Centre for Research on the Wider Benefits of Learning

Research Report

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The importance of social worlds: an investigation of peer relationships

Leslie Morrison Gutman and John Brown

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WBL is a research centre at the Institute of Education

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Executive summary

Introduction/background

There has been much concern in recent years about peer groups and their effects on children's academic achievement and behaviour. Much of this concern has focused on engagement in antisocial activities and risk-taking behaviours in adolescence while concerns for younger children have tended to crystallise around patterns of bullying and victimisation. Relatively little consideration, in contrast, has been given to the wider patterns of friendship and the role these patterns can play in sustaining and developing positive as well as negative experiences and behaviours. Consequently, a large gap exists in the literature.

In the following study, we investigate the developing social worlds in late primary school, exploring the patterns in children's general peer relationships, their closer and more significant friendships and bullying behaviours. Using cluster analysis, we identify unique groups of children characterised not only by their experiences of bullying and victimisation, but the support and satisfaction they receive from their friendships and interactions between the ages of 8 and 10. We also expand past research by examining how children's early development (ages 3 to 4) may predict their later designation as bullies and/or victims, and whether peer clusters relate to children's contemporaneous and later adjustment.

Key findings

- Cluster analysis of the sample revealed **five patterns of friendship, three positive and two negative**.

- **Most (75 per cent) belong to positive friendship groups**. These children feel supported by their friends and do not engage in bullying or experience victimisation. Different patterns of positive friendship were distinguished by their numbers of close friends and levels of 'falling out' with friends. Overall therefore, we labelled the three clusters as follows: *positive, many friends* (48 per cent of the sample), *positive but fallout* (18 per cent), and *positive, few friends* (10 per cent).

- **One in four belong to groups characterised by poor social relationships** which have low friendship support and a much higher general prevalence of victimisation and/or bullying compared to the other groups. These were labelled *victims* (20 per cent of the sample) and *bully/victims* (5 per cent) although not every child in each cluster would have *necessarily* been a bully or a victim. Very few children (fewer than 1 per cent) were 'pure bullies'.

- *Victims and bully/victims* have lower levels of wellbeing than children in the positive friendships clusters and are characterised by a number of difficulties, including low self-esteem and higher incidence of depression, that extend from early childhood through primary school.

- *Bully/victims* are particularly at risk of engaging in antisocial activities and having antisocial friends, and **are more likely to suffer from later symptoms of personality disorder, particularly anger and impulsivity.**

- There are **socio-demographic effects**, but membership in a positive or negative friendship group is not uniformly associated with socio-demographic advantage or disadvantage. Those from the ***positive, many friends*** cluster were more likely to come from privileged backgrounds and ***victims*** from more disadvantaged backgrounds, but those from the ***bully/victim*** group did not differ significantly from the other clusters in terms of income and maternal education. There was also a strong **gender bias** for some of the friendship patterns, suggesting that friendships may operate in different ways for boys and for girls.

Methodology

Data

Data are from the Avon Longitudinal Study of Parents and Children (ALSPAC), a longitudinal study of children born in the former Avon Health Authority with an expected date of delivery between 1 April 1991 and 31 December 1992.
This project uses data collected in a clinical setting when the children were aged 8 and 10 to determine patterns of peer relationships. These data are supplemented by mothers' reports on a broad range of outcomes, including social behaviour, socio-emotional adjustment, and well-being from infancy to later childhood, as well as school reports of key stage scores. We also used clinic data which assessed symptoms of personality disorder when the children were 11 years of age to examine how patterns of peer relationships are associated with later measures of adjustment.

Measures

Friendship patterns (ages 8 to 10): victimisation, bullying, friendship support and interaction, and number of close friends.

- *Demographic*: maternal education, family income, child gender and ethnicity, and number of siblings.
- *Child adjustment (ages 8 to 10)*: external locus of control (i.e. beliefs that external forces have control over your life), self-esteem and depression, involvement in antisocial activities and with antisocial friends, and liking school.
- *Early markers (ages 3 to 4)*: language development, social development, pro-social behaviour, and behavioural difficulties
- *Later outcomes (age 11)*: symptoms of personality disorder (e.g. including anger; feelings of abandonment; intense brief episodes of sadness, anxiety or irritability, emptiness, identity disturbance (i.e. a shifting sense of self), paranoid ideation, emotion disaffection (feeling emotionally disconnected); suicidal or self-mutilating behaviours, impulsivity; and intense interpersonal relationships) and Key Stage 2 scores.

Analysis

SPSS TwoStep clustering was used to ascertain whether there were clusters of peer relationships using 12 friendship/peer relations measures, including bullying and victimisation. Relationships between membership of a particular cluster and other variables - including elements of socio-demographic background, early markers of

child development contemporaneous and later measures of child well-being – were then examined using analysis of variance (ANOVA) and multiple analysis of variance (MANOVA).

For full details of the measures and analytical methods used, see the main report at www.learningbenefits.net.

Main findings

The cluster analysis identified five clusters of friendship patterns based on the 12 measures of friendship used. Because the cluster analysis searched for commonalities across several different dimensions of peer relationships, there was still considerable variation within the clusters on individual measures, particularly those (e.g. bullying) where the measure was characteristic of only a relatively small number of children. Individuals within the clusters may therefore conform to the descriptions below to a greater or lesser degree. This "fuzziness" in the categorisation is an inevitable result of attempting to simplify complex social relationships into a limited number of identifiable patterns.

Three clusters were characterised by positive friendships. These children feel supported by their friends and do not engage in bullying or experience victimisation to any material degree. Yet there are significant differences among these clusters. *Positive, many friends* generally have a high number of close, supportive friends, come from a higher socio-economic background than the other groups and are more likely to be girls. *Positive, few friends* have relatively few close friends (an average of 10.35 compared to a sample mean of 16.60), but feel supported and interact frequently with them. Members of this group are more likely to be boys with a high proportion of their friends being boys. The *positive but fallout* cluster consists of approximately equal numbers of boys and girls who have fairly extensive friendship groups and high friend support but also experience a high number of fallouts with their friends.

Two clusters were characterised by poor social relationships. These clusters were labelled *victims* and *bully/victims* due to the much higher general prevalence of victimisation and/or bullying compared to the other groups, although this does not mean that *all* individuals in those groups are necessarily bullies or victims. At age 8 *victims* and *bully/victims* reported mean victimisation scores of 0.71 and 0.95 respectively compared to a sample mean of 0.44, and mean bullying scores of 0.13 and 0.48 compared to a sample mean of 0.10. There were also wider indicators of poor social relationships: both clusters reported lower than average levels of friendship support, although victims had a larger than average number of close friends.

