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What is This?
Neighbourhood deprivation, school disorder and academic achievement in primary schools in deprived communities in England

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There is growing concern about violent behaviour in schools, involving students, staff and/or parents. A survey of 1777 primary schools (for children aged 5 to 11) throughout England, most in areas of social and economic deprivation, found more disorder in neighbourhoods with greater deprivation. More disorder was also observed when there was more school-level disadvantage (e.g. students receiving free meals), larger school size and more children in need of special education services. Despite difficulties in drawing causal inferences from correlational data, the fact that more disorder significantly predicted lower school achievement for students at 7 and 11 in standardized English, mathematics and science assessments even once school characteristics and neighbourhood deprivation were taken into account is judged noteworthy. Potential confounding factors are considered in the discussion.

Throughout the world there has been growing anxiety in recent years about the increasing level of violence and disorder in schools (Debarbieux, 2001; Nicolletti & Spencer-Thomas, 2002; Smith 2003). In addition to being a problem in its own right, school disorder is likely to reduce the chances for effective learning. In the USA there exists a range of guidance designed to combat violence in schools (Aber et al., 1998; Agron, 1999; Zinna, 1999). Much media attention was given to cases where students were killed by classmates – most notably at Columbine High School in Colorado in the USA in 1999 and at the Birkbeck School in Lincolnshire, England, in 2003. There are even websites devoted to highlighting fatalities in or near schools (www.keytosaferschools.com).

Children's development and achievement can be adversely influenced by far less dramatic violence than the homicidal kind, such as by being part of a class or school in which bullying, aggression and disorder are frequent (Mijanovich & Weitzman, 2003; Rutter & Maughan, 2002; Ryan, 2000). In fact, some children even take their own lives in response to such all-too-regular torment by others in and around school. In most schools today there is a recognition that there may be some student disorder such as bullying, violent alterations and verbal abuse amongst students and between students and staff and that some students will, at times, need to be excluded temporarily (i.e., suspended) or permanently (i.e., expelled). But it is not only students who victimize classmates or aggressively harass teachers who contribute to the danger and disorder of schools; sometimes parents also behave in confrontational ways with school staff.

Problems with violence are often considered in relation to teenagers and secondary schools. However, disorder is increasingly becoming a feature of life in primary (i.e., elementary) schools in the UK, as are permanent exclusions (i.e., expulsions) (Hayden, 1994, 1997), with attendant poor outcomes for the students (Parsons et al., 2001). It has been suggested that teachers of young children are more reluctant to seek help in managing difficult behaviour (Miller, 1996). Dealing effectively with violent parents or verbally abusive children requires substantial training and good systems to be in place, something that does not characterize all schools, which would often prefer to exclude violent youngsters (BBC, 2003). Teacher time and school resources must be taken away from teaching when violence, disorder and related non-academic issues demand attention. This can undermine the school’s primary goal of fostering academic learning. In order to assess the extent of need, reliable information is required about the prevalence of these kinds of incidents. The first goal of this research was to provide such information on primary schools in England serving substantial numbers of children who reside in economically disadvantaged communities that have been targeted to receive a community-based early intervention programme for children under the age of 4 known as Sure Start Local Programmes (SSLP).

Prevalence of school disorder

Reliable prevalence estimates are difficult to come by, often due to methodological variation across seemingly relevant investigations. Across the available research studies, time
frames often differ and researchers often report on incidence of any violence per teacher (or school) rather than prevalence. Nevertheless, most investigations indicate that the problem is real and extensive. This is true of work carried out in the USA (e.g., Peach, 1991; Pietrzak, Petersen & Speaker, 1998), as well as according to international comparisons. With respect to the latter, Akiba and associates (2002) examined 7th and 8th grade teachers’ reports of their teaching being limited by threats to their safety or that of their students in 37 nations, including much of Europe, the USA, Russia and the Middle East. Whereas fewer than 10% of teachers in England and Scotland (and the USA) reported such threats (but see Wright & Keetley, 2003 for contrasting data), almost 20% did so in Slovenia and Greece, and close to 50% in Kuwait and Romania.

Whether violence and disorder in schools is actually increasing is not entirely clear. Some evidence from the UK suggests that violent incidents increased during the last decade of the 20th century (National School Boards Association, 1993). However, most of the existing research has concentrated only on violent incidents in secondary schools, and most has been conducted in the USA (Ferris & West, 2002; Warner, Weist, & Krulak, 1999). Some researchers there have questioned whether school violence is as serious and pervasive as sometimes reported (Furlong & Morrison, 1994). National surveys in the USA have documented a decrease in the 1990s and minimal change since the mid-1980s (Kingery, Coggleshall, & Allford, 1998). In addition, although more young children are being excluded (expelled) from school (Hayden, 1997), less is known about the level of violence and unrest in schools with younger students. This study investigated the extent of disorder in primary (elementary) schools serving children aged 5 to 11 years.

Community deprivation and school disorder

Our second goal was to examine the relationship between school disorder and neighbourhood deprivation. Why might one expect linkages between community deprivation and school disorder? Theoretically speaking, deviant behaviour in schools and in communities is often explained in terms of poverty and identification with (anti-social) key community members. Jencks and Mayer (1990) outlined major theoretical models by which the characteristics and behaviour of neighbours are thought to influence child behaviour and development. Some focus more on the behaviour of neighbours and others on the financial capital within families and locally in the neighbourhood. The epidemic or contagion model assumes that behaviours are learned or copied. The presence of antisocial adults or youth can spread problem behaviours such as substance abuse or delinquency. Collective socialization models highlight, additionally, the importance of adult role models in the community such as other parents, relatives or neighbours who may socialize children towards acceptable success, rather than antisocial behaviour, depending on the local social norms and the extent of anomie. In disadvantaged neighbourhoods, where anomie is commonplace, this socialization is often lacking. Competition theory is most closely linked with poverty and emphasizes the importance of resources and the potential impact if neighbours have to challenge each other for scarce resources.

