Young Men's Suicidal Behavior, Depression, Crime, and Substance Use Risks Linked to Childhood Teasing

David C. R. Kerr[1,2,*], **Gianluca Gini**[3], and **Deborah M. Capaldi**[2]

[1]Oregon State University

[2]Oregon Social Learning Center

[3]University of Padua

Abstract

The consequences in adulthood of bullying, teasing, and other peer victimization experiences in childhood rarely have been considered in prospective studies. Studies of peer victimization are mixed regarding whether negative outcomes are explained by pre-existing child vulnerabilities. Furthermore, replication of prior studies with broader definitions and other methods and demographic groups is needed. Based on mother, father, and teacher reports at ages 10–12 years, we classified American boys (n = 206) from higher delinquency neighborhoods as perpetrators of teasing, victims, perpetrator–victims, or uninvolved (*n* = 26, 35, 29, and 116, respectively). Family income, parent and child depressive symptoms, and child antisocial behavior served as controls. Boys were assessed to age 34 years for suicide-attempt history (including death) and adult (ages 20–32 years) suicidal ideation, depressive symptoms, alcohol use, patterned tobacco and illicit drug use, and arrest. Relative to uninvolved boys, means or odds were higher for: suicide attempt among perpetrator–victims; all three groups for depressive symptoms and clinically significant symptoms; arrest for perpetrators and perpetrator–victims; number of arrests and violent arrest among perpetrator–victims; and patterned tobacco use among perpetrators and perpetrator–victims. With childhood vulnerabilities controlled, however, odds remained higher only for suicide attempt among perpetrator–victims, and criminal arrest and patterned tobacco use among perpetrators. Overall, childhood involvement in teasing predicted serious adverse outcomes in adulthood, in some cases beyond childhood risks. Programs that prevent peer victimization and identify already involved individuals for additional services may have positive impacts on the diverse public health problems of suicide, crime, depression, and tobacco use.

Bullying is a proactive form of aggression repeated over time by perpetrators with greater social power than their victims (Gladden, Vivolo-Kantor, Hamburger, & Lumpkin, 2014; Olweus, 1993). Approximately 10–20% of school-age children have been bullied, and 5–15% have bullied others (Due et al., 2005). Both roles present serious risks to children's immediate and longterm psychosocial adjustment and physical health (e.g., Brunstein Klomek, Sourander, & Gould, 2010; Forero, McLellan, Rissel, & Barman, 1999; Gini & Pozzoli, 2013; Kumpulainen, Räsänen, & Puura, 2001), and bully–victims (who bully others and are victimized) are at highest risk (e.g., Gini, 2008; Ladd & Kochenderfer-Ladd, 2002). Clear definitions of bullying have been valuable. Yet, a sole focus on childhood bullying may lead researchers and preventionists to neglect the broader class of deleterious peer experiences (Finkelhor, Turner, & Hamby, 2012). For example, teasing may be experienced frequently and for long periods, but may not be classified as bullying if it is not perpetrated often enough by a given individual. Thus, in the present study, we draw upon the bullying literature but consider broader groups of children who tease others (*perpetrators*), are teased (*victims*), or both (*perpetrator–victims*).

Cross-sectional and some longitudinal studies have linked peer victimization with serious problems (e.g., Ttofi, Farrington, Losel, & Loeber 2011; van Geel, Vedder, & Tanilon, 2014). Yet, few prospective studies exist on the negative impacts of childhood bullying on psychosocial outcomes in adulthood. In the present study, we base our review on prior theoretical and empirical work on childhood bullying in relation to adult psychopathology, suicide risk, substance use, and crime outcomes, and we extend the focus to teasing.

Theory Linking Peer Teasing with Longterm Outcomes

Being teased or bullied in childhood may set the stage for later emotional disorders and suicide risk by contributing to low social status and eroding self-efficacy, interpersonal skills, and connectedness with others (e.g., Swearer & Hymel, 2015). Victimization may be a significant source of stress that interacts with genetic vulnerability for mood disorder (e.g., Gottfredson, Foshee, Ennett, Haberstick, & Smolen, 2015) or alters stress reactivity (Ouellet-Morin et al., 2011). Bullies also are at risk, as they may be socially marginalized and show higher rates of conduct problems, callous-unemotional traits, and depression (e.g., Fanti & Kimonis, 2012; Frick, Cornell, Barry, Bodin, & Dane, 2003); others are popular, so-called socially integrated bullies (Caravita, Gini, & Pozzoli, 2012; Farmer et al., 2010). Yet, relying on manipulation, coercion, and aggression may lead bullies to develop weaker or more hostile relationships with others that increases eventual risk for depression, suicidal thoughts, and suicide attempt (Rodkin, Espelage, & Hanish, 2015). Indeed, evidence from longterm prospective studies and the conceptualization of bullying others as a stressor (Swearer & Hymel, 2015) suggests bullies' longterm risk for depression and suicide warrants further consideration. Consistent with these theories, perpetrator–victims may be at especially high risk.

Substance use may be another manifestation of psychosocial problems. Effects of being a childhood perpetrator or victim on later substance use may be indirect via other maladjustment—for example, using substances to relieve aversive emotional states—or through increased affiliation with other deviant or marginalized individuals prone to substance use (Vieno, Gini, & Santinello, 2011). Other explanations for the association between being a peer victim and substance use may relate to youth's desire to gain social status, be more accepted by peers, and, ultimately, avoid victimization (Ioannou, 2003; Moreno, Brinder, Williams, Walker, & Christakis, 2009; Vieno et al., 2011). Again, perpetrator–victims may be most vulnerable.

Finally, regarding crime, bullies and perpetrators of peer teasing may be at additional risk. If they learn to rely on psychological aggression or coercion to get their way with peers, these tactics may be reinforced and generalized to new circumstances, and may lead youth to affiliate with increasingly deviant peer groups that support criminal behavior (*homophily*; e.g., Hartup, 1996). The link between being teased by peers and later crime risk is less clear. Being victimized may cause youth to become disenfranchised from school and mainstream society, which may increase risk for crime. Alternatively, victims may be less likely to commit crime, particularly violent crime, if their experiences with being overpowered in childhood generalize to passive, fearful, or prosocial behavioral tendencies in adulthood (Swearer & Hymel, 2015). Given the uncertainty and general dearth of longterm prospective studies of bully–victims, further research on adult crime outcomes for victims of teasing and perpetrator–victims is needed.

Commonalities and Limitations of Longterm Prospective Studies

Before we summarize the findings from longterm prospective studies of childhood bullying and victimization, we note some critical methodological and theoretical issues that influenced our approach. First, studies should account for the well-established co-occurrence of victimizing others and being victimized by identifying youth in both roles (e.g., bully–victims in Copeland, Wolke, Angold, & Costello, 2013). Failing to do so obscures whether the risks conferred by one experience are misattributed to the other. Second, given that childhood and family risks predict perpetration, victimization, and myriad negative adult outcomes, here we review studies that adjusted for vulnerability factors. Third, most studies have assessed bullying and being victimized by self-report (exclusively, or in combination with other informants). This is well justified, given that peer victimization may not always be witnessed by adults. However, other informants' reports may be valuable. If parents and teachers can identify peer behaviors that confer serious longterm risks to children, then these adults are well positioned to directly assist with screening and prevention; if not, then such programs must completely rely on what children report. Using multiple informants also is responsive to recent research documenting that bully and victim roles differ across time and contexts (Ryoo, Wang, & Swearer, 2015). Other informants' reports also may have unique value because perpetrator and victim roles are stigmatized and could be minimized on self-reports (e.g., rationalizing aggression; misperceiving others' intent). Additionally, if studies use self-reports to measure both involvement in teasing and problem outcomes, associations may be inflated by shared method variance.

