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REVIEW ARTICLE

Bullying victimization in youths and mental health problems: 'Much ado about nothing'?

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Bullying victimization is a topic of concern for youths, parents, school staff and mental health practitioners. Children and adolescents who are victimized by bullies show signs of distress and adjustment problems. However, it is not clear whether bullying is the source of these difficulties. This paper reviews empirical evidence to determine whether bullying victimization is a significant risk factor for psychopathology and should be the target of intervention and prevention strategies. Research indicates that being the victim of bullying (1) is not a random event and can be predicted by individual characteristics and family factors; (2) can be stable across ages; (3) is associated with severe symptoms of mental health problems, including self-harm, violent behaviour and psychotic symptoms; (4) has long-lasting effects that can persist until late adolescence; and (5) contributes independently to children's mental health problems. This body of evidence suggests that efforts aimed at reducing bullying victimization in childhood and adolescence should be strongly supported. In addition, research on explanatory mechanisms involved in the development of mental health problems in bullied youths is needed.

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Introduction

Researchers have recently started examining the impact of being bullied on children's lives and whether it can be a harmful experience for their mental health. This endeavour has been long awaited. In the past, being the victim of bullying has been considered as an unpleasant yet normal experience, one that is frequently encountered by youngsters when they enrol in the formal school system and widen their social network beyond the family. Consequently, researchers have not considered bullying as a stressful experience that could jeopardize children's well-being and a potential risk factor for mental health problems (Tolan, 2004). However, cross-sectional studies have indicated that children targeted by bullies show signs of distress such as depression and anxiety (Hawker & Boulton, 2000). In parallel to research efforts, bullying victimization became a growing concern among children, parents, school staff and local authorities who fear for children's safety (Oliver & Candappa, 2003; Department for Children, Schools and Families, 2009). This article reviews empirical evidence to determine whether being bullied can be an event that bears detrimental consequences for children's mental health.

Developing a better understanding of bullying victimization and its impact on children's well-being is needed for four main reasons. First, rigorous attempts are being made to identify and test environmental causes of disease in children (Rutter, 2007). If bullied children manifest symptoms of mental health problems, we need to harness appropriate study designs to demonstrate that being bullied can cause children's psychopathology and intervene rapidly to limit harm caused to children. Second, re-victimization refers to the persistence of victimization across time, and poly-victimization implies a vulnerability to a range of different types of victimization (Finkelhor *et al*. 2007). If some children are persistently victimized by bullies through the years, or if they show a vulnerability to other forms of victimization, we need to identify factors early in children's lives that may influence their risk of being bullied to break the cycle of victimization among vulnerable children. Third, interventions aimed at preventing and reducing bullying behaviours in schools have shown limited success (Smith *et al*. 2003; Bauer *et al*. 2007; Vreeman & Carroll, 2007). If being bullied is associated with severe symptoms of mental health problems among children and adolescents, we need to design effective intervention and prevention programmes for reducing bullying and also for helping young victims to cope with their distress. Fourth,

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children's mental health problems often translate into adult psychiatric disorders (Kim-Cohen *et al*. 2003). If being bullied is associated with long-lasting problems in childhood and in adolescence, when the bullying may have stopped, society's burden of psychiatric disease could be reduced by limiting bullying behaviours at an early age, helping to prevent adult mental health problems.

The present article reviews empirical evidence relating to the association between bullying victimization and mental health problems. First, we describe bullying and assessment methods. Second, we highlight series of findings on bullying victimization and mental health problems. Third, we suggest avenues for future research. This article does not aim to review emerging findings on bullying in adulthood nor to review the literature on intervention programmes, which have been thoroughly summarized already.

Bullying

Bullying involves repeated hurtful actions between peers where an imbalance of power exists (Olweus, 1993*a*, 1994). Bullying is distinct from other forms of aggressive behaviours by encompassing three elements. First, bullying occurs between individuals of the same age group. Bullying can take place between youths or between adults. When hurtful actions are perpetrated by adults towards children or adolescents, we consider this maltreatment and not bullying. Second, the hurtful actions are repeated over time so a pattern of interactions is established between the bullies and a victim. One-off incidents involving hurtful actions between individuals are not examples of bullying behaviour. Third, the relationship between the bullies and a victim is characterized by a power imbalance whereby it is difficult for the victim to defend him- or herself. Physical strength, popularity and age are factors that characterize power imbalance between the bullies and their victim.