Finally, relative deprivation theory proposes that individuals judge their position in society in relation to neighbours. Those with fewer resources are likely to be demoralized if neighbours appear to be more affluent. In fact, children and families experiencing “personal” poverty in relatively affluent communities may be predicted to be at particular disadvantage if they are subject to negative labelling by their more affluent peers. In uniformly deprived communities, however, residents may gain strength from each other if there is social cohesion.

The theory of social disorganization (e.g., Sampson & Groves, 1989) has also been influential, particularly in relation to explaining the development of delinquency. It is said to depend to a large extent on the presence of sub-cultural values contrary to mainstream society, which schools are generally designed to support. Strain theory (e.g., Cohen, 1955; Merton, 1938) has also been applied to explanations of the development of delinquency. This predicts that crime and disorder is related to the gap between culturally induced aspirations for success and the structurally distributed possibilities of achievement. Relating this to schools, when families in the community have little chance of success – either in economic or academic terms – one might predict more disorder in the local institutions such as schools. Structural strain, reflected in inadequate regulation at the societal – or in this case the community – level filters down to influence how the individual perceives his or her own needs. Messner and Rosenfeld (1994), in their expansion of strain theory, suggest that the entire educational system is driven by the job market (i.e., education is simply a means to gain employment) and therefore when a community perceives that there are few opportunities for employment, they will reject the values of educational establishments. Agnew (1992) contends that macro-level differences in crime and deviance can also be explained in terms of aggregate levels of anger and frustration. This has been examined in one American study which found that student-to-student conflict is partly a function of the level of anger in the student population, although other forms of aggressive student behaviour were not related in the same way (Brezina, Piquero, & Mazzerolle, 2001). Strain theory has also been applied to the study of academic misconduct of older students in the form of cheating in examinations (Vowell & Chen, 2004). However, there is less examination of disorder of younger students, or indeed their parents.

In view of the theoretical frameworks just considered, it is surprising that there is lack of consensus about the extent to which school disorder is more likely in schools catering for children from economically disadvantaged backgrounds. At the country level, Akiba et al. (2002) found that absolute deprivation (GDP per capita) was significantly associated with the level of school violence across the 37 nations they investigated. In the USA, levels of school problems are found in many studies to be higher for schools in more disadvantaged areas (e.g., Black & Krishnakumar, 1998; National Center for Education Statistics, 2002; Speaker & Petersen, 2000) and those with higher crime (Hellman & Beaton, 1986). However, Clark and Lab (2000) found, comparing self-reported victimization in 44 junior high and high schools in Ohio, that levels of economic disadvantage and criminal activity in the surrounding area had little impact. What none of this work makes clear is whether the putative effects of community deprivation on school disorder operates only across the full spectrum of communities, ranging from very advantaged to very disadvantaged, or whether it also operates within disadvantaged communities. Thus, the second goal of this inquiry is to determine whether, within a large sample of deprived communities, greater and lesser levels of community
deprivation are associated with more and less disorder in primary schools.

It must be acknowledged that even should this prove to be the case in the large sample of schools serving highly deprived communities that is the focus of this inquiry this would not, in and of itself, demonstrate that community deprivation causes school disorder. To begin with, the data to be examined are correlational in nature and thus are inherently limited when it comes to drawing causal inferences. Secondly, it remains possible, even should the anticipated linkages emerge between community deprivation and school disorder, that other (“third”) variables could be responsible for this linkage. Consider the possibility, for example, that in deprived communities rates of family break up are higher and that it is the family conflict associated with such break ups that generates problem behaviour in children and, thereby, school disorder. In the current inquiry, neighbourhood deprivation essentially functions, in Bronfenbrenner's (1979) terms, as a “social address” which needs to be unpacked to fully illuminate how it comes to be related to school disorder, should that prove to be the case. For the present investigation, that meritorious goal is not of primary importance, as the core purpose of this inquiry is to determine whether school disorder is related to achievement once the potential confounding factor of community deprivation is taken into account.

School disorder and achievement

As just indicated, the third goal of this study is to examine the relationship between school disorder and school-level achievement. A major reason for being concerned about school disorder is that “for children to learn and teachers to teach, schools must be safe” (Linquanti & Berliner, 1994; cited in National Center for Education Statistics, 2002: 3). While reducing disorder is a legitimate aim in its own right, children's development and achievement may be adversely influenced by being part of a class or school in which bullying, aggression and disorder are frequent (Mijanovich & Weitzman, 2003; Rutter & Maughan, 2002; Ryan 2000).

In the UK, where teachers are likely to attribute student misbehaviour to “family background factors” (Atici & Merry, 2001), most of the research has focused on the relationship between poor educational achievement and disadvantage (e.g., Higgs, Bellin, Farrell, & White, 1998), and the need for more research linking school characteristics to non-cognitive outcomes such as bullying, truancy and delinquency has been identified (Rutter & Maughan, 2002).

Other characteristics of schools, apart from poverty, have been associated with violence, in particular school size, and these attributes need to be taken into consideration when exploring effects of school disorder on children's functioning. Larger schools are perceived as having a more threatening “climate” by teachers (Murray, 2002). More youth violence takes place in large schools (Leung & Ferris, 2002; McRobbie, 2001) and achievement is lower (McRobbie, 2001). It has been suggested that in large schools students feel more alienated and lonely (Page, 1990; Warner et al., 1999). However, when given the chance to explain violence in schools, teachers were more likely to attribute it to decline in family structure, breakdown in moral education and increased violence in the family and the media rather than to school characteristics such as size (Speaker & Petersen, 2000).

Studies have also focused on racial issues (Hindman, 1999) and school organization (Baxter, 2000) as explanations of school disorder. Exclusion rates have been associated disproportionately with students from ethnic minorities and with special educational needs (Studley, 2002) and those with family problems (Morrison & D'Incau, 1997). When it comes to examining potential effects of school disorder on achievement in this study, the school characteristics just considered (e.g., size, ethnic composition, special education) are statistically controlled, as is community deprivation, and the focus of inquiry is school-level nationally standardized test data available for children at ages 7 and 11.