Unexpectedly, there was not a cluster of 'pure bullies'. Further analysis indicated that, while 7 to 8 per cent of children reported engaging in bullying from the ages of 8 to 10 years, fewer than 1 per cent did so without also being victims of bullying from ages 8 to 10 years. This finding may reflect the socio-cognitive level of primary schoolchildren. In primary school, there is a strong belief in the symmetry of power and less tolerance of power differentials in peer relationships. As a result, counter-

attacks are the social norm, resulting in high bully/victim prevalence and fewer pure bullies.

There were also a number of changes between the ages of 8 and 10 that were common across all the clusters. On average, victimisation decreased, while the rates of bullying remained fairly stable and there was an increase in friendship support. In addition, there were changes in the level of interaction with friends, but these differed in size and direction for different groups. However, these changes do not affect the essential stability of the friendship clusters identified, and the differences in experience which these represent.

Socio-demographic measures for these friendship clusters showed that those from the *positive, many friends* cluster were more likely to come from families with higher levels of maternal education and household income and to have parents who were married compared to *victims*. *Victims* were also significantly more likely to be members of minority ethnic groups than the *positive, many friends* cluster. However, owing to the small size of the minority ethnic population in the sample, this finding may not be typical of the wider population. Not all the positive friendship clusters had uniformly favourable socio-demographic backgrounds – *positive, few friends* had mothers with low average educational levels - and nor did the negative friendship groups necessarily have poor socio-demographic characteristics – *bully/victims* did not significantly differ from the other clusters in terms of income and maternal education, for instance. Moreover, family income had no independent effect when the other socio-economic indicators were taken into account.

There was also a strong gender bias to some of the friendship patterns: *positive, many friends* were most likely (62 per cent) to be girls while boys predominated in the *positive, few friends* (68 per cent) and *bully/victim* (74 per cent) groups. Friendships may therefore operate in different ways for boys and for girls. It was also noticeable that the male-dominated groups had higher than average numbers of close friends who were boys, while the reverse was true for the female-dominated groups, indicating that for many children friendships may be heavily gendered.

There were highly significant differences between the groups for *all* measures of children's well-being and achievement, even when the effect of socio-demographic variables was taken into account. In general, belonging to a cluster characterised by a negative friendship pattern (i.e. being a *victim* or *bully/victim*) was significantly related to worse levels of well-being, behaviour and achievement. Compared to the positive friendship groups, these children overall suffered higher levels of depression, lower levels of self-esteem, were less likely to feel they had control over events, and less likely to enjoy or do well at school. They also engaged in more antisocial activities and interacted with more antisocial friends than the other clusters. This difference was especially large for *bully/victims*, indicating that they are most at risk of such problems.

In the main, the differences among the positive friendship groups were not significant – they experienced similar levels of well-being and achievement, and engaged in similarly low levels of antisocial behaviour. However, the *positive but fallout* cluster had high levels of external locus of control similar to those of *bully/victims* and *victims*. This suggests that for the *positive but fallout* cluster, the capricious nature of

their friendships may contribute to feelings that their lives are due more to chance or luck than of their own volition.

Our findings show that there is strong continuity between early development, later friendship patterns and continued well-being. In most cases, it was the membership of a positive or a negative cluster which was the important factor. **Bully/victims** and **victims** were more likely to have worse indicators of development in their pre-school years -lower language, social and pro-social development as well as more hyperactivity than the other groups - but there was no significant difference among groups with more positive friendship patterns. These findings indicate that difficulties in later social relationships may be detected in pre-school children, highlighting the possibility of early intervention.

We also found that **bully/victims** and **victims** were more likely to suffer from later poor well-being, exhibiting more negative behaviours indicative of personality difficulties at age 11 compared to the more positive groups. With the exception of feelings of abandonment and identity disturbance, however, symptoms were most severe for **bully/victims** especially for anger and impulsivity. These findings support other studies, indicating that **bully/victims** may be particularly at risk of severe mental health problems as they mature.

Conclusions

Our study provides important insights regarding peer relationships in primary school. On an optimistic note, three out of four children have stable, positive peer relationships. These children differ in their friendship patterns but, overall, feel supported by their friends and experience little or no victimisation or bullying. On the other hand, one in four children were identified as having poor social relationships, characterised by a high prevalence of victimisation and/or bullying These children typically have a number of adjustment difficulties, such as depression, behavioural problems, and low self-esteem, that extend from early childhood to primary school. Our study also documented several early childhood markers that may help identify children at risk of later bullying and/or victimisation. What is difficult to disentangle here is the precise nature of cause and effect: we can see that early development problems are linked to later negative friendship patterns and that negative friendship patterns are linked to poor subsequent well-being. What we cannot tell from this analysis is whether the negative friendship patterns merely reflect children's intrinsic problems, or whether the friendship patterns themselves are active in developing and reinforcing poor well-being and behaviour.

Implications

Despite the uncertainties about causal effects, it is important for children to develop and sustain positive social relationships and supportive friendships. These skills are important for all children: even those in positive friendship patterns may experience problems which affect their enjoyment and learning as the findings for our **positive but fallout** group demonstrate. However, of particular concern are those children who experience victimisation and/or engage in bullying. We find that bullying and victimisation are both prevalent, affecting a sizeable minority on a regular basis, and

related to well-being and achievement. This demonstrates the importance of the effective and continuing implementation of programmes such as the Social and Emotional Aspects of Learning (SEAL) and arrangements through the National Strategies for targeting schools that have particular bullying issues.

We would particularly highlight the importance of early intervention. Early language, social and behavioural difficulties are predictive of later problems in social relationships and this has significant implications for the work that is already under way to help very young children develop friendships. The Early Years Foundation Stage, for example, recognises that friendships are an important part of children's early development. One of its aims is to help children learn to care for others and to accept and value them for their intrinsic qualities. Such early interventions are important in helping to prevent later difficulties in developing and maintaining positive peer relationships. Our findings also indicate that interventions that teach young children coping strategies for developmental problems such as hyperactivity may also alleviate the later possibility of being targeted for victimisation and/or engaging in bullying. Given the long-term implications of bullying and victimisation for future social relationships, emotional and academic adjustment and engagement in negative behaviours, these early programmes are vital.

Contents

1   Introduction

There has been much concern in recent years about peer groups and their effects on children's well-being. A national inquiry, for example, has examined the role of friendships in children's lives (The Children's Society, 2008). Parents may also worry about their child's friendships and the effect these can have on their happiness and behaviour.