Bullying behaviours refer to verbal and physical actions such as threatening, taunting, spreading rumours, pushing and kicking, and excluding. Cyberbullying, a new form of bullying that has emerged following advances in technologies, involves devices such as mobile phones or the internet for targeting people (Smith *et al*. 2008). Bullying behaviours can be divided further into direct and indirect bullying. Direct bullying refers to verbal and physical behaviours conducted within the context of face-to-face interactions. Examples of direct bullying include hitting or threatening. Indirect bullying comprises actions that do not necessarily require the bullies or the victim to be present, such as spreading rumours, excluding and manipulating friendship groups (Olweus, 1993*a*, 1994). Girls tend to engage more frequently in indirect bullying and less often in direct bullying compared to boys (Bjorkqvist *et al*. 1992; Rivers & Smith, 1994). Reports of bullying victimization gradually decrease with age up to the end of secondary school (Sourander *et al*. 2000; Rigby, 2002).

Three groups of individuals are directly involved in bullying. Bullies are the perpetrators of bullying behaviours. A study on prevalence rates of 11- to 16-year-old children involved in bullying across 25 countries reported that, on average, 10% of children admitted bullying others in the current school term (Nansel *et al*. 2004). As bullying is a criterion for DSM-IV diagnosis of conduct problems (APA, 1994), bullies have a behavioural profile that resembles one of children with conduct problems. Victims are the targets of bullying behaviours. On average, 11% of children reported being the victims of bullying (Nansel *et al*. 2004). Victims tend to show increased symptoms of anxiety and depression (Hodges & Perry, 1999), low self-esteem and poor social skills (Egan & Perry, 1998). Bully-victims are children who are involved in bullying both as bullies and as victims. They represent a small but distinct group of children with on average 6% reporting being both bullies and victims (Nansel *et al*. 2004). Bully-victims have the highest level of adjustment problems among all children involved in bullying, showing symptoms of both internalizing and externalizing problems (Nansel *et al*. 2001; Juvonen *et al*. 2003; Veenstra *et al*. 2005; Arseneault *et al*. 2006). Prevalence rates indicate that being a victim of bullying is not as frequent as commonly believed. Indeed, rates of bullying victimization are comparable to rates of children possibly or definitely maltreated by adults (15% according to Dodge *et al*. 1990; 12% reported by Jaffee *et al*. 2004). This review paper focuses on bullying victimization, including groups of victims and bully-victims.

Assessment of bullying victimization

Various methods have been used to assess bullying victimization for research purposes. Direct observations of children in their day-to-day environments are suited to assess bullying as interactions between youths unfold on the playground or at school (Pepler & Craig, 1995). This method necessitates recording devices and rating scales for later coding. Sociometric assessments involve asking pupils to nominate children in the class who bully others or who are victims of bullies (Boivin & Hymel, 1997). More sophisticated assessments using peer nomination were developed recently to measure dyadic relationships between victims and bullies by asking children to report their involvement in bullying as either victims or bullies and

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to nominate other pupils as either victims or bullies in relation to themselves (Veenstra *et al*. 2007). The dyadic approach allows an in-depth investigation of the characteristics specific to the relationship between the bully and the victim. Peer nomination is a method that gathers data from several informants at once about who is involved in bullying at school. However, observing children or collecting peer nominations bears some difficulties. First, these methods are practical in the context of school surveys, or for small groups of targeted pupils, but can be difficult to coordinate with large nationally representative cohort studies. Second, information with regard to the severity or type of bullying experiences may not be available. Third, assessments should be conducted such that negative effects for bullies and victims, who may suspect they are being nominated during the whole-class assessment, are minimized (Mayeux *et al*. 2009). Fourth, the 'live' assessment of youths' interactions requires an exhaustive coding chart according to which behaviours are rated later on. In addition, the presence of observers or cameras may contaminate this natural set-up and the interactions may not be realistic.

An alternative method for assessing bullying is the use of questionnaires, where respondents rate their own experiences with bullying (Mynard & Joseph, 1997; Olweus, 2007, in press). Although questionnaires represent a straightforward method for collecting information on bullying, they also have their limitations (Salmivalli & Peets, 2009). Bullying questionnaires may represent a challenge for young participants, who can have difficulties comprehending the concept of bullying or recognizing their involvement in bullying. Others may be reluctant to report painful or traumatic experiences, raising ethical concerns (Ladd & Kochenderfer-Ladd, 2002; Olweus, in press). Alternative informants include parents, teachers and peers. Parents are considered as a viable alternate informant as young victims of bullying are more likely to report bullying incidents to someone at home than to a school teacher (Whitney & Smith, 1993). Parents are largely dependent on being informed about bullying incidents, rather than witnessing them, as such events occur most frequently outside the home. Teachers may have the opportunity to witness instances of bullying on the playground or in the classroom. However, they may be unaware of occurrences of bullying in the neighbourhood, in sport activities or in the family. Peers are likely to be aware if another pupil is involved in bullying because they are often present in children's environments where bullying takes place, such as school bathrooms, changing rooms and locker areas. During the first few years of primary school, peers may represent an unreliable source of information as they may not yet have developed the cognitive abilities to distinguish bullying experiences or remember such events. Furthermore, more subtle forms of bullying may bypass peers' recognition (Smith & Levan, 1995; Ladd & Kochenderfer-Ladd, 2002). Low levels of agreement across different informants (Ronning *et al*. 2009; Wienke Totura *et al*. 2009) may suggest that bullying victimization is setting specific. Therefore, when using questionnaires and especially with young children, researchers may consider collecting data from multiple informants to capture all instances of bullying victimization.

