

Guest editorial

Health consequences of school bullying

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Scientific interest in the problem of childhood bullying and its negative short-term and long-term effects emerged after the well-publicized suicides of three Norwegian boys in 1982, which were attributed to severe peer bullying (Olweus, 1993). Early longitudinal research on victims of school bullying suggested that they were likely to have poor mental health later in life compared with non-victimized students. For example, in his follow-up study of over 700 Stockholm boys, Olweus (1991) reported that victims of bullying at age 16 were more likely to be depressed at age 23 compared with their non-victimized counterparts.

However, there have been surprisingly few more recently published longitudinal studies of the relationship between school bullying victimization and later internalizing problems, such as depression. Therefore, the main aim of this special issue is to present such results from major longitudinal studies and also findings from a systematic review and meta-analysis, in order to advance knowledge about the link between school bullying victimization and later adverse health outcomes. In addition, some papers report on the link between victimization and later externalizing problems (such as delinquency), and between bullying perpetration and later offending.

To date, systematic reviews in criminology (and also in other fields) have focused primarily on intervention research, failing to address naturally occurring (i.e. non-manipulated) causes of delinquency or other externalizing and internalizing problems. Examples of naturally occurring/non-manipulated causes of internalizing and externalizing problems could include divorce, brain damage, parental incarceration or, with reference to the current special issue, bullying victimization (Murray *et al.*, 2009). Systematic reviews on risk factors could advance theory and also help to develop effective prevention programmes (Murray *et al.*, 2009, p. 2). For example, it would be interesting to examine whether victims of bullying suffer from low self-esteem or whether school bullies lack empathy. Such findings, based on relevant systematic reviews, could guide future intervention initiatives, whilst also refining theory about causes of bullying behaviour.

In risk factor research, many naturally occurring probabilistic events (such as broken homes or getting married) cannot be randomly assigned due to ethical or other considerations (Petrosino, 2003). Even though children are not allocated to victim versus non-victim status in a planned manner, bullying victimization can be regarded as a social intervention with specific outcomes. It is interesting to examine, using non-experimental longitudinal research, whether bullying victimization is not just a risk factor, but also a *causal risk factor* for later adverse criminal and health outcomes.

In order to establish whether victimization *per se* is followed by an increase in internalizing problems, it is important to investigate whether victimization predicts these outcomes after controlling for earlier risk factors that predict both victimization and the specific outcomes (Murray *et al.*, 2009). All contributors to this special issue were asked to investigate:

- the strength of the relationship between victimization and later internalizing problems (especially depression); and
- the strength of this relationship after controlling for earlier major childhood risk factors (e.g. individual, parental, child-rearing, peer, school, socio-economic and neighbourhood).

They were not asked to study whether changes in victimization predicted changes in internalizing problems, partly because this would have required more data waves and partly because such change variables are likely to have great variability.

It is a particular strength of this special issue that we contacted investigators of major longitudinal surveys and asked if they had unpublished information on the relationship between bullying victimization and later internalizing/externalizing problems. Longitudinal investigators of 28 studies carried out special analyses for us, and papers from seven studies are included in this special issue. In order to maximize our use of the available space, we asked all longitudinal authors to limit their papers to 2,000 words of text and three to four tables, and to present mainly the methods and results, with very short introductions and conclusions.

In the first paper, Maria M. Ttofi, David P. Farrington, Friedrich Lösel and Rolf Loeber report the results of a systematic review and meta-analysis. They found that the summary odds ratio (OR) effect size for bullying victimization predicting depression was 1.99 (95% CI: 1.71-2.32), and that this OR decreased only to 1.74 (95% CI: 1.54-1.97) after controlling for a number of major childhood risk factors. David P. Farrington, Rolf Loeber, Rebecca Stallings and Maria M. Ttofi then report findings from the Pittsburgh Youth Study, a prospective longitudinal study of over 1,500 Pittsburgh boys from age 6 to 35. Based on results from the youngest cohort of 503 boys (originally assessed at age 6-7 in 1987-1988), they conclude that bullying perpetration was followed by an increased risk of delinquency, and that bullying victimization was followed by an increased risk of depression.

Sheree J. Gibb, L. John Horwood and David M. Fergusson report findings based on Christchurch Health and Development Study, a longitudinal study of a birth cohort of 1,265 individuals born in Christchurch, New Zealand in 1977 and followed to age 30. Reports of bullying perpetration and victimization in childhood were associated with higher rates of later mental health/adjustment problems, though effect sizes were typically in the small to moderate range. Interestingly, effect sizes did not vary significantly with gender or the age at which outcomes were assessed. Friedrich Lösel and Doris Bender then present results from the Erlangen-Nuremberg Development and Prevention Project, a combined experimental and prospective longitudinal study that has been running for more than ten years. Based on results from 557 children, the authors present mostly small but highly significant correlations between bullying perpetration and later antisocial behaviour. Among girls, bullying perpetration and victimization also predicted later symptoms of anxiety, depression and social withdrawal.

In a medium-sized city located in central Sweden, Metin Özdemiş and Håkan Stattin present results from Seven Schools, an ongoing longitudinal study. Based on data analyses from 508 children, they found that bullying victimization had a negative impact on children, affecting their levels of depression, self-esteem, failure anticipation and self-harm. They conclude that results varied depending on children's participant roles, with bully-victims being a special category most affected by the negative exposure to bullying. Margit Averdijk, Barbara Müller, Manuel Eisner and Denis Ribeaud offer results from the Zurich Project on the Social Development of Children, an ongoing combined longitudinal and intervention study in Zurich, Switzerland. They found that different measures of bullying victimization at age 8 significantly predicted anxiety and depression at age 11. Results differed according to different types of bullying victimization as well, with physical bullying and social rejection both predicting later anxiety and depression.

In Brisbane, Australia, Tara Renae McGee, James G. Scott, John J. McGrath, Gail M. Williams, Michael O'Callaghan, William Bor and Jake M. Najman report on findings from a prospective cohort study of mothers and their children, the Mater-University of Queensland Study of Pregnancy and its Outcomes, which began in Brisbane in 1981. Various health outcomes (but not anxiety and depression) at age 21 were predicted by bullying victimization at age 14. Interestingly, they found that males and females responded somewhat differently to victimization experiences, with males reporting more aggressive behaviour and females reporting more somatic problems. Finally, Yasuyo Nishino,