The government also recognises the importance of peer relationships and, in particular, the detrimental effects of bullying in schools. The *Children's Plan* states: 'Bullying can destroy lives and have immeasurable impact on young people's confidence, self-esteem, mental health and social and emotional development.' The Department for Children, Schools and Families (DCSF) has also made it clear that no form of bullying should be tolerated in schools. It is compulsory for schools to prevent bullying and to have measures in place to encourage good behaviour and respect for others among its pupils. The DCSF supports schools in designing their anti-bullying policies and strategies by providing comprehensive practical guidance documents such as *Safe to Learn: Embedding Anti-bullying Work in Schools*, launched in September 2007.

A wealth of research has investigated bullying and victimisation in schoolchildren and adolescents. Many studies have examined the predictors of a single group of children—either victims (e.g. Finnegan *et al.*, 1998; Kochenderfer-Ladd, 2003; Ladd and Kochenderfer-Ladd, 1998) or bullies (e.g. Bosworth *et al.*, 1999; Espelage *et al.*, 2003). Other studies of bullying and victimisation have examined several groups of children as the outcome, including bullies, victims, bully/victims, and non-involved or neutral children (e.g. Haynie *et al.*, 2001; Veenstra *et al.*, 2005; Wolke *et al.*, 2000). Further studies have used variable approaches to examine the effects of bullying or victimisation on children's later outcomes (e.g. Gutman and Feinstein, 2008). None of these studies, however, has employed a pattern-centred approach to examine friendship patterns among these different groups of children, particularly among the neutral or non-involved categorisation. In addition, relatively little consideration has been given to the wider patterns of friendship and the role these patterns can play in sustaining and developing positive as well as negative experiences and behaviours.

A large gap therefore exists in the literature concerning how primary schoolchildren differ in their patterns of peer relationships. In the following study, we investigate children's developing social worlds, exploring the patterns in children's general peer relations, their closer and more significant friendships and bullying behaviours (both bullying and being bullied). Using cluster analysis, we identify unique groups of children characterised by their experiences of bullying, victimisation, and friendship support and interaction from 8 to 10 years of age. But first we set the scene in terms of existing evidence.

1.1   Children's peer relationships: existing evidence on bullying and victimisation

Research highlights the prevalence of victimisation and bullying in British primary and secondary schools. In England, one in four children experiences victimisation at least once a week, while 2.5 to 4.5 per cent of boys engage in bullying every week (Wolke *et al.*, 2001a). These incidents of victimisation and bullying are not isolated acts. Rather, 'a student is being bullied or victimised when he or she is exposed repeatedly and over time to negative action on the part of one or more other students', as defined by Olweus (1993, 1999). Moreover, the negative behaviour has to be

intentional in order to cause harm to the victim (Farrington, 1993). Bullying must also be a repeated action and occur regularly over time; therefore, occasional negative behaviours or conflicts are not viewed as victimisation.

Previous studies of bullying and victimisation have predominantly classified children according to three distinct groups: victims, bullies, or not involved in victimisation or bullying. Children who are classified as victims have poor psychosocial functioning. Victimised children are more depressed, withdrawn, anxious, lonely, isolated and insecure (see Hawker and Boulton (2000) for a review). Their relationship with their peers also suffers in comparison to their classmates. They feel less happy at school and have fewer good friends (Nansel *et al.* and the Health Behaviour in School-age Children Bullying Analyses Working Group, 2004). The negative influence of being victimised may also lead to further alienation, since other children may avoid associating with victims for fear of being bullied themselves or losing status among their peers (Nansel *et al.*, 2001).

Bullies, on the other hand, are more likely to be characterised as aggressive, hostile, uncooperative and antisocial (Kumpulainen and Rasanen, 2000; Veenstra *et al.*, 2005). Bullies also tend to have more school-related problems such as low school competence (Haynie *et al.*, 2001; Mynard and Joseph, 1997), and low achievement (Nansel *et al.*, 2001, 2004). Bullying has also been shown to lead to involvement in other antisocial behaviours such as delinquency, crime and alcohol use (Gutman and Feinstein, 2008; Kaltiala-Heino *et al.*, 2000; Nansel *et al.*, 2003). According to self-reports, many bullies claim to make friends easily (Nansel *et al.*, 2001); however, research also indicates that bullies tend to have less satisfying friendships later (Gutman and Feinstein, 2008).

There is also controversy about the nature of bullies. Some researchers suggest that bullies are cool and confident 'manipulators of torment' (Sutton *et al.*, 1999), while others characterise bullies as less socially competent aggressors (Crick and Dodge, 1999) with a higher frequency of behavioural problems including hyperactivity and conduct disorders than other children (Veenstra *et al.*, 2005). The difference in the characterisation of bullies may result from variation in the definition of bullying behaviours (Crick and Dodge, 1999). Children engage in different types of bullying, only some of which may be related to social skills deficits. Children, for example, may engage in more sophisticated forms of bullying such as verbal abuse; however, these types of behaviour are less likely to manifest themselves in primary school due to their socio-cognitive development (Schäfer *et al.*, 2005). Therefore, the very nature of bullying varies according to age and maturity. Bullies in primary school, for example, are seen as more aggressive, more likely to be victimised and less popular than their peers than bullies in secondary school (Schäfer *et al.*, 2005). As a result, bullies in primary school are more likely to be socially incompetent aggressors than sophisticated tormentors.

More recent studies have recognised that an additional group of children exists—bully/victims. Many bullies are also victims of bullying (Brown *et al.*, 2005). Children characterised as bully/victims are often a sizeable group, larger in number than pure bullies or victims (Wolke *et al.*, 2000). Studies that have examined bully/victims as a distinct group of children indicate that they have high levels of both depression and aggression (Veenstra *et al.*, 2005; Wolke *et al.*, 2000). They are also likely to suffer from behavioural problems and engage in other problem behaviours such as delinquency. Kumpulainen *et al.* (1998), for example, found that bully/victims have the highest rates of behavioural disturbances, particularly externalizing and hyperactivity compared to the other groups of children. They are

also considered the least popular and most disliked children by their peers (Schultz, 2000; Wolke and Stanford, 1999). Boulton and Smith (1994) proposed that since bully/victims often have irritating tendencies in the classroom, such as hyperactivity, they may provoke both bullying and victimisation. As behavioural problems and low pro-social behaviour are often associated with bully/victims, this group may suffer from poor social cognitive skills. These children may have fewer social cues to gauge other pupils' actions and therefore may interpret children as being hostile; thus responding with aggression (Dodge, 1983). During primary school, these children represent a particularly high-risk group and may be a greater risk for future psychiatric problems and engagement in antisocial activities (Kumpulainen and Rasanen, 2000).

