

Bullying at school as a predictor of delinquency, violence and other anti-social behaviour in adulthood

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ABSTRACT

Background Although bullying at school is an important topic, its long-term relation to anti-social development is rarely investigated.

Aim To study the relation between bullying in youth and anti-social outcomes in adulthood.

Methods A group of 63 males (bullies and victims over-sampled) from the Erlangen-Nuremberg Bullying Study were investigated at ages 15 and 25. Bullying was assessed with the Olweus Bully/Victim Questionnaire. Outcome measures included self-reported delinquency, violence, aggressiveness, drug use, impulsivity and psychopathy. In addition to bivariate correlations, hierarchical regressions were used to control for family and individual risk factors.

Results Bullying was a strong predictor of nearly all anti-social outcomes. Physical bullying was more predictive than verbal/indirect bullying. Controlling for family risks and externalising/internalising problems reduced effect sizes, but bullying remained a sound predictor. Victimization was not related to anti-social outcomes.

Conclusions Bullying seems to be a key risk marker for anti-social development. Therefore, studies on whole-school anti-bullying programmes and child-oriented or family-oriented strategies of crime prevention should be more integrated. Copyright © 2011 John Wiley & Sons, Ltd.

Introduction

School bullying is a specific form of aggression among pupils that is relatively persistent and contains an imbalance in power between the perpetrator and the victim (Olweus, 1993). Numerous studies addressed the forms, prevalence and origins of school bullying in various countries (Smith et al., 1999). There is also a substantial body of research on prevention (Farrington and Ttofi, 2009; Ttofi and Farrington, 2010). However, most of the literature concentrates on bullying

as a school phenomenon. Less attention has been given to the relation between school bullying and longer-term criminal or anti-social behaviour in the life course. It is only recently that there is increasing research on the outcomes of bullying or relational aggression in longitudinal designs (e.g. Lösel and Bliesener, 2003; Crick et al., 2006; Herrenkohl et al., 2009; see also the papers in this issue). This is surprising because serious bullying is not only related to general offending or violence, but also shares various risk factors with these problems (Farrington, 1993; Herrenkohl et al., 2007).

The question of longitudinal outcomes is also relevant for victimisation. Research suggests that victims suffer from more anxiety, depression and social withdrawal (Olweus, 1993; Lösel and Bliesener, 2003). However, the causal relation is unclear. Such characteristics seem to be both personal risk factors for and consequences of being bullied. Causal issues also arise with regard to active bullying and delinquent development. According to cumulative chain reaction models (Lösel and Bender, 2003; Loeber et al., 2006), school bullying can be seen as an indicator of different manifestations of anti-social behaviour over time. On the other hand, bullying may be a risk for future development on its own because of reinforcement in peer groups or negative reactions from others (Olweus, 1993).

Although such processes cannot be fully disentangled in the natural development of bullying, prospective longitudinal studies should enhance our knowledge about long-term relations and common factors of bullying and its outcomes. Against this background, the present study investigates school bullying/victimisation in youth as predictor of offending and other anti-social behaviours in young adulthood.

Method

Sample

The Erlangen-Nuremberg Study on School Bullying contained three waves. The first was a survey of 1163 students from the seventh and eighth grades in Nuremberg and Erlangen (Bavaria). Their mean age was 14.01 years ($SD = 0.89$), 52.8% were males and 74.4% were of German nationality. This study addressed the prevalence and risk factors of bullying, victimisation and related behaviour problems. Self reports and teacher ratings were used to define groups of serious bullies, victims and normal/competent youngsters (Lösel and Bliesener, 2003).

More than 1.5 years later, a subsample of 102 boys were assessed again (age: $M = 15.54$ years, $SD = 0.88$). This second wave contained an over-sampling of 25 bullies, 21 victims and 53 normal/competent students as defined in the first wave. The study included behaviour observations, interviews, questionnaires and other assessments with a focus on social information processing (Lösel et al., 2007).

More than 9 years later 87 young men could be contacted again. Sixty-three (72%) participated in this third wave (age: $M = 24.64$ years, $SD = 0.95$). The three subgroups were similarly represented as in the second wave (in parenthesis): bullies 25.4% (25.3%), victims 17.5% (21.2%) and normal/competent students 57.1% (53.5%).

Instruments

Bullying and victimisation were assessed in wave 2, outcome variables in wave 3, and control variables in wave 1.

Bullying and victimisation

We used our German adaptation of the Bully/Victim Questionnaire (Olweus, 1989). A factor analysis revealed three dimensions: (1) *Physical Bullying*, 24 items on beating, kicking, destroying others' property, threatening with a weapon etc. (Cronbach's $\alpha = 0.95$); (2) *Verbal/Indirect Bullying*, 14 items on abusive language, picking on others, social segregation, endorsing others' bullying etc. ($\alpha = 0.91$); (3) *Victimisation*, 13 items on being bullied by others ($\alpha = 0.84$). Scales 1 and 2 were used as a total bullying score.