Bullying victimization and mental health problems

Bullying has long been considered as a normal pattern of interactions between youths, and thus not harmful. Current research is now challenging this view. We have summarized key findings on bullying as a significant risk factor for mental health problems into five sections.

Individual characteristics and family factors predict children who become targets of bullies

Victims of bullying are often told that they are victims of bad luck by having been in the wrong place at the wrong time. Although this message may alleviate victims' perceptions of being the origin of their misfortune, this leaves little hope for efforts aimed at preventing children from getting bullied in the first place. Studies have examined whether factors relating to the individuals and their environment have an impact on children's likelihood of being bullied. For this review, we focus on factors that could become targets of early intervention in order to prevent children from becoming victims of bullying.

Research shows that being the victim of bullying can be predicted by several factors. Longitudinal studies showed that young children with internalizing problems, such as withdrawal and anxiety-depression (Hodges & Perry, 1999; Arseneault *et al*. 2006), low self-regard and reduced assertiveness (Egan & Perry, 1998), have an increased risk of being bullied in childhood. Problems on the internalizing spectrum are not the only early individual characteristics associated with subsequent risks of being bullied. Girls who are bullied showed higher levels of externalizing behaviours prior to being bullied compared to non-bullied girls of the same age (Arseneault *et al*. 2006). Early aggressiveness was also shown to precede chronic peer rejection and victimization in both boys and girls assessed at four time points from age 3 to 6 years. Toddlers who display aggressive behaviours are at increased risk of experiencing peer victimization in the

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early school years compared to those who show no aggression (Ladd & Troop-Gordon, 2003; Snyder *et al*. 2003; Barker *et al*. 2008*b*).

How internalizing and externalizing behaviours increase children's risk for being bullied remains unknown. Anxious and depressed children may send signals that they are easy targets and will not retaliate if other children are unpleasant to them. Aggressive children may attract hostility from other children. Both internalizing and externalizing behaviours have been shown to be substantially influenced by genetic factors (Rutter *et al*. 1999; Rhee & Waldman, 2002; van der Valk *et al*. 2003; Moffitt, 2005). The association between such behavioural problems and the risks for being bullied draws attention to the plausibility that bullying victimization is heritable. One study has shown that genetic influences accounted for over two-thirds of individual differences in children's bullying victimization (Ball *et al*. 2008). Heritable behaviours associated with risks for being bullied such as internalizing and externalizing problems possibly mediate the effect of these genetic influences. Environmental factors accounted for the remaining third of the variance in bullying victimization, supporting other studies that have shown that the environment also influences children's risk of being bullied (Brendgen *et al*. 2008). Longitudinal studies have identified factors in the home that are associated with increased rates of bullying victimization among children, such as child maltreatment (Shields & Cicchetti, 2001), domestic violence in the home (Baldry, 2003), parental depression (Beran & Violato, 2004) and low socio-economic status (Wolke *et al*. 2001). Other environmental factors associated with bullying victimization include school characteristics such as overcrowding and the number of children receiving free school meals (Barnes *et al*. 2006).

Examining how family and school factors might together influence risks for being bullied is complicated by the fact that these factors are often observed simultaneously in the same homes. For example, socio-economic disadvantage, parental domestic violence and child adjustment problems often co-occur in the same families (Moffitt *et al*. 2002*b*). Research using multivariate analyses can identify environmental factors that are independently associated with children's risks for being bullied. One study showed that individual characteristics including aggressiveness, isolation, academic performance, prosocial behaviour and dislikability explain the effect of social circumstances on pre-adolescents' risks for being bullied (Veenstra *et al*. 2005). Measures of parenting including emotional warmth, rejection and overprotection were not associated with victims of bullying over and above children's characteristics. This study suggests that environmental factors influence children's characteristics, which in turn affect their risks for being bullied. Another study found that physical maltreatment is independently associated with being bullied later in life, even after controlling for the effect of children's internalizing and externalizing problems (Bowes *et al*. 2009). This study also showed that schools with large numbers of pupils were uniquely associated with children's risks for being bullied. Thus, factors in a child's family or school environment can increase their likelihood of being bullied over and above children's personal characteristics.

