Peer-nominated aggression	0.14	0.06	3.99***	2.04	<.001
					Logistic χ^2 (2) = 34.6, <i>p</i> < .001
Adolescent protective factors					
Religious attendance	2.02	2.09	0.26		ns
Depression	57.17	56.87	0.16		ns
Educational aspirations	4.09	4.90	3.20***	0.66	.01
Peer-nominated popularity	0.13	0.17	2.33*		ns
Peer-nominated aggression anxiety	0.03	0.07	3.77***	.47	.01
					Logistic χ^2 (2) = 19.8, <i>p</i> < .001

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Notes: *T* tests were computed for each predictor variable. *N*s range from 187 (educational aspirations) to 372 (peer-nominated measures from childhood) across analyses. The logistic regressions were computed by forward stepwise entry with $p \leq .10$ required for entry. The *ns* for each respective analysis were: childhood risk ($nV=78$, $nNV=240$), childhood protective ($nV=74$, $nNV=232$) adolescent risk ($nV=47$, $nNV=142$), and adolescent protective ($nV=47$, $nNV=140$). AOR = adjusted odds ratio. V = violent. NV = non-violent.

$\dagger$ $p < .10$.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

Table 2

Predicting the Adult Violence Classification of Men from their Combined Child and Adolescent Risk Group and their Childhood or Adolescent Protective Group Classification

	Means		Logistic Regression		
	Violent (<i>n</i> = 96)	Non-viol (<i>n</i> = 276)	<i>t</i> -value	AOR	<i>p</i>
Prediction with childhood protective factors					
Combined risk factors	0.83	0.48	5.11 ***	5.36 ***	.001
Combined protective factors	0.63	0.94	3.25 ***		ns
Interaction of risk and protective factors	0.78	0.35	3.29 **		ns
			Logistic χ^2 (1) = 19.6, <i>p</i> < .001		
Prediction with adolescent protective factors					
Combined risk factors	0.83	0.48	5.11 ***	10.4	.001
Combined protective factors	0.44	0.93	3.96 ***		ns
Interaction of risk and protective factors	0.27	0.41	1.48	0.31	.001
			Logistic χ^2 (2) = 33.9, <i>p</i> < .001		

Percent of adult violent men who were in each Risk/Protective group

	Childhood (age 8) protective group (Sum of childhood protective factors)				Adolescent (age 19) protective group (Sum of adolescent protective factors)			
	0	1	2 or more	χ^2 (2)	0	1	2 or more	χ^2 (2)
Combined child and adolescent risk group								
No risk factors (<i>n</i> =87)	32	11	0		8	13	8	0.56
At least one risk factor (<i>n</i> =124)	31	35	48		52	28	6	12.93 **

Notes: *N*s for t-tests range from 191 (combined risk factors, adolescent protective factors, interaction terms) to 372 (childhood protective factors). The logistic regressions were computed by forward stepwise entry with *p* < .10 required for entry. AOR = adjusted odds ratio. V = violent. NV = non-violent. Chi squares in the bottom panel are tests of the null hypothesis that protective factors have no effect on whether a man ends up in the adult violent or non-violent group for men in the given risk group. *N*'s ranged from 82 (no risk factors) to 109 (at least one risk factor) across analyses.

* *p* < .10.

* *p* < .05.

** *p* < .01.

*** *p* < .001.

Table 3
Percent of Adult Violent Men who are in Each Risk/Specific-Protective-Factor Group

	Childhood protective factors (age 8)											
Combined child and adolescent risk group	Popularity			Aggression anxiety			Family's religious attendance			Quality of family interactions		
	High	Low	$\chi^2(1)$	High	Low	$\chi^2(1)$	High	Low	$\chi^2(1)$	High	Low	$\chi^2(1)$
No risk factors ($n=87$)	2	18	5.32*	2	18	5.67*	0	10	2.20	0	10	2.09
At least one risk factor ($n=124$)	44	35	0.75	58	32	4.45*	41	32	0.65	40	33	0.40

	Adolescent protective factors (age 19)									
Combined child and adolescent risk group	Popularity			Aggression anxiety			Educational aspirations			
	High	Low	$\chi^2(1)$	High	Low	$\chi^2(1)$	High	Low	$\chi^2(1)$	
No risk factors ($n=87$)	8	11	0.18	4	13	1.51	14	7	1.01	
At least one risk factor ($n=124$)	29	39	0.75	13	43	7.02**	12	44	8.65**	

Notes: Each Chi-square is a test of the null hypothesis that a specific protective factor has no effect on whether men in the given risk group end up in the group of violent adult men. For childhood protective factors, n 's ranged from 68 (no risk factors X quality of family interactions) to 109 (at least one risk factor X popularity and aggression anxiety). For adolescent protective factors, n 's ranged from 81 (no risk factors X educational aspirations) to 109 (at least one risk factor X popularity and aggression anxiety).

[†] $p < .10$.
* $p < .05$.
** $p < .01$.
*** $p < .001$.