Outcome variables

The assessment of anti-social and related outcomes included the following instruments (1) Twenty-five dichotomous items from the *Delinquency Self Report Questionnaire* for young adults (GDFF; Kreuzer et al., 1990) on a broad range of offences, including seven items on *Violence* (bodily harm, robbery, sexual assault etc.); (2) ratings by two assessors on the *Psychopathy Checklist: Screening Version* (PCL:SV; Hart et al., 1995); (3) *Questionnaire on Aggressiveness* (FAF; Hampel and Selg, 1975); (4) *Impulsivity Scale* (ISL; Lösel, 1975); (5) two items of the GDFF on illegal *Drug Use* (frequency within the last 2 months); and (6) two interview questions on *Unstable Work Life* (frequency of unemployment and number of jobs).

Control variables

To control for social risk factors of deviant development we used an index of objective and perceived *Family Problems* such as broken home, low SES, unemployment, parental alcohol abuse, marital conflicts, unfavourable family climate, aggressive and inconsistent parenting. To control for individual risks we selected the two broadband scales from our German adaptation of the Youth Self Report (YSR) of the Child Behavior Checklist (CBCL; Achenbach, 1991). These measured *Externalising Problems* (aggressive and delinquent) and *Internalising Problems* (withdrawn, anxious/depressed and somatic complaints).

Results

For reasons of space, only the findings on prediction and no descriptive statistics are reported. At first we computed bivariate correlations (r) between bullying/victimisation at wave 2 and the outcomes at wave 3. Then hierarchical regression analyses were conducted to control for the risk variables at wave 1. The index of family problems and the CBCL-YSR scores were entered in the first step, bullying/victimisation in the second. For ease of comparison with the bivariate correlations, we used the square root of the additional variance explained in the second step as measure of effect size ($r_{adj.}$ = adjusted correlation controlled for risk variables). Table 1 shows the results.

Bullying at school was a strong predictor of self-reported violence, delinquency and other anti-social or undesirable outcomes in young adulthood. A number of correlations were quite large (e.g. violence, PCL:SV and drug use). Overall physical bullying was a stronger predictor than verbal/indirect bullying. The differences in effect size between both types of bullying were particularly clear for aggression, violence and the second factor of the PCL:SV (crime and anti-social lifestyle).

The YSR-Externalising score at wave 1 correlated with bullying at time 2 ($r = 0.57$; $p < 0.001$). The index of family problems was also a significant predictor ($r = 0.23$, $p < 0.05$), whereas the YSR-Internalising score was not. In total, the risk factors explained 40% of the variance in bullying ($p < 0.001$). In spite of this, the predictive validity of bullying for anti-social outcomes was still substantial when the degree of risk factors was controlled for ($r_{adj.}$ in Table 1). The differences between the bivariate and the adjusted correlations were only moderate: $Mr = 0.58$ versus $Mr_{adj.} = 0.45$ for total bullying, 0.57 versus 0.48 for physical and 0.38 versus 0.31 for verbal/indirect bullying (coefficients not z -transformed). The pattern of findings was similar for verbal/indirect and physical bullying, however, the latter still revealed larger effects when risk was controlled.

Victimisation was not significantly related to any of the anti-social or other undesirable outcome variables.

Discussion

The present study has a number of strengths: First, it has a prospective longitudinal design with a long follow up of nearly 10 years. Second, it presents data from a European country that is under-represented in comparison to Anglo-American bullying research. Third, the sample has been thoroughly selected using different information. And fourth, the study contains a rich assessment of anti-social outcomes in adulthood. However, one must also bear in mind some limits: The findings stem from a relatively small subsample that contains an over-sampling of bullies and victims. Such an over-representation of extreme cases

Table 1: Bivariate and adjusted (risk-controlled) correlations between bullying and victimisation at school and anti-social or related outcome variables in young adulthood