Evidence indicates that children's own characteristics and factors in their environment influence their risks for being bullied. Further investigations are necessary to determine the mechanisms by which these factors influence children's likelihood of being bullied. Interventions could focus on these factors to prevent children from becoming targets of bullies.

Being bullied can be stable over time

Bullies seem to be peers who transit in their victims' lives as youths go through the school system. Given that bullies are not closely related to their victims, such as parents or siblings, it could be that being the victim of bullying is a transient event that will stop when bullies leave a child's environment. This would suggest that removing the victim from the setting in which they are bullied might stop instances of bullying victimization. Studies have examined whether being the victim of bullying can be stable over time.

Evidence suggests that, for a substantial number of children, being the victim of bullying can last for prolonged periods of time despite decreasing rates of bullying victimization as children grow older. A total of 43% of age-11 victims were still victims 4 years later whereas 51% were no longer involved in bullying and 6% became bullies (Scholte *et al*. 2007). Of the children who were not involved in bullying at the first assessment, only 7% became victims later on. Being bullied at an earlier age is also moderately stable, with 15% of 8-year-old victims still being victimized by bullies at age 12 (Kumpulainen *et al*. 1999). During the preschool years, a pattern of moderate short-term stability of peer victimization has also been identified over a 1-month interval in children aged between 3 and 5 years (Crick *et al*. 1999). The probability of remaining involved in bullying was higher for boys and for children from low socio-economic status households. Victims who were being bullied chronically were more disliked, had fewer friends and were shyer than either victims who were bullied only during childhood or children who were never bullied. Children

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who were bullied only in childhood did not differ in adolescence from the children who were never bullied, in terms of being disliked or having fewer friends, stressing the importance of distinguishing between stable and transient peer victimization.

Developmental trajectories of bullying victimization have been identified across ages. Trajectory analyses use repeated assessments to provide a description of developmental profiles of stability and change over time. This statistical method enables the identification of subgroups of individuals following different profiles defined by the absolute level and pattern of change over time. During the adolescent years, three bullying victimization trajectories were identified: low/stable (85% of the sample), high/decreasing (10%) and high/increasing (5%) (Barker *et al*. 2008*a*). The results did not indicate a trajectory of high/chronic bullying victimization. During the preschool years, three trajectories of peer victimization were also identified using data collected at four time points when children were aged between 3 and 6 years: the majority of children followed a low/increasing trajectory of peer victimization, but 25% followed a moderate/increasing trajectory and 4% followed a high/chronic trajectory (Barker *et al*. 2008*b*). Children following high and increasing trajectories of peer victimization in pre-school showed elevated levels of peer victimization when they entered school. These analyses indicate that, for a small proportion of children, and especially for young children, victimization by peers can be stable across several years.

Studies show that children who are chronically victimized by their peers may be qualitatively different from those who are occasionally victimized, both in terms of risk factors and outcomes. High levels of harsh and reactive parenting were found to be specific to groups of children showing high and chronic levels of peer victimization as opposed to other pre-school trajectories (Barker *et al*. 2008*b*). In addition, insufficient parental income and physical aggression predicted high/chronic and moderate/increasing trajectories of peer victimization. Pre-school chronic victims are most at risk of sustained peer victimization into primary school. In adolescence, chronic bully-victims (following high/increasing trajectories on both bullying victimization and bullying behaviour) had the highest delinquency scores in mid-adolescence. Girls who followed the chronic bully-victims trajectory had the highest levels of self-harm in mid-adolescence. The different trajectories of bullying victimization were therefore associated with distinct outcomes, with children chronically victimized being most at risk of developing harmful outcomes. Furthermore, chronic victims by early adolescence had an elevated risk of becoming bully-victims (Barker *et al*. 2008*a*).

Being bullied is not a situational event and can last for several years. Altogether, these studies highlight the importance of considering not only the stability of victimization but also the pattern of change over time to predict which children are most likely to develop difficulties as a result of their experience of being bullied. Prospective, longitudinal studies following children into adulthood are needed to determine whether childhood bullying influences bullying victimization in adulthood.

Bullied children show severe symptoms of mental health problems

Concerns with bullying relate to the assumption that being bullied could impact various mental health problems. Bullied children manifest signs of psychological distress such as worry, sadness or nightmares. These could be normal and temporary reactions to a stressful event. Therefore, symptoms of distress manifested by victims of bullying would be normative and may not require intervention. We summarize findings from studies that have examined whether being the victim of bullying is associated with severe symptoms of mental health problems. Evidence on the independent impact of bullying victimization on mental health problems is reviewed later.