Why might school disorder be related to achievement? It is well established at the individual level that many youngsters who become delinquent have marked learning difficulties and problems such as dyslexia, which frequently go unremediated. The consensus is that academic problems probably precede behavioural difficulties in most cases, but a high level of behavioural problems in the school, and aggressive behaviour from parents, may reflect frustration that children with potential for learning and achieving are not always given the resources and guidance that they need. The present study is founded on the premise central to an ecological approach that there is a similar effect at the school level. When teachers and support staff are not in an environment that is conducive to restraining aggressive and antisocial behaviour, the achievement of the whole school community will suffer. In addressing this issue empirically, we not only examine links between school disorder and school achievement, using school as the unit of analysis, after taking into account school size and composition, but, as noted above, after taking into account community-level deprivation as well. Even though this approach cannot insure that any detected (statistical) effects of school disorder on achievement reflect truly causal ones, it does go a substantial way toward discounting some important confounding factors that might otherwise function as alternative explanations of the results generated were they not included in the analysis.

In sum, data on neighbourhood deprivation, school disorder, and student achievement across a large number of primary schools serving many children from economically-disadvantaged families residing in deprived communities across England are examined in order (1) to estimate prevalence of disorder and (2) to examine linkages between community deprivation, disorder and achievement. With regard to the latter, it was anticipated that schools in more deprived neighbourhoods would report higher levels of bullying, physical and verbal aggression toward teachers by students and by parents, exclusions and crime such as vandalism and theft than those located in less deprived neighbourhoods; that neighbourhood-level deprivation would be related to a composite measure of school disorder, as would school attributes; and that greater school disorder would be related to poorer pupil achievement even after taking into consideration community-level deprivation and other school attributes. Because of the dynamics of community, school and even individual functioning, it must be acknowledged that reciprocal effects are likely to operate, with poor achievement increasing the risk of school disorder and the latter itself contributing to community deprivation (perhaps by dissuading more advantaged families from moving in to the area). Because of the temporal ordering of variables available for analysis in this inquiry, however, it was not possible to examine such reciprocal effects in this first investigation of school disorder in primary schools in England.
It must also be acknowledged that, in most respects, the analysis of distal and/or aggregate measures of deprivation, school disorder and achievement is guided by thinking about how community, family and classroom processes operate at a more “on-the-ground” and day-to-day level experienced by the individual child. Thus, it is expected that community deprivation will predict school disorder because in households where economic deprivation is widespread, so too are forms of social interaction known to undermine emotional regulation and self-control (e.g., McLloyd, 1990). Relatedly, because lack of self-regulation undermines attention and thereby learning, whether it characterizes oneself or those with whom one goes to school (Kellam et al., 1998), it is expected that school-level disorder will predict poorer school-level achievement. What this study will not be able to illuminate, but which merits additional research, is the extent to which the very processes presumed to be linking deprivation, disorder and achievement operate not only at the individual level but, collectively, exert impact that is over and above the individual level. That, too, is presumed to be the case, though not tested directly, in this inquiry.

Method

Participants
Sure Start Local Programmes (SSLPs) is a UK government initiative designed to co-ordinate and add value to services for young children (i.e., < 48 months) and their families, targeted at families living in carefully defined, small geographic areas of social and economic deprivation throughout England (Glass, 1999). This research was undertaken using data collected as part of the National Evaluation of Sure Start (NESS), which is evaluating SSLPs (NESS, 2004). For this study, primary schools (serving children aged 5 through 11 years) throughout England with 10% or more of the children on their roll living in SSLP areas were the target of inquiry; a total of 2661 such schools were identified (16.9% of the total in England). Thus the schools were not all located within the areas targeted for the intervention since a minority of children travel substantial distances away from their neighbourhood to attend schools of their choice. However, they all had a significant minority of their pupils living in the SSLP areas, that is, coming from areas judged in need of early intervention efforts to promote school readiness due to social and economic disadvantage.

Procedures
A questionnaire was sent by post to each school, addressed to the head teacher (principal). The head teacher in primary schools in the UK generally has responsibility for overall school management and also for attention to disciplinary issues and contact with outside agencies. At least two follow-up telephone calls were made if questionnaires were not returned within one month.

Measures
Neighbourhood-level deprivation. The national Indices of Multiple Deprivation 2000 (DETR, 2000) were used to describe the level of deprivation of the neighbourhood (defined as the electoral ward) of each sampled school. The IMD total score, incorporating six domains of deprivation, is used to rank all electoral wards (i.e. census tracts) in England from 1 (the most deprived) to 8414 (the least deprived). It is based on six domain scores, each based on multiple statistically robust indicators available at the small area level – employment; income; health and disability; education, skills and training; housing; and geographical access to services – weighted so that employment and income contribute more to the total score than the other domains. An additional domain, the Child Poverty Index (CPI), is based on a subset of the income domain and provides an indication of the extent to which children aged 0–16 live in poverty in the area. Ranks are also available for each domain and the CPI.

School disorder. A brief questionnaire was designed for this study in consultation with diverse stakeholders to be concise and easy to complete so as to maximize response rate from school personnel. Before administration, it was approved by DfES Star Chamber, the government body overseeing research in state schools in the UK. The school disorder questions were written so that the definition of each behaviour was clear (see Appendix for details). The items in the School Disorder Scale (SDS) cover: bullying between students, days lost by temporary exclusions (suspensions), verbal and physical aggression towards staff by students, verbal and physical aggression towards staff by parents of students and reports to police of vandalism/theft of school property. The schools were asked to report on the previous two school terms (out of a three term school year), covering the period from the start of the school year in September 2002 to the end of the Easter term (March) 2003. The response format for each item is a five-point scale ranging from no occurrence of each event (0) to frequent (4), with each point on the scale defined for each question. For example, the response scale for the question on bullying is: 0 = no incident; 1 = 1–2 incidents; 2 = 3–5 incidents; 3 = 6–10 incidents; 4 = 11 or more incidents (see Table 1). The SDS scale score could thus range from 0–28. The internal consistency of the scale was good (alpha 0.77; Cronbach, 1951).