Fourth, longterm prospective studies have differed in terms of the developmental specificity of bullying involvement. For example, Klomek et al. (2009) focused on bullying at age 8 years, which is age specific, but risks that children who bullied at ages 9 or 10 are misclassified. In contrast, Copeland and colleagues' (2013) primary findings were based on these behaviors across ages 9–16 years (less age specific, but low misclassification risk), with follow-up analyses at ages 9–13 and 14–16 years. Finally, prospective studies have varied in terms of the temporal separations between predictors and outcomes. For example, Gibb, Horwood, and Fergusson (2011) used a developmentally specific approach, but since predictions were across only a 1- to 4-year gap (from ages 7–12 or 13–15 years to 16–30 years), effects could have been driven by short-term associations. There are strengths and weaknesses of any approach; thus, constructive replications are needed. We now review longterm prospective studies of associations childhood bullying and peer victimization have with adult depression, suicide risk, substance use, and crime risk, which are relevant to our focus on outcomes of childhood teasing.

Review of Findings from Prior Prospective Studies

Longterm depression and suicide risk outcomes

Several studies support that bullying and being bullied in childhood predict depression and suicide risk into adulthood. However, these roles have been examined simultaneously in only two cohorts. Copeland and colleagues (2013; Great Smoky Mountain Study [GSMS]) tested whether involvement in bullying across a broad age range (ages 9 to 16) predicted psychiatric outcomes at age 26. Once many vulnerabilities were controlled, boys who were bully–victims have higher risk in adulthood for depressive disorders and suicidality than uninvolved boys. Studies based on a large Finnish sample concerned adult outcomes for 8-year-old bullies, victims, bully–victims, or uninvolved youth, but found some different patterns. Female victims had higher rates of suicide attempt and suicide by age 25 than uninvolved children (Klomek et al., 2009). For men, rates at ages 18–23 were higher for suicidal ideation for victims and bully–victims and, for depression, for all three involved groups (Klomek et al., 2008; Sourander et al., 2007b). However, as models were only adjusted for parental education, other differences among involved and uninvolved children (e.g., behavioral and emotional maladjustment) may account for the different longterm outcomes.

In studies of two other cohorts, bullies' and victims' outcomes were examined separately (Gibb et al., 2011; Takizawa, Maughan, & Arseneault, 2014). These document very longterm associations with depression, suicidal thoughts, and attempts once confounds are controlled, but do not clarify the extent to which these confounded peer experiences—bullying others and being bullied—make unique contributions to these adult outcomes.

Longterm substance use outcomes

Researchers have examined bullying and being victimized simultaneously in relation to adult substance use outcomes in only two cohorts. In the GSMS, children involved in bullying (as bullies, victims, or bully–victims) were not at elevated risk for substance use disorders in adulthood (Copeland et al., 2013). In the Finnish study, boys who were victims at age 8

years more often reported daily heavy smoking at age 18 years than uninvolved boys, and bullies more often reported adult illicit drug use, but not frequent drunkenness (Niemelä et al., 2011); again, few individual and contextual confounds were controlled in this latter study.

In four other studies, adult substance use outcomes were examined for bullies or victims, but not simultaneously. Two studies suggested higher adult rates of illicit drug (but not alcohol) use by bullies (Farrington & Ttofi, 2011; Gibb et al., 2011), one found bullying others predicted marijuana use and heavy drinking at age 21 years (Kim, Catalano, Haggerty, & Abbott, 2011), and one found no effect of being bullied on adult alcohol dependence (Takizawa et al., 2014). These studies highlight that childhood peer victimization is associated with adult substance use, but generally did not discern among outcomes for bullies, victims, and bully–victims.

Longterm crime outcomes

Only three studies have considered adult-crime outcomes for victims or bully–victims. First, Sourander et al. (2007a) examined Finnish boys' (age 8 years) bullying experiences in relation to official criminal offense records from ages 16–20 years. Bullies and bully–victims (but not victims) more often committed any crime than the uninvolved children, and specific crimes such as violent offenses; all three involved groups more often committed a property crime. However, effects did not appear to persist when childhood problems were controlled. Second, in unadjusted comparisons in GSMS, bullies and bully–victims (but not victims) more often had an official felony charge and more often self-reported having committed a break in at ages 19–26 years than uninvolved children (Wolke, Copeland, Angold, & Costello, 2013). Although they did not consider crimes as distinct outcomes in adjusted analyses, an adult "risky and illegal behavior" index was significantly elevated in bully–victims. Third, Gibb and colleagues (2011) examined bullying and being bullied, but not simultaneously. Curiously, they found that whereas rates of self-reported property offenses at ages 16–30 were higher among children who had been victims at ages 13–15 years than among nonvictims, the same was not true for 13–15-year-old bullies relative to nonbullies. However, as expected, children who were bullies at ages 7–12 more often self-reported engaging in a violent offense and being arrested or convicted at ages 16–30 years than did nonbullies. Findings are difficult to interpret in relation to the prevailing approach of distinguishing among perpetrators, victims, and perpetrator–victims.

Other studies of adult crime outcomes have only concerned childhood bullying perpetration. Findings are mixed and have linked bullying to self-reported violence at age 21 (Kim et al., 2011); self-reported antisocial behavior and contacts with police and courts at age 19–20; and antisocial behavior at ages 23–24—but not criminal violence (Renda, Vassallo, & Edwards, 2011) and conviction for a violent offense at ages 15–20 (Farrington & Ttofi, 2011).

The Present Study

In sum, longterm prospective studies highlight that bullying and being bullied in childhood are associated with increased risk for myriad negative outcomes in adulthood. In general, the

domain of the problems appears to depend on whether a child perpetrated bullying, was victimized by peers, or both. The clearest examples are that bullies show higher rates of crime and problematic substance use. For depression and suicide-related outcomes, there are group differences within studies, but there are not clear and consistent patterns across studies.

The present study addresses the limitations of many prior studies and offers replication with different methods and a broader group of children involved in peer victimization (vs. bullying only). It also extends the focus to American boys from at-risk circumstances. Teasing perpetrators, victims, perpetrator–victims, and uninvolved boys were identified at ages 10–12 and followed to age 34 years. We focused on ages 10–12 for theoretical reasons (bullying is common by this age, and this period marks the end of childhood and precedes the period of peak onset for the outcomes considered here), and methodological and pragmatic ones (ensuring temporal separation between predictors and outcomes; the period is developmentally specific; and children have more extensive contact with a single teacher at these ages compared to older ages).

We first predicted that involvement in teasing (as a perpetrator, victim, or perpetrator– victim) would increase risk for suicidal ideation, suicide attempt, depressive symptoms, and substance use in adulthood. Second, we expected involvement as a perpetrator or– perpetrator victim to predict criminal arrest and violent arrest relative to uninvolved children. In all models, we controlled for late childhood vulnerabilities for involvement in teasing— specifically, family income, parental and child depressive symptoms, and child antisocial behavior—given the links these issues have with peer victimization (e.g., Swearer & Hymel, 2015) and the outcomes.

Method

Participants

Participants were 206 boys recruited during two school years (1983–1985) to the (*authors blinded*), a study of individual and contextual risks for delinquency. Schools with the highest rates in their neighborhood of police-reported delinquent episodes by juveniles in a medium-sized metropolitan region were selected for recruitment. Then entire fourth-grade classes of boys in these schools were invited to participate; 74% were recruited (*authors blinded*, 1989). Most families were classified as low socioeconomic status; 90% of boys were White. Boys were assessed annually from ages 10 to 32 (except for age 27), and again at age 34 years. The boys' parents and teachers also contributed assessments regularly through boys' adolescence.