Findings indicate that problems experienced by victims of bullying are not merely minor difficulties but include a wide range of serious mental health problems. Studies have found that victims of bullying show not only elevated levels of social isolation, depression and anxiety (Forero *et al*. 1999; Hawker & Boulton, 2000; Kaltiala-Heino *et al*. 2000; Nansel *et al*. 2001; Wolke *et al*. 2001; Karatzias *et al*. 2002; Veenstra *et al*. 2005) but also, especially girls and bully-victims, increased self-harm behaviours and suicidal ideations (Baldry & Winkel, 2003; van der Wal *et al*. 2003; Kim *et al*. 2005; Barker *et al*. 2008*a*; Herba *et al*. 2008; Klomek *et al*. 2009). Suicidal ideations among victims seem to be exacerbated by feelings of rejection at home and also by having parents with internalizing problems (Herba *et al*. 2008). Being bullied in childhood predicted suicide attempts up to the age of 25 years among females, over and above early symptoms of conduct problems and depression (Klomek *et al*. 2009).

The impact of being bullied is not only limited to behaviours that are harmful to the self (i.e. internalizing problems) but also extends to behaviours harmful towards others (i.e. externalizing problems). Both victims of bullying and bully-victims show externalizing problems such as violent behaviours and carrying

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a weapon (Nansel *et al*. 2003; Arseneault *et al*. 2006; Kim *et al*. 2006; Liang *et al*. 2007). Adolescents who are chronic victims of bullying also show increased risks of bullying others (Barker *et al*. 2008*a*). In addition, children victims of bullying and bully-victims show increased rates of psychotic symptoms later on (Bebbington *et al*. 2004; Janssen *et al*. 2004; Kelleher *et al*. 2008; Schreier *et al*. 2009). Furthermore, studies have observed a dose–response relationship between the frequency of bullying victimization and levels of psychotic symptoms (Lataster *et al*. 2006; Campbell & Morrison, 2007). These findings suggest that detrimental effects of bullying upon individuals' mental health may extend to delusions, auditory and visual hallucinations.

Studies have demonstrated that the effects of bullying victimization go beyond the development of depression, anxiety and social exclusion. Problems experienced by victims are not merely minor difficulties but include severe problems such as psychotic symptoms and suicidal ideations. More work is needed to further develop our knowledge on the victimization risk associated with psychotic symptoms.

The impact of being bullied on mental health problems can be long-lasting

The majority of evidence supporting an association between experiences of being bullied and mental health problems is either concurrent or within a short time-span. This raises the possibility that symptoms of mental health problems are temporary and disappear when the bullying stops. If this is the case, the focus of interventions should be on stopping bullying rather than on reducing distress in young victims, as symptoms will disappear once the bullying has stopped. Studies have examined the long-term outcomes of being bullied in childhood and adolescence.

Existing evidence is limited to very few studies, some based on retrospective reports of experiences with bullying. Overall, these studies tend to show that individuals who were bullied in childhood show adjustment problems in late adolescence and in adulthood. Participants from two large cohort studies were retrospectively asked whether they had been bullied in childhood. The results from a Scandinavian cohort of men indicated that those who reported being bullied in childhood had an increased risk for depression between the ages of 31 and 51 years, over and above the effect of possible confounders such as parental mental illness or socio-economic status (Lund *et al*. 2009). Findings from the British National Survey of Psychiatric Morbidity indicated that male and female participants who reported probable or definite psychosis also reported elevated bullying victimization experiences during their school years (Bebbington *et al*. 2004). The risk was reduced when controlling for depression but it remained strong and significant. Despite the use of retrospective measures of bullying victimization, these two cohort studies suggest that being bullied in childhood is associated with psychiatric outcomes in adulthood.