Most children, however, are not involved in bullying either as the perpetrator or as the victim. These children—often characterised as non-involved or neutral—demonstrate fewer behavioural problems, more pro-social behaviours, and have higher achievement in comparison to bullies or victims (Vennstra *et al.*, 2005; Wolke *et al.*, 2000). Traditionally, non-involved children have been examined as a single group in studies of bullying and victimisation. Studies of social networks, however, indicate that children experience diverse patterns of friendship quality in childhood. For example, evidence indicates that some children who have few friends report similar levels of friendship support as other children (Lansford *et al.*, 2006; Lupton *et al.*, 2008), whereas other children who have numerous high-quality friendships may experience rivalry and conflict (Berndt, 2004). Thus, number of friends and perceived support may be seen as distinct dimensions of friendship quality (Parker *et al.*, 2006) and may contribute uniquely to children's well-being. Yet, studies of bullying and victimisation have yet to distinguish friendship patterns among the non-involved group of children. Within the same vein, these studies have not fully investigated how friendship patterns vary among bullied and victimised groups of children. In line with Sutton *et al.* (1999), there may be a popular group of bullies who feel supported by friends and another group of bullies who are loners (Crick and Dodge, 1999). Thus, positive and negative aspects of peer relationships may not be dichotomous but rather reflect multiple patterns which need to be examined in order to capture the full complexity that exists in children's social worlds.

A vast majority of work has examined change over time in the quality of friendships from early childhood to adolescence (see Berndt (2004) for a review). These studies indicate that friendship support and quality generally improve as children mature into adolescents. Fewer studies, however, have examined the prevalence and stability of victimisation and bullying over time. Prevalence describes the frequency of individuals who are bullied by others or who actively bully others more than once or twice over a certain period of time (Schäfer *et al.*, 2005). For victims, prevalence rates decrease across primary school, whereas they remain similar for bullies (see Schäfer *et al.*, 2005). Stability of bullying and victimisation describes the consistency with which particular individuals are bullied by others or actively bully others based on reports at two or more consecutive measurements (Schäfer *et al.*, 2005). According to Schäfer *et al.* (2005), victims may escape further victimisation over time while the bully role may remain more stable. This seems to indicate that bullying in primary school may be more a function of personality and early socialisation than classroom context, whereas being a victim may be less systematic and result more from school and classroom interactions (see Loeber and Hay (1997) for a review). In other words, some primary schoolchildren may be targeted as victims simply for being in the wrong place at the wrong time.

Considering that most of the existing studies identify children as bullies, victims, bully/victims or non-involved on the basis of a single measurement, these findings highlight the importance of defining these groups across a longer period of time to gain a more stable picture and capture possible changes within their categorisation.

A number of markers have also been identified that characterise different groups of children. Some findings indicate that victims, bullies and bully/victims may be more frequent among lower socio-economic groups (Wolke *et al*., 2001a), whereas non-involved children tend to have higher socio-economic status (Veenstra *et al*., 2005). Other studies, however, have found no socio-economic differences in bullying and victimisation (e.g. Gutman and Feinstein, 2008). Research also indicates that friendship patterns tend to be highly gendered. Girls are more likely to have close, intimate friendships than boys (Parker and Asher, 1993). Boys, on the other hand, are more likely to be bullies and bully/victims than girls, whereas victims are equally likely among both genders (Gutman and Feinstein, 2008; Wolke *et al*., 2000). Such gender differences may reflect children's overwhelming preference for same-sex friendships (Lupton *et al*., 2008; Zarbatany *et al*., 2000). Friendship patterns also play a role in school achievement. Friendship support and number of mutual friends may foster school liking and academic competence (Erath *et al*., 2008). Low-achieving pupils, on the other hand, tend to emerge as frequent targets of bullying (Schwartz *et al*. , 2002) and are also more likely to be bully/victims (Schwartz, 2000). A few studies have also examined whether earlier behavioural problems may identify children who are later victimised or who engage in bullying (Schwartz *et al*., 1997). For example, behavioural problems in kindergarten were shown to predict later victimisation in primary school (Schwartz *et al*., 1997). Most of the existing studies, however, have examined the contemporaneous association among these behaviours. As a result, there is less information concerning the early developmental antecedents of bullying and victimisation in primary school.

1.2   The present study

We investigate children's peer relationships in a longitudinal birth cohort dataset of children living in Avon. Past studies of bullying and victimisation have examined nominal groups of children including bullies, victims, bully/victims and non-involved children. Rather than using predefined groups, we employ cluster analysis to identify unique groups of children based on their experiences of bullying and victimisation as well as their friendship patterns. As a result, we are able to determine whether patterns exist in the data that support the designation of these particular groups of children.

We also expand previous studies of bullying and victimisation through the examination of friendship patterns including friendship support, number of close friends and interaction with friends. This allows for the consideration of whether groups of children exist who engage in bullying and/or who are victimised yet differ according to their friendship patterns. Our analysis will also provide more information regarding the non-involved or neutral group of children who are not engaged in either bullying or victimisation. Rather than being viewed as a single group, they may differ regarding their friendship patterns. Such information will illuminate the varying patterns of peer relationships during the primary school years.

Most existing studies of bullying and victimisation have used a single measurement to categorise children's peer relationships. In our study, we examine bullying, victimisation and friendships at both 8 and 10 years of age. As a result, we can determine whether groups of bullies and/or victims are stable or unstable across a

two-year period in primary school. We can also examine whether changes in patterns of peer relationships vary according to group membership or whether changes occur more generally across children, such as an overall decline or increase in the prevalence of bullying and victimisation during the primary years.

Due to the longitudinal nature of the data, we also examine the role of early development in later peer relationships. This will illuminate whether there are early developmental markers which may identify children who are likely to have later difficulties with peer relationships, thus highlighting the children who may benefit from early intervention. Finally, we investigate the effects of these clusters on later outcomes, particularly children's adjustment and achievement at age 11.

More specifically, we examine the following research questions:

1   How can we categorise children's friendship patterns? What are the key defining differences between these patterns?
2   Do these groups of children have different socio-demographic backgrounds? Do they experience different levels of well-being and achievement?
3   Are there continuities? Do some early child markers predict later patterns of peer relationships? How do patterns of peer relationships predict children's later adjustment and achievement?