School achievement. Information from the UK Department for Education and Skills National Pupil Database (DfES, 2003), including all students in England, was aggregated to the school level to give the percentage of relevant students in the school attaining the expected standard in Key Stage 1 standardized national tests (taken by 7-year-olds) and Key Stage 2 tests (taken by 11-year-olds in the final year of primary school) for English, mathematics, and science. These tests were administered in May of 2003, and thus after the period covered by the school disorder questionnaire. At Key Stage 1 the expected attainment is level 2 or higher and at Key Stage 2 the expected attainment is level 4 or higher.

School characteristics. Information was extracted from the UK Department for Education and Skills (DfES) Pupil Level Annual School Census (PLASC) on the total number of students on the school roll, the percent of children in receipt of free school meals (a means tested benefit which is an indicator of the extent of poverty in the school population), the percent of children with English as an additional language (in addition to the language(s) spoken at home) and the percent of children with documented special educational needs (levels 1 through 5). The majority of primary school students with special educational needs have a form of learning difficulty (DfES, 2004).
Analysis

Descriptive statistics were calculated to illuminate the relative frequency of each of the items in the school disorder scale. Pearson correlation coefficients were calculated to examine the relationship between total disorder, each item of the scale, area-level deprivation (the IMD and its components), and school characteristics. Finally, a stepwise linear regression was calculated to predict variability in academic achievement of schools (for each of the five achievement outcomes), including first the neighbourhood, then school characteristics and finally school disorder. To avoid collinearity effects, only the total IMD rank was used, as each of the IMD domains is significantly associated with each other domain.

Results

Respondents

Of the 2661 SDS questionnaires sent, 1777 were returned (66.8%). There were no differences between respondent and non-respondent schools in terms of area-level deprivation (DETR, 2000), school-level deprivation (the percentage of students eligible for free school meals), the percentage of students with special educational needs or the average level of achievement at Key Stage 1 (age 7) or Key Stage 2 (age 11) in any academic area (i.e., English, math, science). Questionnaires were, however, less likely to be returned by schools with more students (mean number of students: returned 271.6, not returned 290.7, \( F(1,2658) = 13.93, p < 0.001 \)).

For schools responding, the average percentage of students eligible for free school meals was 29.1% (s.d. 16.0%), the average percentage of students with English as an additional language was 15.8% (s.d. 25.8%), and the average number of students identified as having Special Educational Needs (SEN) was 22.1% (s.d. 12.3%). With a possible range from 1 (the most deprived ward in England) to 8414 (the least deprived ward), the average IMD rank for the area in which the school was located was 1454 (s.d. 1529). The schools were predominantly (71.6% of those responding) within the 20% most deprived wards in the country, with only 7.3% (N = 129) in wards above the 50% percentile.

Rates of disorder

More than 90% of schools reported at least one incident of students bullying each other and nearly 40% reported six or more such incidents during the previous two terms (see Table 1). Students’ verbal aggression towards staff was judged to be less frequent than bullying, with just over a quarter of schools reporting no incidents, but a similar proportion reporting six or more incidents. Just under half the schools reported no incident of physical aggression from students towards staff, but a quarter reported three or more such incidents in the specified time period. Fewer than half of the schools (44.2%) had not temporarily excluded (suspended) any students, but almost one third (31.5%) had suspended students equivalent to five whole school days in the two terms, which could have been a number of students excluded for half a day or one child for a whole week (the details were not determined in the questionnaire).

Almost two-thirds of schools reported at least one incident of parental verbal aggression towards staff and a small proportion (13%) reported more than six such incidents in the previous two terms. Students’ verbal aggression towards staff was judged to be less frequent than bullying, with just over a quarter of schools reporting no incidents, but a similar proportion reporting six or more incidents. Just under half the schools reported no incident of physical aggression from students towards staff, but a quarter reported three or more such incidents in the specified time period. Fewer than half of the schools (44.2%) had not temporarily excluded (suspended) any students, but almost one third (31.5%) had suspended students equivalent to five whole school days in the two terms, which could have been a number of students excluded for half a day or one child for a whole week (the details were not determined in the questionnaire).

Almost two-thirds of schools reported at least one incident of parental verbal aggression towards staff and a small proportion (13%) reported more than six such incidents in the previous two terms. Parental physical aggression towards staff occurred less often, with only 10% of schools reporting at least one incident. Almost two-thirds of the schools had reported an incident such as vandalism, burglary or theft to the police in the previous two terms and more than one in ten had reported six or more.