Only a few longitudinal studies into late adolescence collected prospective data on bullying victimization in childhood. One study examined psychiatric outcomes in a small group of boys who grew up in the early 1970s in Sweden (Olweus, 1993*b*). The results indicated that, by the age of 23, those who reported being bullied when they were 16 had increased levels of depression and poor self-esteem. These long-term consequences are further supported by the findings from a large population-based 1981 birth cohort from Finland. Information about bullying was collected from mothers, teachers and the participants themselves in childhood. Psychiatric outcomes in late adolescence were recorded from official sources in addition to reports from mothers, teachers and participants. The findings indicated that, compared to children who had not been bullied at 8 years, victims of bullying and bully-victims had more internalizing and externalizing problems when the participants were age 15 (Kumpulainen & Räsänen, 2000) and they had a 3.5 increased risk of being referred for psychological services (Sourander *et al*. 2000). Considering being bullied frequently in childhood helped to identify approximately 28% of individuals with psychiatric disorders between the ages of 18 and 23 years (Sourander *et al*. 2007*a*). Another study examined criminal offences according to the national police register (Sourander *et al*. 2007*b*). The results showed that boys who were bully-victims in childhood had an increased risk of committing repeated criminal offences between the ages of 16 and 20, whether or not they also had psychiatric symptoms in childhood. Young victims had an increased risk of committing criminal offences only if they also had psychiatric symptoms in childhood.

Cohort studies suggest that young victims of bullying continue to have adjustment difficulties in late adolescence and early adulthood. The strength of these longitudinal studies lies in their use of prospective measures of bullying victimization and psychiatric outcomes, their use of multiple informants and a minimum time-span of 7 years between bullying and outcome measures. However, more prospective studies following participants from early childhood to adulthood are needed to confidently conclude that being bullied has long-lasting effects across the lifespan.

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Being bullied contributes uniquely to mental health problems

Bullying victimization is relevant to research and clinical practice if it contributes independently to the development of mental health problems. If mental health problems among victims of bullying can be explained by other factors, such as symptoms of mental health problems prior to being bullied, genetic background and family factors, then intervention strategies should focus on these factors instead of bullying *per se*. Studies have examined the independent contribution of being bullied to mental health problems while controlling for various confounders.

Temporal priority is the foremost criterion for testing causal effects. Again, evidence is limited to a few studies that controlled for psychiatric symptoms at baseline to test that it is in fact being bullied that leads to mental health problems, and not the reverse. Two studies of secondary school students prospectively assessed bullying and psychiatric outcomes twice in the same year. The first study indicated that being bullied at age 13 was associated with the incidence of symptoms of anxiety and depression the following year, even after controlling for social relationships and demographic factors (Bond *et al*. 2001). The second study showed that, compared to children not involved in bullying, victims of bullying had more social problems and bully-victims had more aggression and externalizing problems, over and above controls for problems at the start of the school year (Kim *et al*. 2006).

A UK-representative cohort study on young children prospectively collected data on bullying victimization during the first 2 years of schooling and data on adjustment problems 2 years later. The results indicated that victims of bullying, and especially bully-victims, had more internalizing problems and unhappiness at school compared to children not involved in bullying (Arseneault *et al*. 2006). These effects remained strong and significant after controlling for symptoms prior to experiencing bullying, suggesting that being bullied contributes to adjustment problems in childhood. Data from a cohort study of twins allowed further control for other potential confounders by examining a subsample of monozygotic (MZ) twin pairs (Arseneault *et al*. 2008). Because MZ twins are genetically identical, variation in the outcome cannot result from genetic variation between the two twins. In addition, because some environmental experiences shared by two twins are necessarily constant within a pair, shared environmental factors such as poverty, domestic violence or maternal depression cannot account for the differences in the outcome variable either. The findings from this study indicated that the variation in the experience of being bullied was significantly associated with variation in children's internalizing problems at age 10. More specifically, MZ twins who had been bullied had close to half a standard deviation more internalizing problems compared to their co-twins who had not been bullied. This difference remained significant even after controlling for internalizing problems assessed when the twins were age 5 years, prior to being bullied. This study provides strong support for a causal effect of bullying victimization on children's internalizing problems. First, the longitudinal analysis showed that the unique effect of being bullied remained significant after controlling for prior internalizing problems, demonstrating temporal priority between the exposure and the outcome variables. Second, the results indicate that the effect of being bullied on children's internalizing problems cannot be accounted for by a wide range of potentially confounding variables such as genetic make-up or family background.

Studies show that over and above early mental health problems and a range of confounding factors, being bullied contributes to children's symptoms of distress. Research has shown that bullying victimization in childhood leads to mental health problems in late childhood or adolescence, over and above symptoms prior to experiencing bullying victimization, genetic and family factors shared by members of a family. More work is needed to test whether being bullied contributes to other psychiatric outcomes in adulthood.

Potential mechanisms for explaining mental health problems among bullied children

If bullying is an environmentally mediated causal risk factor for children's mental health problems, future research needs to investigate processes that might explain why bullied children manifest early signs of psychopathology. We present here three such mechanisms: physiological response to stress, cognitive distortion and emotion processing.