2   Method

2.1   Design and sample

Avon Longitudinal Study of Parents and Children (ALSPAC) is an ongoing longitudinal study of children born to mothers in Avon. It provides longitudinal data on a large cohort of children, with a tremendous wealth of information on family background, interactions between children and other family members, and the cognitive and affective development of children. The ALSPAC data are unique among large-sample UK longitudinal datasets in surveying a sample of children year on year. Over 10,000 children are surveyed in three school cohorts. The study has also collected considerable information on parents as they are also surveyed at regular, short intervals.

To be eligible for the study, mothers had to be resident in Avon while pregnant. In addition, their expected date of delivery had to lie between 1 April 1991 and 31 December 1992 inclusive. Mothers who were resident in the area but left shortly after enrolment were omitted from further follow-up. However, those who had completed the questionnaire scheduled for the third trimester of pregnancy before leaving Avon have been kept in the study, even if they had not delivered at the time of moving.

This project uses data collected in a clinical setting when the children were aged 8 and 10 (see Table 1 for response rates) to determine patterns of peer relationships. These data are further supplemented by mother-reports concerning a broad range of outcomes including social behaviour, socio-emotional adjustment, and well-being from infancy to later childhood as well as school reports of Key Stage scores. We also used clinic data assessed when the children were 11 years of age to examine how patterns of peer relationships are associated with later measures of adjustment.

Table 1 **Child response rates**

Child age	8	10
Attended clinic	7,488	7,563
No longer eligible	1,222	2,103
Did not respond (of those eligible)	3,684	3,336
Refused to participate	1,281	926
Failed to attend	635	359
Overall response rate (%)	52	53

We assessed attrition bias between those children who were assessed at 8 and 10 years (n = 6,465) and those who were not assessed (n = 7,506). We found significant differences in maternal education $F(1, 10267) = 636.97$, $p < .001$, family income $F(1, 7311) = 398.06$, $p < .001$, and marital status $F(1, 7654) = 2.42$, $p < .001$. Children who were assessed are more likely to have mothers with higher educational levels ($M = 2.21$), families with higher income ($M = 2.54$), and two-parent families ($M = .95$), whereas children who were not assessed are more likely to have mothers with lower educational levels ($M = 1.61$), families with lower income ($M = 2.05$), and single-parent families ($M = .91$). While such attrition may have affected the relative size of the clusters it should not have materially altered any of the relationships identified in this study.

2.2 Measures

For more details on these measures see Appendix. Measures used were:

- *Friendship patterns (ages 8 to 10)*: victimisation, bullying and friendship support including friend interaction, number of close friends, and number of close friends who were boys.
- *Demographic*: maternal education, family income, child gender and ethnicity, number of siblings, only child indicator, and youngest child indicator.
- *Child well-being and achievement (ages 8 to 10)*: external locus of control (i.e. beliefs that external forces have control over your life), self-esteem, depression, antisocial activities, antisocial friends, liking school, and key stage 1 scores for reading, writing and maths.
- *Early markers (ages 3 to 4)*: language development, social development, pro-social behaviour, behavioural difficulties, conduct difficulties, emotional difficulties and hyperactivity.
- *Later outcomes (age 11)*: symptoms of personality disorder – including anger; feelings of abandonment; affective instability (e.g. intense brief episodes of sadness, anxiety or irritability), emptiness, identity disturbance (i.e. a shifting sense of self), paranoid ideation, emotion disaffection (feeling emotionally disconnected); suicidal or self-mutilating behaviours, impulsivity; and intense interpersonal relationships.

2.3 Analysis

SPSS TwoStep clustering was used to ascertain whether there were clusters of peer relationships using 12 friendship/peer relations measures, including bullying and victimisation. The widely used clustering methods, k-means clustering and agglomerative hierarchical techniques, suffer from well-documented problems

(Aldenderfer and Blashfield, 1984). SPSS TwoStep clustering solves some of these problems (Bacher *et al*., 2004). SPSS TwoStep clustering can handle mixed-type attributes and can automatically determine the number of clusters.

Clustering involved several steps. First, peer-relationships variables (i.e. bullying/victimisation and friendships) were recoded as standardised variables by calculating the number of standards deviations, known as z-scores, according to how each individual score differed from the mean and variance of all the scores in the data for that variable. This provides common units of measurement for the cluster analysis, thus eliminating the higher weighting of items measured on larger scales (Norusis, 1990). Second, TwoStep clustering was carried out on bullying, victimisation and friendships. We examined the clusters with separate measures for ages 8 and 10 to provide a measure of changes in behaviour over time.

Relationships between membership of a particular cluster and other variables, - including elements of socio-demographic background, early markers of child development contemporaneous and later measures of child well-being – were then examined. Initially this was done using univariate analysis of variance (ANOVA) to determine whether differences between these sets of variables for different groups were significant. Post-hoc comparisons were then carried out using Turkey's test. We then conducted multivariate analysis of variance (MANOVA) to examine significant differences among children's socio-demographic characteristics and adjustment simultaneously while controlling for intercorrelations among them.

3   Results

3.1   Friendship patterns

The cluster analysis identified five clusters or friendship patterns based on the 12 measures of friendship used (see section 2.2). Table 2 provides the group means for each of the peer-relationship variables. Because of the number of measures involved, there was still considerable variation within the clusters on individual measures, particularly those (e.g. bullying) where the measure was characteristic of only a relatively small number of children. Individuals within the clusters therefore may conform to the descriptions below to a greater or lesser degree. This "fuzziness" in the categorisation is an inevitable result of attempting to simplify complex social relationships into a limited number of identifiable patterns.

Three of the identified groups had positive patterns of friendship, from which members appeared to derive satisfaction and support, and did not experience significant levels of victimisation or engage in bullying. These, between them, accounted for 75 per cent of the sample. The different patterns of positive friendship were distinguished by their numbers of close friends and levels of 'falling out' with friends. Overall therefore, we labelled the three clusters as follows: *positive, many friends* (48 per cent of the sample), *positive but fallout* (18 per cent), and *positive, few friends* (10 per cent).

Positive, many friends, the most common friendship pattern, appeared to offer a high level of satisfaction and support to children. This group reported the highest average rates of friendship support, the second highest number of close friends, and the lowest rate of fallout of any cluster. However, despite the high numbers of friends reported, levels of friend interactions were close to the mean levels for the sample as a whole and decreased to below the sample mean at age 10. While reporting many close friends, they had the lowest number of close friends who were boys. The fact

that this group was predominantly (62 per cent) female indicates that friendship patterns are highly gendered – a finding supported by Lupton *et al*. (2008).