	Bullying (total)		Physical bullying		Verb./ind. bullying		Victimisation	
	r	$r_{adj.}$	r	$r_{adj.}$	r	$r_{adj.}$	r	$r_{adj.}$
Delinquency total; GDFB; Q	0.47***	0.50***	0.59***	0.60***	0.32*	0.29*	-0.11	-0.11
Violent offending; GDFB; Q	0.57***	0.56***	0.73***	0.72***	0.34**	0.28*	-0.15	-0.13
Drug use; GDFB; Q	0.61***	0.47***	0.65***	0.48***	0.48***	0.33**	-0.06	-0.11
Aggressiveness; FAF; Q	0.34*	0.37**	0.39**	0.44***	0.23	0.22	0.22	0.14
Impulsivity; ISL; Q	0.39**	0.37**	0.36**	0.35*	0.35**	0.30*	0.02	0.06
Psychopathy total; PCL:SV; A	0.70***	0.57***	0.71***	0.55***	0.58***	0.44***	0.07	0.06
Psychopathy factor 1; PCL:SV; A	0.56***	0.35**	0.49***	0.22	0.58***	0.39**	0.06	0.10
Psychopathy factor 2; PCL:SV; A	0.66***	0.61***	0.75***	0.69***	0.48***	0.39**	0.06	0.00
Unstable work life; BI; I	0.25	0.27	0.46***	0.31*	0.05	0.17	-0.05	0.00

Note: Two-tailed; $n = 52-62$ (depending on missing data).

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Verb./Ind., verbal/indirect bullying; $r_{adj.}$, adjusted correlation controlled for risk variables at Time 1 in hierarchical regression analyses; Q, questionnaire; I, interview; A, assessors' ratings; for further details see methods section.

normally leads to larger effect sizes than in representative samples. On the other hand, the broad range of occasional bullying behaviour is not the key issue in practice. A further problem of our study is the lack of official data on offending. However, delinquency self-reports are not only more differentiated measures, but also relatively valid. Those 31% of our sample who reported official police or criminal justice contacts (e.g. arrest) had much higher delinquency scores than the others [$t(60) = 5.16, p < 0.001$]. Our outcome variables also included not only self-reports, but also ratings (i.e. the PCL:SV).

Within its limits, the study clearly showed that bullying at school was a strong predictor of later delinquency, violence, aggression and related undesirable life outcomes. In particular, frequent physical bullying appeared as a risk marker for the development of anti-social problems. School bullying was not only stable in youth (Lösel and Bliesener, 2003), but serious bullies had an enhanced risk of developing long-term anti-social problems. Although verbal/indirect bullying also correlated significantly with anti-social outcomes, it was less predictive than physical bullying. This may be due to the overall more frequent forms of verbal/indirect bullying (also among girls; Lösel and Bliesener, 2003).

However, one should not over-interpret the strong correlations between (physical) bullying and the development of anti-social personality traits and behaviour. As mentioned, the large effect sizes are partially due to the over-sampling of extreme cases. Higher scores in the PCL:SV indicate only gradual differences and not clinical diagnoses of personality disorder. Ninety per cent of the PCL:SV scores were below an alerting score of 10, and only about one third of the bullies were above. Physical bullying also predicted more the second PCL-factor (anti-social behaviour/lifestyle) than the personality features of the affective/interpersonal first factor. Such findings contradict too simple interpretations of bullies as 'fledgling psychopaths', although one should not play down their enhanced risk of anti-social development.

Most of the correlations between bullying and later anti-social outcomes remained significant when we controlled for individual and family risk factors. This suggests that school bullying is an important risk marker and not only a more or less spurious correlate of social deviancy. One may argue that the inclusion of more risk factors would have reduced the predictive validity of bullying (as shown by Farrington and Ttofi, 2011). However, our risk factors already had substantial correlations with bullying at time 2, and from a theoretical viewpoint it could be problematic to control for all potential risks. Such a strategy would artificially weigh only one side of the common risks/origins of bullying and delinquency.

Unlike active bullying, victimisation did not predict any anti-social outcomes in adulthood. This may partially be due to our selection of 'typical' (active) bullies and (passive) victims that excluded the smaller group of bully-victims. Other data of our project suggest that typical victims have some later problems, but these were not the topic of the present study. With regard to anti-social outcomes,

the anxious, depressed and withdrawn characteristics of typical victims may have a protective function against the onset of an anti-social development, although depressive symptoms can lead to aggravation in already delinquent youngsters (Lösel and Farrington, 2010). Internalising problems are also less stable than early anti-social problems (Robins and Price, 1991) and victims may escape bullying when social contexts change (Olweus, 1990; Lösel and Bliesener, 2003).

Overall, this study suggests that the topic of school bullying should become more integrated into criminological research. It is not only a school phenomenon but an important risk marker of a more general anti-social development. This has implications for prevention and intervention. Although anti-bullying programmes reduce the prevalence of bullying and victimisation at school (Farrington and Ttofi, 2009; Ttofi and Farrington, 2010), it is less clear how much they contribute to a longer-term decrease of individual anti-social development. Therefore, we recommend closer links between whole-school anti-bullying programmes (Smith et al., 2004) and child-and family-oriented approaches of prevention (e.g. Lösel and Beelmann, 2003; Farrington and Welsh, 2007).