It has been suggested that physiological changes in biological stress response systems such as the hypothalamic–pituitary–adrenal (HPA) axis mediate the association between early adverse experiences (e.g. parental abuse) and anxiety disorders (Heim *et al*. 2000). Individual variability in stress reactivity may indicate that victims of bullying become hyper- or hyposensitive to stress and this in turn might explain why they develop early-onset mental health problems. In addition, the experience of bullying at a young age could lead to distortion in the way children interpret their interpersonal environment. Children may wrongly attribute causes of negative events to

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themselves or believe that these causes influence a wide range of situations in their lives (Kinderman & Bentall, 1996). Attributional bias, the tendency to explain significant events and their causes in a specific way, might account for psychopathology among bullied children. Finally, facial displays of emotions such as anger can be an indicator of threats. Recognition of social cues such as facial expression is an important ability for establishing good and friendly relationships during childhood (Pollak & Sinha, 2002). However, oversensitivity to social cues can pose a risk for developing psychopathology. Research has shown that physically abused children were better than non-abused children at discriminating angry facial expressions (Pollak, 2003). It might be that bullied children detect more accurately and more rapidly angry facial expressions and this interpretation of environmental cues influences social interactions and their behaviours.

Discussion

Bullying: is it 'much ado about nothing?' Not according to the body of evidence reviewed in this article. A substantial proportion of youths are victimized by their peers at some point during their school years and, for some, chronically from an early age. Not all children experience bullying and those who do fare detrimentally in comparison to those who do not. Contrary to common belief, empirical evidence indicates that being bullied could be more harmful than previously thought and that actions could be taken to buffer the severity of these effects. Research shows that children's risk of becoming the targets of bullies can be predicted from individual characteristics and factors from the children's immediate environment. For a small group of children, and especially for those who are victimized by their peers before school entry, bullying victimization is a stable occurrence in their lives. Being bullied is associated with severe symptoms of mental health problems, which can be long-lasting. Emerging evidence suggests that being bullied has a direct contributory effect on mental health problems.

Studies indicate that bullying victimization affects not only teenagers at school but also young children before school entry. This conclusion has two important implications. First, research and intervention programmes need to focus on young children before or at school entry. Parallels with research on antisocial behaviour can be easily drawn. Early studies on antisocial behaviour were mostly conducted on groups of adolescents during the age period when it seemed to be most prevalent, until evidence suggested that these behaviours found their roots in childhood (Robins, 1978). Longitudinal research since then has repeatedly demonstrated that individuals showing antisocial behaviour in early childhood are most likely to live a life marked by criminality and adversity (Moffitt, 1993; Moffitt *et al*. 2002*a*). The findings reported here suggest that pre-school children who are victimized by their peers display a tendency for being victimized also after entry into formal schooling and to show early signs of mental health problems. They are at risk of experiencing a life marked by further victimization and mental health problems. As young victims of bullying get older, they may be subjected to more bullying at work and domestic violence at home. Furthermore, most adult mental health problems find their roots in childhood (Kim-Cohen *et al*. 2003) and some possibly as a result of early bullying victimization. This draws attention to investigate further factors that could influence children's risk for being victimized in early life, including the family environment and possibly children's genetic make-up. Thus, identifying children at risk of being bullied and preventing such occurrences early in life could reduce further victimization and limit the direct and long-term harm associated with being bullied.

Second, the focus of bullying research and intervention would benefit from extending their target to include families. The majority of bullying occurs in schools, where children and adolescents spend a large proportion of their time. Schools have therefore taken onboard the responsibility of dealing with bullying (Smith & Shu, 2000). Many school-based anti-bullying programmes have been developed, with some countries legally requiring schools to have an anti-bullying policy (Ananiadou & Smith, 2002). Whole-school based programmes, such as the Olweus bullying programme (Olweus, 1991), include multiple components operating simultaneously at different levels in the school community. Such programmes have been shown to have greater success at reducing levels of bullying than single-level interventions (Vreeman & Carroll, 2007). However, research reported here has highlighted the important role played by families in preventing children getting involved in bullying and in helping them cope with the harmful effects of being bullied. Involving families in school anti-bullying programmes may increase success by reducing the number of children who are bullied. Indeed, in a meta-analysis of the key elements of anti-bullying programmes effective at reducing bullying and victimization, several family factors were highlighted, including parent training and informing parents about bullying (Ttofi & Farrington, 2009). Parents may also help in stopping bullying behaviours and in supporting victims coping with the stress of being targets of bullies. The capacity of families to buffer children from

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the impact of stressful life events is well documented (Masten & Shaffer, 2006). Positive parenting, particularly warm and supportive parental relationships, is linked to children's social and emotional well-being even in the context of exposure to adversity (Egeland *et al*. 1990; Kim-Cohen *et al*. 2004). The positive effect of families extends to situations where children are bullied. Children experiencing victimization at home and in school are especially vulnerable. Those experiencing violence at home are at increased risk for mental health problems such as depression and anxiety (Jaffee *et al*. 2002). These problems can be further triggered by exposure to other abusive situations in the school environment. Identifying the mechanisms by which violence at home influences children's risk of being bullied and developing targeted interventions are crucial for breaking the cycle of violence at home and in school for these vulnerable children.