The ***positive but fallout*** group had positive friendships and high friendship support but were distinguished from their peers by having the highest friend fallout of any cluster. Like ***positive, many friends***, they reported rates of friendship interaction close to the sample mean, but which decreased between ages 8 and 10 years. They reported a slightly higher than number of friends than the sample as a whole and their average number of close friends who were boys was close to the sample mean.

Positive, few friends reported the lowest number of close friends. Although friendships groups were relatively small, they were highly interactive (this group reported the highest average rates of friend interactions at age 8, which increased at age 10), and members of this group appeared to derive satisfaction from them, reporting high levels of friendship support at age 8, increasing to the highest levels of support at age 10. This group were also among the least likely to fall out with friends. They had the highest number of close male friends and the majority of this group (68 per cent) were boys, again lending weight to the idea of gendered friendships.

In accordance with the literature, we also found two groups who were characterised by poor social relationships and a higher general prevalence of victimisation and/or bullying. We therefore labelled these groups ***bully/victims*** and ***victims*** although this does not mean that *all* individuals in those groups are necessarily bullies or victims; however, at odds with other research, the clustering did not identify a group of 'pure bullies'. Further analysis of the data revealed that fewer than 1 per cent of the children who frequently engaged in bullying behaviours did not also experience frequent victimisation at either age 8 (n=69) or 10 (n=62). Furthermore, fewer than 0.5 per cent of the children engaged in bullying frequently at both 8 and 10 years of age and did not experience frequent victimisation (n=29).

Bully/victims had the highest average levels of victimisation and bullying of any cluster and seemed poorly supported by their friendships, having the second lowest number of close friends at age 10, and reporting friendship support at lower levels than the sample mean. Their friendships involved levels of interaction at least matching the sample mean (they reported average friend interactions at age 8, which had increased markedly by age 10), albeit with a somewhat greater degree of conflict than was typical for the sample as a whole. On average they reported greater numbers of friends who were boys than did the sample as a whole.

Although labelled ***victims,*** this group experienced only the second highest level of victimisation of the clusters (after ***bully/victims***), but were distinguished from ***bully/victims*** by much lower (although still above the sample mean) rates of bullying. Although they reported a high number of close friends at age 10, they seemed to derive little support or satisfaction from these friendships, reporting lower than average interactions with friends at ages 8 and 10 and having the lowest friendship support of any cluster. They reported the second lowest number of close friends who were boys, but this group (unlike ***positive, many friends*** who also had low numbers of male friends) was evenly split between the sexes.

There were a number of changes between the ages of 8 and 10 that were common across all the clusters. On average, victimisation decreased, while the rates of bullying remained fairly stable and there was an increase in friendship support. However, the direction of changes in friend interaction varied from cluster to cluster.

Table 2 **Means and standard deviations of bullying, victimisation and friendship measures for each cluster**

Measure	Average	Bully/ victims (B/V)	Victims (V)	Positive, many friends (PMF)	Positive fallout (PF)	Positive, few friends (PFF)
Bullying -- age 8	.10 (*.42*)	.48 (*1.40*)	.13(*.52*)	.02(*.16*)	.03 (*.20*)	.05 (*.28*)
Bullying -- age 10	.09 (*.39*)	.46 (*1.38*)	.11 (*.41*)	.03 (*.17*)	.03 (*.17*)	.04 (*.20*)
Victimisation -- age 8	.44 (*.49*)	.95 (*.85*)	.71 (*.66*)	.21 (*.30*)	.25 (*.37*)	.32 (*.47*)
Victimisation -- age 10	.28 (*.22*)	.77 (*1.07*)	.42 (*.57*)	.12 (*.22*)	.11 (*.23*)	.15 (*28*)
Friend support -- age 8	4.37 (*2.37*)	4.26 (*3.20*)	4.13 (*3.10*)	4.59 (*1.80*)	4.56 (*2.30*)	4.55 (*2.10*)
Friend support -- age 10	4.57 (*1.80*)	4.45 (*4.25*)	4.39 (*2.30*)	4.76 (*1.23*)	4.75 (*.90*)	4.76 (*3.25*)
Friend interaction -- age 8	3.72 (*2.30*)	3.67 (*2.12*)	3.43 (*3.03*)	3.69 (*2.69*)	3.76 (*2.36*)	3.95 (*1.98*)
Friend interaction -- age 10	3.64 (*2.10*)	3.95 (*4.25*)	3.44 (*1.80*)	3.42 (*1.01*)	3.58 (*2.46*)	4.02 (*3.26*)
Friends sleepover -- age 10	3.10 (*2.30*)	3.15 (*3.12*)	3.06 (*2.50*)	2.77 (*1.80*)	2.93 (*2.68*)	2.87(*1.36*)
Fallout -- age 10	2.65 (*2.20*)	2.53 (*2.32*)	2.31 (*2.13*)	1.27 (*.89*)	5.92 (*2.58*)	1.64 (*1.12*)
Number of close friends -- age 10	16.60 (*8.20*)	15.72 (*12.38*)	18.31 (*12.36*)	17.87 (*6.56*)	17.50 (*9.32*)	10.35 (*6.53*)
Number of close friends (boys) -- age 10	2.57 (*1.80*)	4.62 (*2.98*)	1.89 (*.90*)	1.62 (*.90*)	2.62 (*1.23*)	7.88 (*3.21*)

Note: Standard deviations are in parentheses.

3.2 Friendships and background: the relationships between friendship patterns and socio-demographic characteristics

Table 3 shows the group means for the socio-demographic variables, plus their F-statistics, indicating whether there are statistically significant differences between groups and the post-analysis indicating which groups are significantly different from each other. Analysis indicates that child gender and ethnicity, parents' marital status, family income and maternal education were all significantly different for different groups. This was particularly marked for gender, with the ***bully/victim*** and ***positive, few friends*** clusters having a marked majority of boys (74 per cent and 68 per cent, respectively), and the ***positive, many friends*** group a marked majority (62 per cent) of girls.

Socio-demographic factors were also related to group membership, with those from the ***positive, many friends*** cluster in particular being more likely to come from privileged backgrounds, having the highest average measures of family income and maternal education and being most likely to have parents who were married. In contrast, ***victims*** had the lowest average family income, the second lowest score for maternal education and were least likely to have married parents. They were also most likely to be from minority ethnic groups. However, this finding should be interpreted with caution considering that the percentage of minority ethnic children in the total sample is quite low (12 per cent).