### Table 1
Prevalence in time period including Autumn 2002 and Spring 2003 terms of School Disorder questionnaire items

<table>
<thead>
<tr>
<th>Number of incidents</th>
<th>0</th>
<th>1–2</th>
<th>3–5</th>
<th>6–10</th>
<th>11+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bullying (N = 1759)</td>
<td>154</td>
<td>419</td>
<td>496</td>
<td>310</td>
<td>380</td>
</tr>
<tr>
<td>(8.8)</td>
<td>(23.8)</td>
<td>(28.2)</td>
<td>(17.6)</td>
<td>(21.6)</td>
<td></td>
</tr>
<tr>
<td>Verbal aggression by students (N = 1775)</td>
<td>503</td>
<td>471</td>
<td>292</td>
<td>214</td>
<td>295</td>
</tr>
<tr>
<td>(28.3)</td>
<td>(26.5)</td>
<td>(16.4)</td>
<td>(12)</td>
<td>(16.7)</td>
<td></td>
</tr>
<tr>
<td>Physical aggression by students (N = 1766)</td>
<td>838</td>
<td>260</td>
<td>222</td>
<td>211</td>
<td>235</td>
</tr>
<tr>
<td>(47.4)</td>
<td>(14.7)</td>
<td>(12.6)</td>
<td>(11.9)</td>
<td>(13.4)</td>
<td></td>
</tr>
<tr>
<td>Days of temporary exclusions (suspensions) (N = 1767)</td>
<td>782</td>
<td>193</td>
<td>236</td>
<td>203</td>
<td>354</td>
</tr>
<tr>
<td>(44.2)</td>
<td>(10.9)</td>
<td>(13.3)</td>
<td>(11.5)</td>
<td>(20.0)</td>
<td></td>
</tr>
<tr>
<td>Parental verbal aggression (N = 1775)</td>
<td>608</td>
<td>625</td>
<td>320</td>
<td>154</td>
<td>68</td>
</tr>
<tr>
<td>(34.2)</td>
<td>(35.2)</td>
<td>(18.1)</td>
<td>(8.7)</td>
<td>(3.8)</td>
<td></td>
</tr>
<tr>
<td>Parental physical aggression (N = 1771)</td>
<td>1542</td>
<td>139</td>
<td>43</td>
<td>36</td>
<td>11</td>
</tr>
<tr>
<td>(87.1)</td>
<td>(7.8)</td>
<td>(2.4)</td>
<td>(2.0)</td>
<td>(0.6)</td>
<td></td>
</tr>
<tr>
<td>Incidents reported to police (N = 1768)</td>
<td>652</td>
<td>616</td>
<td>234</td>
<td>165</td>
<td>101</td>
</tr>
<tr>
<td>(36.9)</td>
<td>(34.8)</td>
<td>(13.2)</td>
<td>(9.3)</td>
<td>(5.8)</td>
<td></td>
</tr>
</tbody>
</table>
Neighbourhood deprivation and school characteristics

Inspection of Table 2 shows that the ranks for the IMD deprivation and its components (apart from geographical access to services) were negatively and significantly associated with the total school disorder score and with its items. More specifically, in more deprived communities (with a lower rank on the IMD), schools experienced more bullying, student verbal and physical aggression, more temporary exclusions of students, more parent verbal and physical aggression and had more incidents such as theft, burglary or vandalism that necessitated a report to the police. Of the IMD’s component parts, education deprivation (e.g. many local residents with no school qualifications, few local residents going on to higher education), income deprivation (e.g. high rate of household receiving benefits related to low income), income deprivation of families with young children (the Child Poverty Index) and housing deprivation (e.g. homeless families, overcrowding) were the most strongly associated with individual items from the SDS scale.

Geographical access to services had an opposite relationship in that it was positively associated with disorder, with those areas with better access (i.e. a higher rank) having more disorder. This is probably explained by greater access to services in dense urban areas than in more sparsely populated rural areas, and the targeting of some services on deprived areas. Area-level deprivation was also significantly associated with other school features, most particularly the extent of poverty as indicated by the percentage of students in receipt of free school meals and the extent of developmental problems as indicated by the percentage of students identified with SEN.

Relating school characteristics with disorder, poverty as indicated by the percentage of children eligible for free school meals, the level of developmental problems as indicated by the percentage of children identified as having SEN and the total number of students on the roll were significantly and positively associated with total disorder and all its components (see Table 3). The proportion of the student population with English as an additional language was not related to disorder.

Predictors of school achievement

Correlations were also calculated to examine the relation between total school disorder and each of the school-level measures of academic achievement (Key Stage 1, N = 1352; Key Stage 2, N = 1339). In schools reporting more disorder, school achievement was lower in Key Stage 1 English ($r = -0.43, p < .01$), math ($r = -0.42, p < .01$), as well as in Key Stage 2 English ($r = -0.46, p < .01$), math ($r = -0.45, p < .01$) and science ($r = -0.40, p < .01$). Stepwise regression analyses were then conducted, entering first neighbourhood deprivation and then school characteristics, to determine whether school disorder predicted achievement over and above neighbourhood deprivation and school characteristics. Results presented in Table 4 show that it did, in that school disorder explained a significant and substantial amount of the variance in all five measures of school achievement after taking into account effects of neighbourhood deprivation, school size, proportion of the school population eligible for free school meals (school deprivation), proportion of the school population with English as an additional language, and the proportion of the school population with special educational needs.

Discussion

This study extends research on school disorder by focusing upon children attending 1777 primary schools across England serving disadvantaged children aged 5 to 11 years. As noted in the introduction, most prior work on this subject, whether addressing the incidence, causes and/or consequences of school disorder, has been concerned with adolescents and secondary schools. The data presented in this report indicate that the primary schools investigated are routinely experiencing difficulties with their students and with parents that reflect substantial levels of disorder (see below for further elaboration on this point). Clearly the subject merits scholarly attention.

Disorder does not occur randomly even within the relatively restricted sample of schools included in this study that served deprived communities, another distinctive feature of the present inquiry, as few other investigations have examined variation among deprived communities and the schools serving them. It has been well documented that difficult behaviour of individual children is associated with family deprivation (Ackerman, Brown, & Izard, 2003) and the current research raises the prospect that important neighbourhood- and school-level influences may also be operative. Recall that results indicated that school disorder was greater when schools were situated in more deprived neighbourhoods, when schools had more students and when the children in a particular school had more income deprivation and more special educational needs.

Whatever the nature of the relations detected between neighbourhood- and school-level deprivation and school disorder in this inquiry, strong causal inferences are not called for – and for at least two reasons. First, all the evidence presented in this report is correlational in nature. Second, and relatedly, statistical associations that raise the prospect that community- and school-level deprivation contributes to school disorder could be an artefact of confounding with truly causal but unexamined “third variables”. Already mentioned in the introduction was family breakdown and conflict, but also worth considering are frequent moves from one home to another, the comings and goings of adults within the family and the quality of sibling and peer relationships. These factors and processes do not exhaust the possibilities of what neighbourhood- and school-level deprivation might serve as a proxy for and thus why it is that these “social addresses”, to use Bronfenbrenner’s (1979) terminology, proved to be related to school-level disorder in this inquiry.