Measures

Teasing perpetration and/or victimization (ages 10–12 years)—Mothers, fathers, and teachers each completed the Child Behavior Checklist or Teacher Report Form (Achenbach & Edelbrock, 1983) when the boys were ages 10, 11, and 12 years regarding behavior over the past 6 (parents) or 2 (teachers) months. Items were rated on 3-point scales (0–*not true*, 1–*somewhat or sometimes true*, 2–*very true or often true*). Definitions and

research on the ill effects of bullying and peer victimization highlight the repetitive nature of victimization (Olweus, 1993). Thus, we focused on teasing that adults judged to be notable and frequent (rating of "2") rather than teasing they considered to be equivocal, infrequent, or transient ("1").

As a first step, children were classified as victims or nonvictims based on 9 responses (i.e., 3 informants x 3 time points) to the item "*gets teased a lot*." If any informant made a rating of "2" at any time, then the child was coded as a victim; otherwise the child was coded as a nonvictim. As a second step, we utilized three informants' ratings at the three time points on two perpetration items (i.e., 18 items)—"*cruelty, bullying, or meanness to others*" and "*teases a lot*". We reasoned that in order to categorize a child as a perpetrator of malicious teasing, an informant had to consider one of these items to be "*very or often true*" and also consider the other item to be at least "*somewhat or sometimes true*"; for example, a child who teases a lot ("*very true*") but does not show cruelty, bullying, or meanness was not considered a perpetrator. Thus, children were classified as perpetrators if any informant's average rating in any given year was 1.5 or 2; otherwise, children were coded as nonperpetrators. In the final step, 4 mutually exclusive groups (based on the above distillations across 27 items) were created: 116 uninvolved children (nonperpetrator and nonvictim), 26 teasing victims (victim and nonperpetrator), 35 perpetrators (perpetrators and nonvictim), and 29 perpetrator–victims (perpetrator and victim).

Probing of teasing groupings—We next examined features of reliability and validity of the four-group classification. First, two continuous (though zero-inflated and skewed) measures of teasing at ages 10–12 were created by calculating the mean within each informant across the three ages, and then the mean across the three ages. Then we compared the four groups on these two variables. Although the considerable dependence for some groups violates assumptions of ANOVA, these comparisons highlighted whether the highest rating—which determined involvement category—was representative of the ratings across informants and years, and whether the four groups were distinguishable in terms of overall teasing perpetration and victimization experiences across time and contexts. For perpetrator scores, a four-group ANOVA was significant, $F(3, 202) = 82.48$, $p < .001$, and post-hoc tests indicated that, as expected, perpetrators and perpetrator–victims had significantly higher perpetration scores than victims and uninvolved children, whereas there were no differences between victims and uninvolved children or between perpetrators and perpetrator–victims. A four group ANOVA for victimization scores also was significant, $F(3, 202) = 119.99$, $p < .001$, and post-hoc tests showed that all pairwise comparisons were significant (perpetrator–victims > victims > perpetrators > uninvolved; $p < .001$). Thus, the groups generally differed in expected ways in terms of victimization experiences; however, the perpetrator group had experienced more teasing than uninvolved youth, and perpetrator–victims also differed from victims not just in their perpetration but also in their particularly high levels of victimization.

As one indicator of cross-time stability, continuous, multi-informant (mother, father, teacher) aggregate measures of teasing perpetration and victimization were created by averaging across the same CBCL/TRF items across ages 13–16 years. Then the present four groups (based on ages 10–12) were compared on the two scores (based on ages 13–16 years) using ANOVAs. The groups differed in anticipated ways on these two scores ($F[3, 193] = 26.17$

and 28.12, respectively, $p < .001$), supporting that the age 10–12 years grouping captured stable experiences.

Finally, to investigate validity, we considered whether the CBCL "*gets teased a lot*" item might be interpreted by informants as inclusive of good-natured joking (even though the item appeared on a long checklist of undesirable behaviors) or teasing from adults. Thus, we compared the mean of mother and father reports on the item administered at ages 13, 14, 15, and 16 years to a mean of mother and father reports at the same ages on an item from (*authors blinded*, 1985) ("*How often do other kids pick on or tease your son*?" [1-*never* to 5-*very often*]; i.e., mean across 2 informants x 4 timepoints = 8 responses). Unfortunately, these items were not administered before age 13 years. The correlation between the mean of CBCL items and the mean of the (*authors blinded)* items, $r(198) = .719$, $p < .001$, provided some additional support that the former items are relevant to peer teasing. In order to maintain a focus on late childhood and a temporal separation among predictors and the mediator and outcomes, we did not further examine the age 13–16-year measures in the present study.

Childhood Risks

Family income (son ages 10–12)—Parent income was assessed by interview at ages 10, 11, and 12 years, averaged ($r = .79–.88$), and divided by 10,000 (for scaling purposes).

Parental depressive symptoms (son ages 10–12)—Parents completed the Center for Epidemiologic Studies Depression Scale (CES D; Radloff, 1977) when the children were ages 10, 11, and 12 years. We calculated cross-time means within informant and then the mean of mothers' ($n = 198$) and fathers' ($n = 153$) scores (which correlated $r[145] = .37$, $p < .001$).

Childhood depressive symptoms (ages 11–12)—A mean was calculated from the standardized scores on the Depression Self-Rating Scale (Birleson, 1981; Birleson, Hudson, Buchanan, & Wolff, 1987) that was administered at ages 11 and 12 (but not at age 10 years).

Childhood antisocial behavior (to age 13)—Boys first completed the 30-item Elliott Delinquency Scale (Elliott, Ageton, Huizinga, Knowles, & Canter, 1983) of antisocial behaviors (theft, vandalism, violence) of varying severity at age 13 years. The sum of the number of acts in the past year was calculated (counts for each act were not allowed to exceed 365). A log transformation reduced skewness. History of arrest (1) or not (0) by age 13 years was obtained from juvenile court record searches in the locales where boys had lived. We calculated the mean of z-transformed antisocial acts and arrest variables (which correlated $r[199] = .27$, $p < .001$).

Adult Outcomes

Suicide attempt or death (age 13–34)—At age 16 and 17 years, boys ($n = 200$; 202) and their parents ($n = 197$; 200) reported on boys' lifetime suicide-attempt history and age at attempt on a diagnostic interview (Shaffer, Fisher, Piacentini, Schwab-Stone, & Wicks, 1989). At age 26 years, men ($n = 199$) reported on whether they had ever attempted suicide

during a 2-week period of sadness. By age 34 years, three participants had died, with two confirmed suicides. At age 34 years, 81% ($n = 164$) of still living participants ($n = 203$) completed an interview regarding their lifetime history of suicide attempts and age at the time of each. Any report of attempt was counted as a positive history; for a given attempt, we recorded the youngest age any informant reported that it had occurred. Using the above information, all 206 participants were coded according to whether (1) or not (0) they attempted or died by suicide after age 12 years (to avoid temporal overlap with childhood teasing).

Suicidal ideation (ages 20–32)—At each assessment, from ages 20–26 and 28–32 years, participants completed a past-week suicidal-ideation item (Beck, 1967). Those who reported "*I think about killing myself but would not do it,*" "*I would like to kill myself,*" or "*I would kill myself for sure if I had the chance*" were classified as endorsing suicidal ideation (coded 1) at that time point; those who responded "*I do not think about killing myself*" were coded 0.