Bullying victimization has been shown to be more prevalent among boys than girls, although girls tend to be more engaged in indirect bullying. However, findings indicate that risk factors operate the same way for both genders. This is again in line with research on antisocial behaviour. Studies have shown that the same risk factors predict antisocial behaviour among both boys and girls despite higher prevalence rates of antisocial behaviours among boys than girls (Moffitt *et al*. 2001). However, boys are exposed to greater levels of individual and social risks for antisocial behaviour. Similarly, boys may have high levels of bullying victimization, possibly because they are more exposed to a range of individual and social risk factors for bullying victimization, compared to girls. More research on risk factors for bullying victimization is needed to test this hypothesis.

Research indicates that victims of bullying constitute two distinct groups of children. On the one hand, pure victims are solely targets of bullies, and on the other hand, bully-victims are both victims of bullying and bully others. Findings show that these two groups have distinct risk factors and outcomes, with bully-victims being exposed to more risk factors than victims and showing worst mental health outcomes in childhood. The combination of being bullied and bullying others is not common and still not well explained. Emerging evidence suggests that bullying others may be, for some children, a response to being bullied, rather than bullies becoming targets of other bullies. One possibility is that some victims of bullying from deprived backgrounds, or victims with symptoms of mental health problems prior to being bullied, have fewer resources to cope with the stressful situation and respond by bullying others. Bully-victims should be prime targets for intervention efforts.

Future research

To further our understanding of bullying victimization and its role in the development of psychopathology, more research is needed in seven domains. First, we need to develop methods that reliably assess victimization in very young children. Early peer victimization is associated with chronic victimization and with harmful outcomes, making it an important risk factor to be targeted for research and interventions. Young children are shown to be reliable informants about their own behaviour and experiences (Arseneault *et al*. 2005) but it is necessary to develop age-appropriate methods for assessing peer victimization with pre-school children. Alternatively, the identification of other sources of information will be helpful to assess bullying experiences in young children. Second, we need to study the long-lasting effects of being bullied in childhood by data collected from longitudinal studies. Intervention strategies may be tailored differently if bullying victimization is associated with childhood-limited problems rather than long-lasting difficulties that span age periods. Third, we need to investigate in multivariate models various types of victimization across settings. Children who are victimized by an adult at home and by their peers at school may represent a particularly vulnerable subgroup that shows the most problematic behavioural and emotional profiles among all victimized children. Fourth, we need to look at the contribution of genetic factors, in addition to environmental influences, on bullying victimization and their impact on the development of mental health problems using genetically informative studies. For example, candidate genes may moderate the association between bullying victimization and mental health symptoms so that children with specific genetic variations are more susceptible to the negative impacts of being bullied. A better understanding of the contribution of genetic and environmental factors will not only help people to understand how genes may be involved when 'stress gets under the skin' but also guide and inform intervention strategies. Fifth, we need to examine the stability of bullying victimization across age periods. Longitudinal epidemiological studies will help to determine whether bullying victimization is stable across the transitional period between primary and secondary school and also between teenage years and adulthood. This is especially important given the major changes in the social environment during these key transition periods. This will also help to determine whether bullying status is predominantly influenced by the environment or by the individual. Sixth, we need to identify factors that may help children overcome the experience of being bullied. Not all bullied

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children develop mental health problems and some victims fare well despite experiencing this stressful event. Research on resilience and protective factors will help not only to tailor intervention programmes but also to understand how being bullied can contribute to children's mental health problems. Seventh, we need to understand the mechanisms by which bullied children develop mental health problems. Potential mechanisms could involve stress responses or cognitive distortion.

Conclusions

Empirical evidence suggests that bullying victimization can be an important risk factor for childhood and adolescent psychopathology. Research is needed to understand this type of victimization experience and how it contributes to the development of mental health problems. Intervention and prevention strategies warrant increased focus for reducing bullying behaviours in schools and in the community. Recent findings also highlight the need for mental health practitioners to consider the range of difficulties experienced by children who report being bullied. These children are at risk of experiencing other forms of victimization, dealing with other risk factors and developing mental health symptoms.

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Declaration of Interest

None.

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