Both neighbourhood- and school-level factors were also predictive of academic achievement, though school-level deprivation had a more powerful effect than that of neighbourhood deprivation when both were included in a regression model. Most noteworthy, perhaps, given the expected – and detected – covariation between neighbourhood deprivation and school disorder, is that the latter predicted school achievement even after taking into account the former. In fact, this was true even after taking into account school-level (in addition to neighbourhood-level) deprivation, by including in the regression model the percentage of children in the school population receiving free school meals. Even with such important confounding factors taken into account, again it cannot simply be presumed that because higher levels of school disorder consistently predicted poorer academic achievement that school disorder per se is the operative causal factor. While reflective of a dynamic process, school disorder is in some
Table 2
Associations between neighbourhood deprivation indicated by the ranks\(^a\) for Total Index of Multiple Deprivation (IMD), the Child Poverty Index (CPI); the six domains of the IMD; school characteristics and school disorder (\(N = 1776\))

<table>
<thead>
<tr>
<th></th>
<th>Total IMD</th>
<th>Child Poverty</th>
<th>Income</th>
<th>Employment</th>
<th>Health and disability</th>
<th>Education, skills &amp; training</th>
<th>Housing</th>
<th>Geographical access services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total disorder</td>
<td>-0.25**</td>
<td>-0.28**</td>
<td>-0.28**</td>
<td>-0.20**</td>
<td>-0.17**</td>
<td>-0.29**</td>
<td>-0.22**</td>
<td>0.17**</td>
</tr>
<tr>
<td>Bullying</td>
<td>-0.20**</td>
<td>-0.21**</td>
<td>-0.22**</td>
<td>-0.19**</td>
<td>-0.19**</td>
<td>-0.20**</td>
<td>-0.15**</td>
<td>0.13**</td>
</tr>
<tr>
<td>Student verbal aggression</td>
<td>-0.17**</td>
<td>-0.20**</td>
<td>-0.19*</td>
<td>-0.13**</td>
<td>-0.10**</td>
<td>-0.21**</td>
<td>-0.16**</td>
<td>0.10*</td>
</tr>
<tr>
<td>Student physical aggression</td>
<td>-0.12**</td>
<td>-0.15**</td>
<td>-0.14**</td>
<td>-0.08**</td>
<td>-0.04</td>
<td>-0.17**</td>
<td>-0.14**</td>
<td>0.06*</td>
</tr>
<tr>
<td>Temporary exclusions</td>
<td>-0.19**</td>
<td>-0.22**</td>
<td>-0.22**</td>
<td>-0.17**</td>
<td>-0.13**</td>
<td>-0.22**</td>
<td>-0.19**</td>
<td>0.18**</td>
</tr>
<tr>
<td>Parent verbal aggression</td>
<td>-0.18**</td>
<td>-0.21**</td>
<td>-0.20**</td>
<td>-0.15**</td>
<td>-0.10**</td>
<td>-0.22**</td>
<td>-0.18**</td>
<td>0.15**</td>
</tr>
<tr>
<td>Parent physical aggression</td>
<td>-0.08*</td>
<td>-0.10**</td>
<td>-0.09**</td>
<td>-0.06**</td>
<td>-0.03</td>
<td>-0.09**</td>
<td>-0.11**</td>
<td>0.06*</td>
</tr>
<tr>
<td>Reports to the police</td>
<td>-0.15**</td>
<td>-0.15**</td>
<td>-0.16**</td>
<td>-0.13**</td>
<td>-0.18**</td>
<td>-0.18**</td>
<td>-0.06*</td>
<td>0.04</td>
</tr>
<tr>
<td>% eligible for free school meals</td>
<td>-0.54**</td>
<td>-0.55**</td>
<td>-0.54**</td>
<td>-0.52**</td>
<td>-0.42**</td>
<td>-0.43**</td>
<td>-0.48**</td>
<td>0.42**</td>
</tr>
<tr>
<td>% with SEN</td>
<td>-0.20**</td>
<td>-0.22**</td>
<td>-0.21**</td>
<td>-0.16**</td>
<td>-0.14**</td>
<td>-0.20**</td>
<td>-0.19**</td>
<td>0.12**</td>
</tr>
<tr>
<td>% with EAL</td>
<td>-0.21**</td>
<td>-0.23**</td>
<td>-0.23**</td>
<td>-0.19**</td>
<td>-0.03</td>
<td>-0.12**</td>
<td>-0.44**</td>
<td>0.40**</td>
</tr>
<tr>
<td>Number of students</td>
<td>-0.16**</td>
<td>-0.20**</td>
<td>-0.22**</td>
<td>-0.17**</td>
<td>-0.09**</td>
<td>-0.15**</td>
<td>-0.21**</td>
<td>0.31**</td>
</tr>
</tbody>
</table>

\(^a\) A low rank indicates high deprivation; **Pearson correlation coefficient significant at \(p < 0.001\) (2-tailed); \(*p < 0.01.\)

Table 3
Associations between school characteristics and school disorder

<table>
<thead>
<tr>
<th></th>
<th>School size (# students)</th>
<th>% students with free schools meals</th>
<th>% students with English as additional language</th>
<th>% students with Special Educational Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total disorder</td>
<td>0.26**</td>
<td>0.36**</td>
<td>-0.08</td>
<td>0.24**</td>
</tr>
<tr>
<td>Items:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullying</td>
<td>0.21**</td>
<td>0.27**</td>
<td>0.01</td>
<td>0.17**</td>
</tr>
<tr>
<td>Student verbal aggression</td>
<td>0.15**</td>
<td>0.28**</td>
<td>-0.02</td>
<td>0.20**</td>
</tr>
<tr>
<td>Student physical aggression</td>
<td>0.12**</td>
<td>0.19**</td>
<td>-0.00</td>
<td>0.16**</td>
</tr>
<tr>
<td>Temporary exclusions</td>
<td>0.21**</td>
<td>0.33**</td>
<td>-0.01</td>
<td>0.21**</td>
</tr>
<tr>
<td>Parent verbal aggression</td>
<td>0.20**</td>
<td>0.25**</td>
<td>0.02</td>
<td>0.12**</td>
</tr>
<tr>
<td>Parent physical aggression</td>
<td>0.09</td>
<td>0.16**</td>
<td>0.05</td>
<td>0.10**</td>
</tr>
<tr>
<td>Reports to the police</td>
<td>0.11**</td>
<td>0.13**</td>
<td>-0.07*</td>
<td>0.08*</td>
</tr>
</tbody>
</table>

**Pearson correlation coefficient significant at \(p < 0.001\) (2-tailed); *Pearson correlation coefficient significant at \(p < 0.01\) (2-tailed).