For a follow-up analysis, we also considered boys' reports of suicidal ideation measured in the same way from ages 13 to 19 years, and we then excluded participants who never reported ideation from ages 13–32 years. Excluding these participants from this analysis was intended to rule out the possibility that group differences in rates of suicide attempt were best explained by differences in suicidal ideation (see Klonsky, May, & Saffer, 2016).

Depressive symptoms (ages 20–32 years)—Men completed the CES–D annually from ages 20–26 and 28–32 years. At each age we also coded whether (1) or not (0) men reported clinically significant symptoms (score 16; Radloff, 1977).

Arrests and violent arrest history (ages 20–32)—The number of times men were arrested each year was derived from official juvenile and adult court record searches conducted regularly in the locales in which participants had ever lived. Arrest records included the date and type of each offense. Arrests related to protective custody, minor traffic violations, and contempt of court were excluded. Total arrests from ages 20–32 years was used as a count outcome. There was not enough variance in numbers of arrests for violent offenses by teasing category (e.g., two total for victims) to model this variable as a count outcome; thus, this outcome was coded as the presence (1) or absence (0) of an adult arrest for a violent offense.

Substance use (ages 20–32)—Annually from ages 20–26 and 28–32 years, men reported on the frequencies of their past-year use of alcohol, tobacco, marijuana, and other drugs; responses were recoded to a 9-point scale (0 = *no use*, 1 = *once or twice*, 2 = *every 2–3 months*, 3 = *once per month*, 4 = *every 2–3 weeks*, 5 = *once per week*, 6 = 2–3 *times per week*, 7 = *once per day*, 8 = *2–3 times daily*). Alcohol-use frequencies appeared to follow a quadratic trend over time. Given that modeling age trends across this period was beyond the scope of this study, we created a mean of standardized scores across the follow-up ($\alpha = .92$) to represent men's average deviations from the sample means at each age.

The distributions for tobacco use each year were bimodal, and 29% of the men never showed patterned (weekly or more) use whereas 40% did at 10 or more assessments. Given our prior studies with this sample showing the stability of tobacco use from ages 18–32 years (about one third achieved 12 months of abstinence, and more than one half of them relapsed before age 32 years; *authors blinded*, 2011) we judged it to be most meaningful to classify men according to whether they *ever* (1) or *never* (0) showed patterned use at any adult follow-up.

Illicit drug use—an average of marijuana (which was illegal at the time) and other drug use frequencies—was zero inflated, as is typical for such drug use, where a relatively large proportion of individuals never use. As the primary outcome, we created a variable based on whether men ever (1) or never (0) reported patterned (weekly or more) illicit drug use. We also explored zero-inflated models based on mean use frequencies.

Data Analysis

We selected the most informative and feasible regression approach, given the distribution of each outcome. We did not have hypotheses about growth or onset processes for the outcomes during the young-adult period. Instead, outcomes represent summaries of functioning, behavior, or status across this period (or for suicide attempt, from age 13 years through the young-adult period). When possible, we retained the variability in the outcomes by developing latent factor models; specifically, prior to running prediction models, we fit latent factors for depressive symptoms (continuous factor indicators; maximum likelihood [ML] estimator) and clinically significant depressive symptoms and suicidal ideation (binary factor indicators; WLSMV estimator). In the case of alcohol use, which showed nonlinear age trends, it was modeled as an observed mean of scores standardized at each age. Arrests were modeled as a zero-inflated poisson (ZIP) count outcome, with simultaneous prediction to no arrest history and to number of arrests among those who were ever arrested (using ML with robust standard errors [MLR]). The other outcomes—suicide attempt, history of arrest for a violent crime, and patterned tobacco and illicit drug use—were modeled as binary outcomes using logistic regression (ML), given their distributions. All regression analyses were conducted using the default estimators in Mplus, which employed full information maximum likelihood for missing outcome data.

Once the modeling approach was determined, each outcome was first regressed on three dummy coded (0, 1) teasing perpetration/victimization variables, using uninvolved youth as the referent. Then the four control variables were added to each model to determine whether any significant effects of the teasing variables persisted.

Results

Control variables generally were intercorrelated and means differed according to teasing role (see Table 1), supporting the need for controls in primary models. As shown in Table 1, rates of negative adult outcomes were high, reflecting participants' at-risk recruitment status and the repeated measurement approach. For example, although rates of suicidal ideation were relatively low at any individual timepoint (i.e., ranging from 2.6% [$n = 5$] at age 29 to 11.4% [$n = 23$] at age 23 years), 32% ($n = 66$) reported ideation at one or more adult timepoint.

Table 1 also shows the means and proportions of the outcomes (or observed versions of them, in the case of the latent outcomes) by teasing perpetration and victimization groups. Next, for each outcome, group differences in unadjusted and adjusted models were formally examined.

Suicidal ideation—A latent variable model was developed with binary indicators measured at ages 20–32 years. In the initial model there was a singularity between ideation at age 28 years and the prior time point that interfered with model specification. Given that this item also had a weaker loading on the latent variable (β = .44, p < .001) than any other time point (β = .65–.96, p < .001), it was omitted from the factor in the subsequent modeling. Additionally, cell counts at ages 29 and 31 years were too low for some analyses. These variables were replaced with one indicating whether or not ideation was reported at either age. This modified model fit adequately (χ^2 [df = 35] = 43.36, p = .16; RMSEA = . 034; CFI = .981; TLI = .976; WRMR = .696).

The latent variable was then regressed on the teasing variables. None of the involved groups showed significantly different rates of suicidal ideation than the uninvolved group; specifically, victims (B[SE] = −.07 [.26], β = −.03), perpetrators (B[SE] = .18 [.26], β = . 07), or perpetrator–victims (B[SE] = −.14 [.23], β = −.05). As shown in Table 2, parent depressive symptoms was the only control variable to uniquely predict increased rates of ideation.

Suicide attempt—In logistic regression, perpetrator–victims (B[SE] = 2.12 [.51], β = .38, odds ratio [OR] = 8.39, p < .001) were more likely to attempt suicide than uninvolved youth; victims (B[SE] = .44 [.71], β = .07, OR = 1.55) and perpetrators (B[SE] = .90 [.57], β = .17, OR = 2.46) were not (threshold B[SE] = 2.48 [.35]). The effect was robust to controls for childhood risks, of which only parental depressive symptoms was a significant predictor (see Table 2).

Next, we explored these effects within the 117 (56.8%) participants who reported suicidal ideation at least once from ages 13–32 years. First, we found support for the validity of the suicidal ideation measure, as those who ever endorsed it from ages 13–32 years had a six-fold higher odds of attempting suicide during this period (logistic regression, B[SE] = 1.80 [. 56], OR = 6.07, p = .001) than those who did not. Rates of suicide attempt among those with suicidal ideation were 13.3% (n = 8 of 60) in uninvolved, 11.8% (n = 2 of 17) in victims, 27.3% (n = 6 of 22) in perpetrators, and 55.5% (n = 10 of 18) in perpetrator–victims.

The pattern was the same within participants who had ever ideated as in the total sample: perpetrator–victims (B[SE] = 2.02 [.68], β = .36, OR = 7.56, p < .01), but not victims (B[SE] = −.46 [.90], β = −.08, OR = .63) or perpetrators (B[SE] = .78 [.66], β = .15, OR = 2.17), had higher odds of attempting suicide than uninvolved children (threshold [SE] = 2.18 [. 63]). In this model, parental depressive symptoms (B[SE] = .48 [.28], OR = 1.61, p = .09) was only a marginally significant predictor, whereas income, child depressive symptoms, and antisocial behavior were not significant predictors (B[SE] = .16 [.27], −.06 [.30], and −. 14 [.34], respectively).