However, not all the positive friendship clusters had particularly favourable socio-demographic backgrounds: ***positive, few friends*** had mothers with significantly lower levels of education. Nor did the negative friendship groups necessarily have poor socio-demographic characteristics – ***bully/victims*** did not differ significantly from the other groups, a finding similar to Gutman and Feinstein (2008).

These relationships, with the exception of family income, all remained significant when the interrelationships between the socio-demographic variables were taken into account (see Table 5). However, number of siblings and birth order had no effect on membership of the friendship clusters.

3.3 Friendships, well-being and achievement: the relationships between friendship patterns and child adjustment

As shown in Table 4, there were highly significant differences between the groups for *all* measures of children's well-being and achievement. These differences remained significant even when the effect of socio-demographic variables was taken into account (see Table 6). Overall, belonging to a cluster characterised by negative friendship patterns (i.e. ***victim*** or ***bully/victims***) was significantly related to worse levels of well-being behaviour and achievement. Compared to the positive friendship groups, these children overall suffered higher levels of depression, lower levels of self-esteem, were less likely to feel they had control over events and less likely to enjoy or do well at school. They also engaged in more antisocial activities and interacted with more antisocial friends than did the other clusters. This difference was especially large for ***bully/victims***, indicating that they are most at risk of such problems. This finding echoes our previous research (Gutman and Feinstein, 2008) which noted the high degree of relatedness between different measures of well-being, including elements relating to friendship and is consonant with other findings relating to friendship and well-being in secondary school (Akerman *et al*., 2008).

Table 3 **ANOVA of demographic characteristics according to cluster membership**

Measure	Average	Bully/ victims (B/V)	Victims (V)	Positive, many friends (PMF)	Positive fallout (PF)	Positive, few friends (PFF)	*F* ratio	Post-hoc comparison of Means[a]
Male	.48	.74	.50	.38	.56	.68	$F(4, 6523) = 81.82***$	B/V,PFF>PF; V>PMF
Maternal education	2.39	2.47	2.21	2.54	2.36	2.07	$F(4, 6459) = 3.38**$	PMF>V,PFF
Family income	1.5	1.56	1.25	1.67	1.36	1.40	$F(4, 5968) = 2.09*$	PMF>V
Marital status	.79	.76	.77	.81	.78	.78	$F(4, 5972) = 2.55*$	PMF>all; PFF>V,B/V; PF>V,B/V
Child white	.88	.88	.86	.89	.88	.86	$F(4, 5867) = 2.66*$	PMF>V
Number of siblings	.78	.86	.82	.74	.80	.84	Non-significant	
Only child	.44	.42	.42	.45	.45	.41	Non-significant	
Youngest	.94	.94	.94	.95	.95	.95	Non-significant	

Note: $***p < .001, **p < .01, *p < .05.$

Table 4 **ANOVA of child adjustment according to cluster membership**

Measure	Average	Bully/ victims (B/V)	Victims (V)	Positive, many friends (PMF)	Positive fallout (PF)	Positive, few friends (PFF)	*F* ratio	Post Hoc comparison of Means[a]
External locus of control	6.12	6.58	6.43	5.76	5.77	6.06	$F(4, 6123) = 34.54***$	V,B/V,PF>PMF
Self-esteem	18.91	17.87	18.10	19.72	19.65	19.67	$F(4, 6032) = 63.89***$	PMF,PFF,PF>V, B/V
Depression	4.70	7.07	5.75	3.24	3.09	3.32	$F(4, 6490) = 219.8***$	B/V,V >PFF, PMF, PF
Antisocial activities	.34	.93	.34	.10	.12	.21	$F (4, 5855) = 166.04***$	B/V>V>PFF>PF,PMF
Antisocial activities of friends	1.14	2.34	1.33	.49	.58	.95	$F (4, 5964) = 206.78***$	B/V>V>PFF>PF,PMF
Likes school+	2.02	2.29	2.06	1.89	1.93	1.93	$F (4, 6009) = 24.16***$	PMF,PF,PFF>V>B/V
Reading (KS1)	3.59	3.28	3.46	3.95	3.72	3.56	$F (4, 5695) = 35.687***$	PMF>PF>PFF>V>B/V
Writing (KS1)	2.87	2.53	2.78	3.17	3.01	2.86	$F (4, 5695) = 36.183***$	PMF>PFF>PF>V>B/V
Maths (KS1)	3.5	3.21	3.37	3.77	3.60	3.55	$F (4, 5695) = 27.001***$	PMF, PF>PFF>V,B/V
Total score (KS1)	9.97	9.04	9.62	10.90	10.33	9.97	$F (4, 5695) = 40.539***$	PMF>PF,PFF>V>B/V

Note: ***p < .001, **p < .01, *p < .05; +negatively coded so that higher scores indicate less liking of school.

Table 5 **MANOVA of demographic characteristics according to cluster membership**

Demographic measures	F ratio
Gender	$F(4, 6523) = 80.17^{***}$
Maternal education	$F(4, 6459) = 3.38^{**}$
Child ethnicity	$F(4, 5867) = 2.66^{***}$
Marital status	$F(4, 5972) = 2.55^{***}$
Family income	ns

Note: ***p < .001, **p < .01.

Table 6 **MANOVA of children's adjustment according to cluster membership controlling for demographic differences**

Measure	F ratio
Depression	$F(4, 5985) = 147.03^{***}$
Friends' antisocial activities	$F(4, 5968) = 131.68^{***}$
Antisocial activities	$F(4, 5855) = 76.8^{***}$
Self-esteem	$F(4, 5698) = 46.47^{***}$
Locus of control	$F(4, 5369) = 24.66^{***}$
Key Stage 1 total score	$F(4, 5695) = 30.72^{***}$
Child likes school	$F(4, 6009) = 12.73^{***}$

Note: ***p < .001.

3.4 Friendship patterns: continuities in development, well-being, achievement and behaviour

Examination of the relationship between membership of a particular friendship cluster and earlier development revealed significant differences among clusters for all of the measures considered: language, social development, emotional and conduct difficulties, hyperactivity and pro-social behaviour, all measured between 38 and 42 months (see Table 7). In most cases, it was the membership of a positive or a negative cluster which was the important factor: *bully/victims* and *victims* had worse language and social development, and lower levels of pro-social behaviour, but demonstrated higher levels of hyperactivity and behavioural difficulties than the other clusters. Behavioural difficulties were particularly acute for *bully/victims* while *victims* tended to experience more emotional difficulties. Differences remained significant even when controlling for intercorrelations among the child development measures and children's socio-demographic characteristics (see Table 8).