Table 4
Summary of stepwise linear regressions (Standardized betas) predicting school level achievement in Summer 2002–3 at Key Stage 1 (KS1, 7 years) and Key Stage 2 (KS2, 11 years) from neighbourhood characteristics, school characteristics and school disorder

<table>
<thead>
<tr>
<th>Predictors</th>
<th>KS1 English</th>
<th>KS1 Math</th>
<th>KS2 English</th>
<th>KS2 Math</th>
<th>KS2 Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighbourhood deprivation, IMD rank(^a)</td>
<td>0.064**</td>
<td>0.059**</td>
<td>0.084**</td>
<td>0.088**</td>
<td>0.071**</td>
</tr>
<tr>
<td>% students eligible for free school meals</td>
<td>-0.356***</td>
<td>-0.331***</td>
<td>-0.362***</td>
<td>-0.241***</td>
<td>-0.288***</td>
</tr>
<tr>
<td>% of students with special educational needs</td>
<td>-0.173***</td>
<td>-0.133***</td>
<td>-0.160***</td>
<td>-0.156***</td>
<td>-0.102***</td>
</tr>
<tr>
<td>School disorder (total SDS)</td>
<td>-0.238***</td>
<td>-0.237***</td>
<td>-0.277***</td>
<td>-0.312***</td>
<td>-0.257***</td>
</tr>
<tr>
<td>Adjusted R(^2)</td>
<td>0.38</td>
<td>0.32</td>
<td>0.42</td>
<td>0.32</td>
<td>0.28</td>
</tr>
<tr>
<td>F</td>
<td>204.67***</td>
<td>161.05***</td>
<td>237.18***</td>
<td>160.31***</td>
<td>129.31***</td>
</tr>
</tbody>
</table>

\(^a\) A low rank signifies high deprivation; \(**p < 0.001.\)
Indicators that were not significant predictors: school size (number of students); % of students with English as a second language.
sense also a “social address” that needs to be unpacked to fully understand the means by which it comes to be related to achievement. Might disorder, for instance, simply reflect – and be caused by – a lack of commitment among students to invest in learning, such that it is this motivational factor rather than school disorder which causally undermines school achievement? Or might it actually be the chaos, fear and anxiety generated by school disorder that undermines student attention in class and motivation to learn, thereby playing a truly causal role in undermining achievement? Despite the fact that the current inquiry cannot resolve such an important issue of causation with respect to the relation between school disorder and achievement, we regard it as noteworthy that the association holds within a sample of primary schools serving disadvantaged communities when some important confounding factors have been taken into account. Additional work is clearly called for to illuminate the whys and wherefores of this relation.

In terms of the theoretical perspectives summarized in the introduction that seeks to account for relations between community deprivation, school disorder and student achievement, all but one can be accommodated by the results that emerged in this study. More specifically, the findings are not readily congruent with the relative-deprivation theory in that greater uniformity of deprivation was associated with greater school disorder and poorer academic achievement; this theory would predict greater anomie (and thus disorder) where neighbours are more affluent. However, if this theory were to apply across communities, where other communities (or individuals in other communities) rather than individuals within the same community are the basis of comparison, then this theory could accommodate the results. This inability to discount theories is because they primarily concern the processes underlying the relationships found in this study.

In addition to difficulties drawing causal inferences from this research, even though predictors and outcomes were temporally ordered in a manner that might otherwise be consistent with a causal process (i.e., causal factor preceding effect), other limits of this inquiry should be acknowledged, most of which are discussed in the context of the evidence presented regarding the incidence of school disorder in the primary schools studied. First, despite the fact that a very large number of primary schools serving a substantial proportion of children from economically-disadvantaged families were studied, the 33% of schools not returning the school-disorder questionnaire differed in one way from the schools that did respond: they were likely to have more students. Exactly how this differential response rate might have affected the results is not entirely clear, but the fact that missing data were not random should be kept in mind when considering the results of this research. It seems quite possible, nevertheless, that estimates of disorder presented in this report might have been higher had all schools participated, particularly in light of the associations reported between school size and disorder. Were this the case, it also seems possible that relations between disorder and achievement might have been stronger, were it the case that the absence of more large schools restricted the range of school-disorder scores. Second, the questionnaire did not cover all behaviours that might be thought to comprise school disorder. For example, parent-to-parent violence, sometimes a feature of sporting events, was not measured in the school-disorder instrument. Other potential topics not measured but suggested for consideration by head teachers which might also merit inclusion in future studies were children spreading rumours or making allegations against teachers; parents making abusive or threatening phone calls to the school office, sending such letters or letters from solicitors; parents instituting court proceedings against the school; parents attacking children from other families at the school; and fights and arguments between parents on school premises. In addition to incidents involving children at the school or their parents, open-ended remarks by respondents to the questionnaire also called attention to other unmeasured aspects of school disorder such as problems associated with older children in the area, especially ex-students or older siblings of current students who sometimes bullied students, threatened teachers, encouraged younger children to play truant or vandalized the school's or teachers’ property.