Depressive symptoms—This outcome was modeled as a latent factor with continuous indicators measured at ages 20–32 years. Cross-time covariances were specified until the unconditional model fit (χ^2 [$df = 40$] = 48.35, $p = .17$; RMSEA = .032; CFI = .991; TLI = .986; SRMR = .040); all measures loaded significantly ($\beta = .46$–$.76$, $p < .001$). When this factor was regressed on the teasing groups, higher depressive symptoms were found for perpetrators (B[SE] = 3.45 [1.17], $\beta = .23$, $p < .01$), victims (B[SE] = 2.72 [1.30], $\beta = .16$, $p < .05$), and perpetrator–victims (B[SE] = 3.78 [1.26], $\beta = .23$, $p < .01$) relative to uninvolved youth. However, as shown in Table 2, only the effect of perpetration remained after controlling for childhood vulnerabilities, and only at a marginally significant level.

Next, a latent factor was modeled with binary indicators corresponding to the presence or absence of clinically significant depressive symptoms at ages 20–32 years. The score at age 28 years was omitted due to model nonspecification. Covariances were specified until an adequate fit was achieved (χ^2 [$df = 37$] = 30.77, $p = .76$; RMSEA = .000); all measures loaded significantly ($\beta = .50$–$.82$, $p < .001$). As with the prior model, perpetrators (B[SE] = .46 [.19], $\beta = .23$, $p < .05$), victims (B[SE] = .43 [.19], $\beta = .19$, $p < .05$), and perpetrator–victims (B[SE] = .64 [.19], $\beta = .29$, $p < .01$) had higher probabilities of clinically significant symptoms. Again, however, with the exception of a marginally significant effect for perpetrator–victims, the effects were not robust to controls for childhood factors, none of which were unique predictors.

Arrests—Teasing groups were then compared in terms of probability of having zero arrests (inflation outcome) and, simultaneously, number of arrests (count outcome). The initial model was not identified due to a single outlier (with 24 arrests). The model ran when this value was capped at 18, which was one higher than the next highest number of arrests.

For the zero portion of the model, perpetrators (B[SE] = −1.33 [.44], $\beta = −.26$, OR = .27, $p < .01$) and perpetrator–victims (B[SE] = −1.32 [.46], $\beta = −.24$, OR = .27, $p < .01$), but not victims (B[SE] = −.62 [.48], $\beta = −.11$, OR = .54), had decreased likelihoods of no arrest, relative to uninvolved youth (intercept [SE] = .35 [.19], $\beta = .19$, $p = .07$); inversely, these translate to an increased odds of arrest among perpetrators (OR = 3.77) and perpetrator–victims (OR = 3.75), but not victims (OR = 1.86) relative to uninvolved youth. The count portion of the model indicated that perpetrator–victims had a greater number of arrests (B[SE] = .52 (.22), $\beta = .83$, $p < .01$) than uninvolved youth (intercept [SE] = 1.38 [.15], $\beta = 6.38$, $p < .05$), whereas victims (B[SE] = −.29 [.36], $\beta = −.44$) and perpetrators (B[SE] = .04 [.24], $\beta = .06$) did not.

As reported in Table 2, the perpetrator and (marginally) perpetrator–victim roles remained significant as predictors of any arrest, but not of number of arrests after controlling for childhood vulnerabilities. Childhood antisocial behavior was a significant predictor of both outcomes.

Next, for violent arrest, a binary outcome was modeled using logistic regression. Perpetrator–victims (B[SE] = .96 [.45], OR = 2.61, $p < .05$) more often were arrested for a violent crime than uninvolved youth (threshold [SE] = 1.45 [.24], $p < .001$); victims (B[SE] = −1.03 [.77], OR = .36) and perpetrators (B[SE] = .39 [.45], OR = 1.48) were not. With

childhood vulnerabilities controlled (see Table 2), the effect was no longer significant, although a marginal effect emerged suggesting victims had a reduced odds of violent arrest in adulthood. Parental depressive symptoms (marginally) and childhood antisocial behavior predicted violent arrest.

Alcohol use—A linear regression model indicated that, in adulthood, childhood perpetrators (B[SE] = −.28 [.14], β = −.15, $p < .05$) used alcohol less frequently than uninvolved children (intercept [SE] = .09 [.07]); victims and perpetrator–victims (B[SE] = −.20 [.16] and −.15 [.15], β = −.09 and −.07, respectively) did not. As reported in Table 2, the effect of the perpetrator role was only marginally significant once childhood factors were controlled.

Patterned tobacco use—In a logistic regression, patterned tobacco use was more likely among childhood perpetrators (B[SE] = 1.91 [.63], OR = 6.76, $p < .01$) and perpetrator–victims (B[SE] = 1.38 [.57], OR = 3.96, $p < .05$), but not victims (B[SE] = .36 [.47], OR = 1.43), relative to uninvolved children (Threshold [SE] = −.46 [.19], $p < .05$). The effect only persisted for perpetrators when childhood vulnerabilities (none of which were significant) were controlled.

Patterned illicit drug use—There were no significant effects on drug use for the teasing groups relative to uninvolved youth (Threshold [SE] = .07 [.19]); specifically, there were no effects for victims, perpetrators, or perpetrator–victims (B[SE] = .07 [.43], .47 [.39], .42 [.42]; OR = 1.07, 1.61, 1.52, respectively). The model was essentially unchanged with entry of the control variables (see Table 2); child antisocial behavior, but no other control, was independently associated with increased odds of patterned drug use. To be thorough, we also explored mean frequency of illicit drug use across the follow-up ages, accounting for zero inflation, given that approximately 21% of the sample never used an illicit drug. Still, there were no teasing effects.

Discussion

A wide range of serious problems in early adulthood—suicide attempt, criminal arrest, and patterned tobacco use—were found to vary by experiences boys had with teasing at ages 10 to 12 years, independent of the higher parental depressive symptoms, childhood depressive symptoms and antisocial behavior, and lower family income associated with these experiences. Thus, our primary findings were largely consistent with those from prior studies of bullying, but also indicate that involvement in teasing more generally has longterm maladjustment consequences and disproportionately affects children who are already at significant disadvantage. On balance, we found that most negative outcomes experienced by children involved in teasing were explained by pre-existing or concurrent vulnerabilities.

Prospective studies have not provided converging evidence regarding the longterm consequences of bullying and being victimized in childhood. Thus, the current study has value as one of the very few longterm prospective studies that can illuminate these issues and extend the focus to more general teasing. Other methodological strengths of this study,

which may be used to enhance future work, included use of teacher, mother, and father reports of teasing; father reports, in particular, are rarely represented. The multi-informant approach should increase confidence that teasing perpetration and victimization were detected. Furthermore, the use of self-reports and official records to assess adult outcomes means that predictive associations were not inflated by shared method variance. The very longterm follow-up, utilization of repeated measures (nearly annually in most cases), use of latent variable models to capture the variability in some outcomes, and the clear temporal separation between the predictors and outcomes (except suicide attempt) also are clear strengths. Additionally, this study replicates and extends findings from prior bullying studies to American boys from at-risk contexts who demonstrated relatively high rates of suicide risk, substance abuse, crime, and depression in later years.

Perpetrators of teasing and (marginally) perpetrator–victims were more often arrested in adulthood than were boys who were uninvolved in teasing. Prior studies of bullying (e.g., Sourander et al., 2007a) did not find similar effects after controlling for childhood risks; additionally, no other longterm studies of crime outcomes have examined teasing, and few studies of bullies' outcomes used official arrest records or accounted for the perpetrator–victim role. Although we did not examine mechanisms of these effects, perpetrators of malevolent teasing in childhood may become reliant on this interpersonal strategy to relate to others and gain social status. This approach may interfere with their inclusion in prosocial, mainstream peer groups and increase the likelihood of affiliation with deviant peers who encourage criminal behavior. Regarding teasing victims, we noted a trend that, to our knowledge, has not been reported previously: that they were especially unlikely to be arrested for violent crime. This requires replication but may be explained by unmeasured characteristics of victims such as higher temperamental inhibition, fearfulness (Swearer & Hymel, 2015), or prosocial tendencies.