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References

- Achenbach TM (1991) *Integrative guide for the 1991 CBCL/4–18, YSR, and TRF Profiles*. Burlington, VT: University of Vermont, Department of Psychiatry.
- Crick NR, Ostrov JM, Werner NE (2006) A longitudinal study of relational aggression, physical aggression, and children's social-psychological adjustment. *Journal of Abnormal Child Psychology* 34: 131–142.
- Farrington DP (1993) Understanding and preventing bullying. In Tonry M (ed.) *Crime and Justice*, vol. 17. Chicago, IL: University of Chicago Press pp. 381–458.
- Farrington DP, Welsh BC (2007) *Saving Children from a Life of Crime*. Oxford: Oxford University Press.
- Farrington DP, Ttofi M (2009) School-based programs to reduce bullying and victimization. *Campbell Systematic Reviews* 2009: 6. Available from http://www.campbellcollaboration.org/reviews_crime_justice/index.php.
- Farrington DP, Ttofi MM (2011) Bullying as a predictor of offending, violence, and later life outcomes. *Criminal Behaviour and Mental Health* 21: 90–98.
- Hampel R, Selg H (1975) *Fragebogen zur Erfassung von Aggressivitätsfaktoren* [Questionnaire on Aggressiveness]. Göttingen: Hogrefe.
- Hart SD, Cox DN, Hare RD (1995) *The Hare Psychopathy Checklist: Screening Version*. Toronto: Multi-Health Systems.

- Herrenkohl TI, McMorris BJ, Catalano RF, Abbott RD, Hemphill SA, Toumbourou JW (2007) Risk factors for violence and relational aggression in adolescence. *Journal of Interpersonal Violence* 22: 386–405.
- Herrenkohl TI, Catalano RF, Hemphill SA, Toumbourou JW (2009) Longitudinal examination of physical and relational aggression as precursors to later problem behaviors in adolescents. *Violence and Victims* 24: 3–19.
- Kreuzer A, Hürlimann M, Krämer K, Schneider H (1990) Gießener Delinquenzfragebogen [Giessen Delinquency Questionnaire]. *Spiegel der Forschung* 7: 11–15.
- Loeber R, Slot W, Stouthamer-Loeber M (2006) A three-dimensional cumulative developmental model of serious delinquency. In Wikström PO, Sampson R (eds) *The Explanation of Crime: Contexts and Mechanisms*. Cambridge: Cambridge University Press pp. 153–194.
- Lösel F (1975) *Handlungskontrolle und Jugenddelinquenz* [Self Control and Juvenile Delinquency]. Stuttgart: Enke.
- Lösel F, Beelmann A (2003) Effects of child skills training in preventing antisocial behavior: A systematic review of randomized experiments. *Annals of the American Academy of Political and Social Science* 587: 84–109.
- Lösel F, Bender D (2003) Protective factors and resilience. In Farrington DP, Coid JW (eds) *Early Prevention of Adult Antisocial Behaviour*. Cambridge: Cambridge University Press pp. 130–204.
- Lösel F, Bliesener T (2003) *Aggression und Delinquenz unter Jugendlichen* [Aggression and Delinquency among Juveniles]. Neuwied: Luchterhand.
- Lösel F, Bliesener T, Bender D (2007) Social information processing, experiences of aggression in social contexts, and aggressive behavior in adolescents. *Criminal Justice and Behavior* 34: 330–347.
- Lösel F, Farrington, DP (2010) *Promotive and Protective Factors in the Development of Youth Violence*. Review paper for the US Centres for Disease Control and Prevention. Atlanta: CDCP.
- Olweus D (1989) *The Olweus Bully/Victim Questionnaire*. Bergen: University of Bergen.
- Olweus D (1990) Bullying among school children. In Hurrelmann K, Lösel F (eds) *Health Hazards in Adolescence*. Berlin: de Gruyter pp. 259–297.
- Olweus D (1993) *Bullying at School: What we Know and What we Can do*. Oxford: Blackwell.
- Robins LN, Price RK (1991) Adult disorders predicted by childhood conduct problems: Results from the NIMH epidemiologic catchment area project. *Psychiatry* 54: 116–132.
- Smith JD, Schneider BH, Smith PK, Ananiadou, K (2004) The effectiveness of whole-school antibullying programs: A synthesis of evaluation research. *School Psychology Review* 33: 548–561.
- Smith PK, Morita Y, Junger-Tas J, Olweus D, Catalano R, Slee P (eds) (1999) *The Nature of School Bullying: A Cross-National Perspective*. London: Routledge.
- Ttofi MM, Farrington DP (2010) School bullying: Risk factors, theories and interventions. In Brookman F, Maguire M, Pierpoint H, Bennett TH (eds.) *Handbook of Crime*. Cullompton, Devon: Willan pp. 427–457.

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