Some respondents had reservations about the questions as posed, saying that the closed question format prevented reporting of important information regarding the context of the incidents and the complexity of the reasons for disorder. For example, several noted that numbers of incidents do not tell the whole picture since in many cases the majority of incidents in their school were due to a minority of students/parents. This point was particularly relevant to questions about the frequency with which students were aggressive.

Relatedly, it must be appreciated that only a single respondent provided information on each school’s disorder. Even though the mailing to schools requested that a knowledgeable informant complete the questionnaire, it is impossible to know how knowledgeable each informant was; while the remarks made as open ended comments indicated that it was for the most part the head teacher, common sense leads to the conclusion that knowledge varied across respondents. Some head teachers may be new to their post; others may have some responsibilities to other staff members. We conclude, however, that such error of measurement could not have been too substantial given that, in the main, results emerged as anticipated (and more or less consistent with studies of secondary schools).

A final limitation to be considered is more conceptual in nature. There are many reasons to believe that the processes under investigation are bidirectional and reciprocal, reflecting a complex system, and it should not be concluded on the basis of the results presented that community deprivation, if it does play a causal role in promoting school disorder, and school disorder itself, if it does play a causal role in undermining academic achievement, are not themselves influenced by those very “outcomes” that they were themselves found to predict. Because of the temporal order of measurements – with area deprivation measured in 2001, school disorder measured for the period September 2002 to March 2003 and school achievement measured in May 2003 – it was not possible to investigate bidirectional processes in this inquiry. This inability, however, should not be confused with the conceptual inappropriateness of testing bi-directionality.

Despite the limitations mentioned regarding the research presented in this report, it seems noteworthy that most schools had experienced almost all of the individual problems included in the school-disorder scale, to a greater or lesser extent, in the previous two academic terms; a minority experienced numerous incidents and almost all of these were located in areas of high deprivation. Although behaviours involving physical aggression directed at teachers by parents proved relatively rare, they present very real problems, nevertheless, and
represent a feature of school life which schools are likely to have fewer resources to deal with than student disorder.

The rates of disorder are not easy to compare with other studies in that most investigations do not give a specific time frame and many base their figures on individual teachers’ experiences rather than that of schools. However, repeated administration of the kind of instrument employed in this research, collating information at the school-level, should allow for better monitoring of school-level violence and other problems over time. Moreover, the relatively good response rate to the questionnaire, at a time when schools in England and the rest of the UK are working under an increasing administrative burden, is one indication that these rates of problems are a fair representation of the situation of primary schools in England serving disadvantaged students. There is reason to suppose that school disorder may well show greater variability in the total school population than in the sample chosen here, including schools in areas of high deprivation. Hence it is likely that the relationship between disorder and educational outcomes detected in this research, whether causal or not, may well be greater than reported here.

The School Disorder Scale appears to be a useful – and quick and easy to complete – instrument for investigating the extent of problems experienced in primary schools. All the items are substantially inter-correlated and there is much to be said for brevity since this will help to enhance school response rate. Its convergent validity may indeed be demonstrated by the fact that the total score was strongly related both to deprivation in the surrounding area and to deprivation of those families with children at the school. This questionnaire was needed because schools in England do not routinely record important information concerning disorder. Yet this information is necessary for understanding the nature of school environments and for understanding factors influencing school achievement, as the results here indicate. Ideally, as recommended in the USA by the National Centre for Education Statistics (2002), this kind of information would become part of a standard database, fed into a central system, so that schools can monitor their own progress towards developing a safer environment and compare themselves with other schools.

References


**Appendix**

*School-Disorder-Scale Questions*

**Bullying**

*Definition:* Bullying is the wilful, conscious desire to hurt, threaten or intimidate someone. It can be physical, verbal or psychological in nature and is repeated, often over a long period of time.

1. From September 1st 2002 to April 27th 2003, to the best of your knowledge how frequently have staff had to deal with incidents of bullying between pupils, either in school or on the journey to or from school?

   1. No incidents
   2. 1–2 incidents
   3. 3–5 incidents
   4. 6–10 incidents
   5. 11 or more incidents

**Aggression**

*Verbal aggression:* Behaviour such as loud shouting at staff; swearing at staff anywhere on the school premises; making threats against staff; commenting on a staff member’s sexuality or other personal characteristic.

2. From September 1st 2002 to April 27th 2003, how frequently have there been incidents of **verbal aggression by PARENTS** against school staff?

   1. No incidents
   2. 1–2 incidents
   3. 3–5 incidents
   4. 6–10 incidents
   5. 11 or more incidents

3. From September 1st 2002 to April 27th 2003, how frequently have there been incidents of **verbal aggression by PUPILS** against school staff?

   1. No incidents
   2. 1–2 incidents
   3. 3–5 incidents
   4. 6–10 incidents
   5. 11 or more incidents

**Physical aggression:** Behaviour such as making gestures such as raised fist while shouting or other verbal abuse as above; pushing or shoving; striking staff; throwing any object at staff; threatening with any weapon; throwing water or any beverage at staff; or spitting at staff.

4. From September 1st 2002 to April 27th 2003, how frequently have there been incidents of **physical aggression by PARENTS** against school staff?

   1. No incidents
   2. 1 incident
   3. 2 incidents
   4. 3–4 incidents
   5. 5 or more incidents

5. From September 1st 2002 to April 27th 2003, how frequently have there been incidents of **physical aggression by PUPILS** against school staff?

   1. No incidents
   2. 1 incident
   3. 2 incidents
   4. 3–4 incidents
   5. 5 or more incidents

6. From September 1st 2002 to April 27th 2003, in total how many whole days of school were missed for children **temporarily** excluded from school?

   1. No days
   2. 1–2 days
   3. 3–5 days
   4. 6–10 days
   5. 11 or more days

7. From September 1st 2002 to April 27th 2003, how often were incidents of vandalism against school property/buildings, criminal damage, theft or burglary reported to the police?

   1. Never contacted police
   2. 1–2 reports made to police
   3. 3–4 reports made to police
   4. 5–10 reports made to police
   5. 11 or more reports made to police