The current study is only the second to find that childhood perpetrators of peer victimization were more likely to use tobacco regularly in adulthood than other children (Niemelä et al. [2011] examined bullies). Other studies of tobacco did not examine perpetration or found the pattern only when childhood risks were not controlled (e.g., Takizawa, Danese, Maughan, & Arseneault, 2015). We speculate that perpetrators' increased risk of tobacco use reflects the aforementioned selection into deviant peer groups where such behavior is more common. However, unlike other studies of other types of substance use (e.g., Niemelä et al., 2011), we did not find that involvement in childhood teasing was linked with alcohol-use frequency or patterned illicit drug use in adulthood; indeed, if anything, men who teased others in childhood showed less frequent alcohol use than uninvolved men. Differences in the timing and type of substance use measurement may account for disparate findings across studies.

Being both a perpetrator and a victim of teasing was relatively common (14% of the sample). As in prior research, these boys showed the most consistent increased risk across the adult-problem outcomes. It is possible that these boys more consistently (across time or contexts) experienced victimization than boys classified as victims and tended to show high levels of most vulnerability factors. In general, the poor outcomes associated with being a teasing perpetrator–victim did not persist when these vulnerabilities were controlled. However, an important exception was that the risk of suicide attempt was pronounced for the

perpetrator–victim group, even in controlled models. Perpetrator–victims may more often have the dangerous combination of characteristics that distinguish those who think about suicide from those who are able to attempt or die by suicide (e.g., burdensomeness; low connectedness; dispositional, acquired, and practical capacities to enact lethal self-harm; Joiner et al., 2009; Klonsky et al., 2016).

The lack of group differences in suicidal ideation in adulthood was surprising, given the differences on depression and attempt and the association between suicidal ideation and attempt. Adolescence is a high-risk period for suicidal thoughts and behavior (Turecki & Brent, 2016). It is possible the associations teasing perpetration and victimization in childhood had with suicide attempt from ages 13–34 years reflected shorter-term consequences, whereas associations with suicidal ideation (ages 20–32 years) represented only distal risks that remained into adulthood.

Our separate consideration of suicidal ideation and suicide attempt was responsive to current nomenclature recommendations (Crosby, Ortega, & Melanson, 2011) to avoid imprecise outcomes such as *suicidality* or *suicide risk.* Our analysis approach also was guided by Klonsky and colleagues' (2016) discussion of ideation-to-action theoretical frameworks and the observation that most *suicide risk factors* predict ideation but not the critical minority of ideators who attempt suicide. It is important and a novel finding that being a perpetrator–victim (compared to being uninvolved) was associated with increased risk of suicide attempt in the general sample and within the subgroup of ideating men.

Teasing perpetrator, victim, and perpetrator–victim statuses were more prevalent in this (*authors blinded*) sample than in other studies of bullying. This may reflect the at-risk nature of the sample, the inclusion of teasing in general (not just by bullies), and the measurement of these behaviors over multiple ages and contexts (mother, father, or teacher at ages 10, 11, or 12 years). This latter point is consistent with Ryoo and colleagues' (2014) findings that bully and victim roles are more fluid and dynamic across time and context than most research suggests.

Limitations

Although we argue that reports of teasing by the adults in children's lives are valuable for multiple reasons, the absence of self- or peer reports can be viewed as a limitation. Given that childhood teasing occurs within a peer culture (e.g., humor, slang, media references), adults may have difficulty detecting it compared to children and their peers. Additionally, the measures had restricted variance (three-point scale) and did not reflect all components of contemporary definitions of bullying (e.g., repetition, power imbalance), which complicates comparisons with prior research. A third limitation was the relatively small sample size and our consideration of small subgroups, both of which constrain statistical power. Fourth, the sample was primarily White low-income American boys living in the 1980s, when there was less adult awareness and intervention directed at preventing bullying (Espelage & Swearer, 2004).

Implications

Bullying others and being bullied present longterm hazards to the health and well-being of children. Our findings suggest this is also true for teasing, and lend credence to Finkelhor and colleagues' (2012) argument that narrow definitions of bullying may cause researchers and preventionists to ignore other pervasive, negative experiences children have with peer victimization. Fortunately, our work and others' indicates that parents, teachers, health practitioners, and peers can detect, prevent, and intervene on bullying, teasing, and other forms of peer victimization. School- and community-based prevention are making use of literature on malleable risk and protective factors for bullying involvement and ways in which bullies, victims, and bully–victims differ from each other and from their uninvolved peers on psychosocial characteristics; this work may also be relevant to teasing more generally. Bullies have greater needs for sensation, are popular and share friendships with other popular peers, and evaluate information more positively when they are targeted indirectly or when information comes from their peers (e.g., peer education; Olweus, 1993). Conversely, victims often show low self-esteem, are less sociable, and are members of smaller social networks. Thus, victims may benefit more from professional intervention, such as self-esteem or social-skills training. Systematic investments in bullying prevention have been able to reduce its incidence over time, but further work is needed (Vieno et al., 2015). Applying what has been learned about bullying prevention to teasing may be fruitful. Finally, the findings suggest that policymakers and practitioners in the prevention of peer victimization may be powerful allies in the seemingly separate fields of tobacco, crime, and suicide prevention.

References

Achenbach, TM., Edelbrock, CS. Manual for the Child Behavior Checklist and the Revised Child Behavior Profile. Burlington, VT: Thomas M. Achenbach; 1983.

Beck, AT. Depression: Clinical, experimental, and theoretical aspects. New York: Harper and Row; 1967.

Birleson P. The validity of depressive disorder in childhood and the development of self-rating scale: A research report. Journal of Child Psychology and Psychiatry. 1981; 22:73–88. [PubMed: 7451588]

Birleson P, Hudson I, Buchanan DG, Wolff S. Clinical evaluation of a self-rating scale for depressive disorder in childhood (Depression Self-Rating Scale). Journal of Child Psychology and Psychiatry. 1987; 28:43–60. [PubMed: 3558538]

Brunstein Klomek A, Sourander A, Gould MS. The association of suicide and bullying in childhood to young adulthood: A review of cross-sectional and longitudinal research findings. Canadian Journal of Psychiatry. 2010; 55:282–288. [PubMed: 20482954]

Caravita SCS, Gini G, Pozzoli T. Main and moderated effects of moral cognition and status on bullying and defending. Aggressive Behavior. 2012; 38:456–468. [PubMed: 22898969]

Copeland WE, Wolke D, Angold A, Costello AJ. Adult psychiatric outcomes of bullying and being bullied by peers in childhood and adolescence. JAMA Psychiatry. 2013; 70:419–426. [PubMed: 23426798]

Crosby, AE., Ortega, L., Melanson, C. Self-directed violence surveillance: Uniform definitions and recommended data elements, Version 1.0. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2011.

Due P, Holstein BE, Lynch J, Diderichsen F, Gabhain SN, Scheidt P. … Health Behaviour in School-Aged Children Bullying Working Group. Bullying and symptoms among school-aged children: International comparative cross sectional study in 28 countries. European Journal of Public Health. 2005; 15:128–132. [PubMed: 15755782]

Elliott, DS., Ageton, SS., Huizinga, D., Knowles, BA., Canter, RJ. National Youth Survey Report No. 26. Boulder, CO: Behavioral Research Institute; 1983. The prevalence and incidence of delinquent behavior: 1976–1980. National estimates of delinquent behavior by sex, race, social class, and other selected variables.

Espelage, DL., Swearer, SM., editors. Bullying in American schools: A social-ecological perspective on prevention and intervention. Mahwah, NJ: Erlbaum; 2004.

Fanti KA, Kimonis ER. Bullying and victimization: The role of conduct problems and psychopathic traits. Journal of Research on Adolescence. 2012; 22:617–631.

Farmer TW, Petrin RA, Robertson DL, Fraser MW, Hall CM, Day SH, Dadisman K. Peer relations of bullies, bully victims, and victims: The two social worlds of bullying in second-grade classrooms. The Elementary School Journal. 2010; 110:364–392.

Farrington DP, Ttofi MM. Bullying as a predictor of offending, violence, and later life outcomes. Criminal Behaviour and Mental Health. 2011; 21:90–98. [PubMed: 21370294]

Finkelhor D, Turner HA, Hamby S. Let's prevent peer victimization, not just bullying. Child Abuse & Neglect. 2012; 36:271–274. [PubMed: 22483362]

Forero R, McLellan L, Rissel C, Barman A. Bullying behaviour and psychosocial health among school students in New South Wales, Australia: Cross sectional survey. BMJ. 1999; 319:344–348. [PubMed: 10435953]

Frick PJ, Cornell AH, Barry CT, Bodin SD, Dane HE. Callous-unemotional traits and conduct problems in the prediction of conduct problem severity, aggression, and self-report of delinquency. Journal of Abnormal Child Psychology. 2003; 31:457–470. [PubMed: 12831233]

Gibb SJ, Horwood LJ, Fergusson DM. Bullying victimization/perpetration in childhood and later adjustment: findings from a 30 year longitudinal study. Journal of Aggression, Conflict and Peace Research. 2011; 3:82–88.

Gini G. Associations between bullying behaviour, psychosomatic complaints, emotional and behavioural problems. Journal of Paediatrics and Child Health. 2008; 44:492–497. [PubMed: 17608653]

Gini G, Pozzoli T. Bullied children and psychosomatic problems: A meta-analysis. Pediatrics. 2013; 132:720–729. [PubMed: 24043275]

Gladden, RM., Vivolo-Kantor, AM., Hamburger, ME., Lumpkin, CD. Bullying surveillance among youth: Uniform definitions for public health and recommended data elements, Version 1.0. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention and U.S. Department of Education; 2014.

Gottfredson NC, Foshee VA, Ennett ST, Haberstick B, Smolen A. Genetic heterogeneity in adolescents' depressive symptoms in response to victimization. Journal of Clinical Child and Adolescent Psychology. 2015; 44:762–774. [PubMed: 24819687]

Hartup WW. The company they keep: Friendships and their developmental significance. Child Development. 1996; 67:1–13. [PubMed: 8605821]

Ioannou S. Young people's accounts of smoking, exercising, eating, and drinking alcohol: Being cool or being unhealthy? Critical Public Health. 2003; 13:357–371.

Joiner TE Jr, Van Orden KA, Witte TK, Selby EA, Ribeiro JD, Lewis R, Rudd MD. Main predictions of the interpersonal–psychological theory of suicidal behavior: Empirical tests in two samples of young adults. Journal of Abnormal Psychology. 2009; 118:634–646. [PubMed: 19685959]

Kim MJ, Catalano RF, Haggerty KP, Abbott RD. Bullying at elementary school and problem behaviour in young adulthood: A study of bullying, violence, and substance use from age 11 to age 21. Criminal Behaviour and Mental Health. 2011; 21:136–144. [PubMed: 21370299]

Klomek AB, Sourander A, Kumpulainen K, Piha J, Tamminen T, Moilanen I, … Gould MS. Childhood bullying as a risk for later depression and suicidal ideation among Finnish males. Journal of Affective Disorders. 2008; 109:47–55. [PubMed: 18221788]

Klomek AB, Sourander A, Niemelä S, Kumpulainen K, Piha J, Tamminen T, p… Gould MS. Childhood bullying behaviors as a risk for suicide attempts and completed suicides: A population-based birth cohort study. Journal of the American Academy of Child and Adolescent Psychiatry. 2009; 48:254–261. [PubMed: 19169159]

Klonsky ED, May AM, Saffer BY. Suicide, suicide attempts, and suicidal ideation. Annual Review of Clinical Psychology. 2016; 12:307–330.

Kumpulainen K, Räsänen E, Puura K. Psychiatric disorders and the use of mental health services among children involved in bullying. Aggressive Behavior. 2001; 27:102–110.

Ladd GW, Kochenderfer-Ladd BJ. Identifying victims of peer aggression from early to middle childhood: Analysis of cross informant data for concordance, estimation of relational adjustment, prevalence of victimization, and characteristics of identified victims. Psychological Assessment. 2002; 14:74–96. [PubMed: 11911051]

Moreno MA, Brinder LR, Williams A, Walker L, Christakis DA. Real use or "real cool": Adolescents speak out about displayed alcohol references on social networking websites. Journal of Adolescent Health. 2009; 45:420–422. [PubMed: 19766949]

Niemelä S, Brunstein-Klomek A, Sillanmäki L, Helenius H, Piha J, Kumpulainen K, … Sourander A. Childhood bullying behaviors at age eight and substance use at age 18 among males: A nationwide prospective study. Addictive Behaviors. 2011; 36:256–260. [PubMed: 21146319]

Olweus, D. Bullying at school: What we know and what we can do. Cambridge, United Kingdom: Blackwell; 1993.

Olweus D. Bullying at school and later criminality: Findings from three Swedish community samples of males. Criminal Behaviour and Mental Health Special Issue: Criminal Consequences of School Bullying. 2011; 21:151–156.

Ouellet-Morin I, Danese A, Bowes L, Shakoor S, Ambler A, Pariante CM, … Arseneault L. A discordant monozygotic twin design shows blunted cortisol reactivity among bullied children. Journal of the American Academy of Child and Adolescent Psychology. 2011; 50:574–558.

Radloff LS. The CES–D Scale: A self-report depression scale for research in the general population. Applied Psychological Measurement. 1977; 1:385–401.

Renda J, Vassallo S, Edwards B. Bullying in early adolescence and its association with anti-social behaviour, criminality and violence 6 and 10 years later. Criminal Behaviour and Mental Health. 2011; 21:117–127. [PubMed: 21370297]

Rodkin P, Espelage D, Hanish L. A relational framework for understanding bullying: Developmental antecedents and outcomes. American Psychologist. 2015; 70:311–321. [PubMed: 25961312]

Ryoo JH, Wang C, Swearer SM. Examination of the change in latent statuses in bullying behaviors across time. School Psychology Quarterly. 2015; 30:105–122. [PubMed: 25111466]

Shaffer, D., Fisher, P., Piacentini, J., Schwab-Stone, M., Wicks, J. Diagnostic interview schedule for children (DISC- 2.1P)-Parent and Child Version. New York, NY: Division of Child and Adolescent Psychiatry, New York State Psychiatric Institute; 1989.

Sourander A, Jensen P, Rönning JA, Elonheimo H, Niemelä S, Helenius H, … Almqvist F. Childhood bullies and victims and their risk of criminality in late adolescence: The Finnish from a Boy to a Man Study. Archives of Pediatric Adolescent Medicine. 2007a; 161:546–552.

Sourander A, Jensen P, Rönning JA, Niemelä S, Helenius H, Sillanmäki L, … Almqvist F. What is the early adulthood outcome of boys who bully or are bullied in childhood? The Finnish "From a Boy to a Man" Study. Pediatrics. 2007b; 120:397–404. [PubMed: 17671067]

Swearer SM, Hymel S. Understanding the psychology of bullying: Moving toward a social-ecological diathesis–stress model. American Psychologist. 2015; 70:344–353. [PubMed: 25961315]

Takizawa R, Danese A, Maughan B, Arseneault L. Bullying victimization in childhood predicts inflammation and obesity at mid-life: A five-decade birth cohort study. Psychological Medicine. 2015; 45:2705–2715. [PubMed: 25988703]

Takizawa R, Maughan B, Arseneault L. Adult health outcomes of childhood bullying victimization: Evidence from a five-decade longitudinal British birth cohort. American Journal of Psychiatry. 2014; 171:777–784. [PubMed: 24743774]

Ttofi MM, Farrington DP, Losel F, Loeber R. Do the victims of school bullies tend to become depressed later in life? A systematic review and meta-analysis of longitudinal studies. Journal of Aggression, Conflict and Peace Research. 2011; 3:63–73.

Turecki G, Brent DA. Suicide and suicidal behaviour. The Lancet. 2016; 387:1227–1239.

van Geel M, Vedder P, Tanilon J. Relationship between peer victimization, cyberbullying, and suicide in children and adolescents: A meta-analysis. JAMA Pediatrics. 2014; 168:435–442. [PubMed: 24615300]

Vieno A, Gini G, Santinello M. Different forms of bullying and their association to smoking and drinking behavior in Italian adolescents. Journal of School Health. 2011; 81:389–395.

Vieno A, Lenzi M, Gini G, Pozzoli T, Cavallo F, Santinello M. Time trends in bullying behavior in Italy. Journal of School Health. 2015; 85:441–444. [PubMed: 26032274]

Wolke D, Copeland WE, Angold A, Costello EJ. Impact of bullying in childhood on adult health, wealth, crime, and social outcomes. Psychological Science. 2013; 24:1958–1970. [PubMed: 23959952]

Table 1

Unadjusted outcomes for total sample and boys identified as uninvolved, victims, perpetrators, or perpetrator–victims at ages 10–12 years

	Total	Uninvolved	Victims	Perpetrators	Perpetrator–victims
Binary variables % (*n*) positive	*n* = 203–206	*n* = 115–116	*n* = 25–26	*n* = 35	*n* = 28–29
Suicide attempt	14.6% (30)	7.8% (9)	11.5% (3)	17.1% (6)	41.4% (12)
Suicidal ideation	32.0% (66)	29.3% (34)	34.6% (9)	40.0% (14)	31.0% (9)
Arrest	51.9% (107)	43.9% (47)	53.8% (14)	71.4% (25)	72.4% (21)
Violent arrest	21.4% (44)	19.0% (22)	7.7% (2)	25.7% (9)	37.9% (11)
Patterned drug use	51.9% (107)	48.3% (56)	50.0% (13)	60.0% (21)	58.6% (17)
Patterned tobacco use	70.9% (146)	61.2% (71)	69.2% (18)	91.4% (32)	86.2% (25)
Clinical depressive	53.9% (111)	42.2% (49)	76.9% (20)	60.0% (21)	72.4% (21)
Continuous variables Mean (*SD*)	*n* = 196–203	*n* = 114–115	*n* = 23–25	*n* = 32–35	*n* = 27–28
Alcohol-use frequency	.00 (.71)	.09 (.74)	−.11 (.76)	−.19 (.60)	−.06 (.66)
Depressive symptoms	8.10 (5.31)	6.95 (4.57)	9.20 (4.96)	9.35 (6.32)	10.52 (6.15)
Family income [a]	1.72 (1.07)	1.90 (1.07)	1.37 (1.27)	1.60 (.78)	1.48 (1.07)
Parent depressive	.02 (.89)	−.24 (.72)	.38 (1.10)	.29 (.87)	.41 (.99)
Child depressive	−.00 (.87)	−.17 (.81)	.23 (1.14)	.21 (.82)	.10 (.72)
Child antisocial	.01 (.81)	−.16 (.73)	−.11 (.78)	.22 (.89)	.55 (.83)

[a] Income divided by $10,000.

Table 2

Results of regressions of adult outcomes on teasing roles and childhood controls

	Depressive symptoms		Clinical depressive symptoms		Suicidal ideation		Suicide attempt		Arrest (zero)		Arrests (count)	
	Est (SE)	β	Est (SE)	β	Est (SE)	β	Est (SE)	OR	Est (SE)	OR	Est (SE)	β
Victim [a]	.96 (1.26)	.06	.23 (.21)	.09	−.22 (.31)	−.08	.01 (.75)	1.01	−.47 (.53)	.62	−.37 (.35)	−.38
Perpetrator [a]	1.94 (1.13)	.13†	.28 (.20)	.13	.16 (.29)	.07	.60 (.60)	1.82	−1.12 (.46)*	.33	−.09 (.24)	−.10
Perpetrator–victim [a]	1.96 (1.25)	.12	.39 (.21)†	.16	−.33 (.28)	−.12	1.85 (.57)**	6.33	−.89 (.48)†	.41	.25 (.23)	.26
Income	−.69 (.39)	−.13†	−.12 (.08)	−.15	.01 (.11)	.01	.03 (.22)	1.03	.34 (.18)†	1.41	−.16 (.10)	−.53
Parent Depressive	1.65 (.49)	.26***	.27 (.09)	.29	.27 (.13)*	.26	.53 (.24)*	1.69	−.00 (.20)	1.00	.04 (.09)	.10
Child Depressive	.74 (.47)	.11	.02 (.09)	.02	−.09 (.13)	−.09	.13 (.27)	1.14	.04 (.20)	1.04	.01 (.10)	.02
Child Antisocial	.36 (.52)	.05	.10 (.09)	.10	−.01 (.18)	−.01	−.04 (.28)	.96	−.59 (.21)**	.55	.21 (.09)*	.53
Intercept/ Threshold	-	-	-	-	-	-	2.46 (.53)***	-	−.39 (.36)	-	1.62 (.20)***	4.92

	Violent Arrest		Alcohol		Tobacco		Other Drug Use	
	Est (SE)	OR	Est (SE)	β	Est (SE)	OR	Est (SE)	OR
Victim [a]	−1.46 (.82)†	.23	−.13 (.17)	−.06	.15 (.50)	1.17	−.05 (.47)	.95
Perpetrator [a]	−.11 (.51)	.90	−.26 (.15)†	−.14	1.66 (.65)*	5.24	.24 (.42)	1.27
Perpetrator-victim [a]	.16 (.52)	1.18	−.17 (.16)	−.08	.99 (.61)	2.69	−.09 (.48)	.91
Income	−.32 (.21)	.73	.05 (.30)	.08	.12 (.16)	1.12	−.23 (.15)	.79
Parent Depressive	.37 (.22)†	1.45	.00 (.06)	.00	.35 (.21)	1.42	.12 (.18)	1.13
Child Depressive	−.10 (.24)	.90	−.09 (.06)	−.11	.11 (.20)	1.11	−.23 (.18)	.80
Child Antisocial	.75 (.25)**	2.11	.09 (.07)	.10	.29 (.24)	1.33	.59 (.21)**	1.80
Intercept/ Threshold	.83 (.41)*	-	−.00 (.11)	−.01	−.40 (.35)	-	−.46 (.33)	-

Notes.

†
p < .10.

*
p < .05.

**
p <.01.

***
$p < .001$.

[a]Uninvolved youth are the referent.

B(*SE*) = unstandardized B (standard error), β = standardized B. OR = odds ratio.