Looking at the relationship between cluster membership and later (age 11) measures of well-being, again there were differences between the groups for all the measures considered (see Table 9). Differences also remained significant after controlling for intercorrelations between the personality disorder/well-being measures and demographic characteristics (see Table 10). We examined symptoms of personality disorder including impulsivity, paranoia, anger, feelings of emptiness and fear of abandonment (see Appendix A for a detailed description of these measures). Higher scores indicate lower psychological well-being. As with the early development measures, there is a marked difference between the positive and negative friendship clusters, the *victim* and *bully/victim* groups showing more signs of personality disorders and lower psychological well-being. However, there is also a marked difference on most measures between *victims* and *bully/victims*, the latter showing more severe symptoms of anger, paranoia, emotion disaffection (i.e. feeling disconnected from one's emotions), suicidal behaviour, impulsivity and intense interpersonal relationships. For identity disturbance (i.e. a shifting sense of self) and fear of abandonment, scores for *victims* and *bully/victims* were similar. Nevertheless, the total number of symptoms probably present was low for both groups (victims = 1.67; bully/victims = 2.30 out of 8), reflecting the severity of these measures.

We also looked at Key Stage 2 achievement. Here a slightly different pattern was apparent. While, as with the well-being measures, *victims* and *bully*/*victims* fared less well than *positive, many friends* and *positive, few friends*, the *positive fallout* group also had lower scores.

Table 7 **ANOVA of early child markers according to cluster membership**

Measure	Average	Bully/ victims (B/V)	Victims (V)	Positive, many friends (PMF)	Positive fallout (PF)	Positive, few friends (PFF)	*F* ratio	Post-hoc comparison of means[a]
Language	298	295.79	293.72	302.46	299.42	298.6	$F(4, 6012) = 13.795^{***}$	PMF,PF,PFF> B/V, V
Social development	22.1	21.8	21.83	22.45	22.15	22.27	$F(4, 6012) = 10.075^{***}$	PMF,PF,PFF> B/V,V
Emotional difficulties	2.47	2.45	2.64	2.47	2.46	2.35	$F(4, 6012) = 3.150^{*}$	V>PFF
Conduct difficulties	3.8	4.61	4.0	3.35	3.3	3.74	$F(4, 6012) = 31.523^{***}$	B/V>V> PMF,PF,PFF
Hyperactivity	2.72	3.11	2.92	2.45	2.48	2.62	$F(4, 6012) = 18.858^{***}$	B/V,V> PMF,PF,PFF
Pro-social behaviour	15.28	14.74	15.17	15.58	15.53	15.37	$F(4, 6012) = 5.13^{***}$	B/V,V> PMF,PF,PFF
Total behaviour difficulties score	12.72	14.3	13.52	11.78	11.79	12.23	$F(4, 6012) = 29.121^{***}$	B/V,V> PMF,PF,PFF

Note: $^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$.

Table 8 **MANOVA of early markers according to cluster membership controlling for demographic differences**

Measure	F ratio
Conduct difficulties	$F(4, 6012) = 24.19$***
Hyperactivity	$F(4, 6012) = 12.55$***
Language	$F(4, 6012) = 8.47$***
Social development	$F(4, 6012) = 6.99$***
Pro-social development	$F(4, 6012) = 3.69$**
Emotional difficulties	$F(4, 6012) = 2.73$*

Note: ***$p < .001$, **$p < .01$, *$p < .05$.

Table 9 **ANOVA of later child outcomes according to cluster membership**

Measure	Average	Bully/ victims (B/V)	Victims (V)	Positive, many friends (PMF)	Positive fallout (PF)	Positive, few friends (PFF)	*F ratio*	Post-hoc comparison of means[a]
Anger	.29	.51	.36	.19	.18	.22	$F(4, 5896) = 37.302^{***}$	B/V>V>PFF,PMF,PF
Emotion disaffection	.14	.26	.17	.06	.08	.11	$F(4, 5896) = 30.87^{***}$	B/V>V>PFF,PMF,PF
Identity disturbance	.13	.24	.19	.06	.07	.09	$F(4, 5896) = 32.011^{***}$	B/V,V>PFF,PF,PMF
Paranoid ideation	.19	.34	.27	.10	.09	.13	$F(4, 5896) = 45.556^{***}$	B/V>V>PFF,PMF,PF
Abandonment	.1	.18	.14	.06	.07	.07	$F(4, 5896) = 18.651^{***}$	B/V,V>PFF,PF,PMF
Suicidal behaviour	.09	.23	.09	.03	.03	.07	$F(4, 5896) = 33.71^{***}$	B/V>V>PFF,PF,PMF
Impulsivity	.46	.86	.52	.24	.22	.47	$F(4, 5896) = 72.265^{***}$	B/V>V,PFF>PF,PMF
Intense interpersonal relationships	.2	.41	.24	.12	.09	.14	$F(4, 5896) = 38.936^{***}$	B/V>V>PFF,PF,PMF
Number of criteria present	1.31	2.30	1.63	.77	.77	1.07	$F(4, 5896) = 103.205^{***}$	B/V>V>PFF>PF,PMF
Key Stage 2 average points	29.6	29.15	29.56	30.33	29.54	29.63	$F(4, 5612) = 4.002^{**}$	B/V,PF,V<PFF,PMF

Note: $^{***}p < .001$.

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Table 10 **MANOVA of later outcomes according to cluster membership controlling for demographic differences**

Measure	*F ratio*
Anger	$F(4, 5896) = 15.02$***
Impulsivity	$F(4, 5896) = 11.02$***
Paranoid ideation	$F(4, 5896) = 6.3$***
Intense interpersonal relationships	$F(4, 5896) = 4.45$***
Emotion disaffection	$F(4, 5896) = 6.5$***
Identity disturbance	$F(4, 5896) = 8.87$***
Suicidal behaviour	$F(4, 5896) = 11.37$***
Abandonment	$F(4, 5896) = 4.22$**
Key Stage 2	$F(4, 5612) = 2.58$*

Note: *p>.05 **p>.01 ***p < .001.

4   Discussion

In this study, we examine the peer relationships of primary schoolchildren expanding the focus in the current literature on bullying and victimisation to include more positive patterns of peer relationships. Rather than predefining our groups as in much of the existing literature, we use a pattern-centred, data-driven approach to identify clusters of children based on their experiences of friendship (including bullying and victimisation), allowing for a more detailed consideration of positive as well as negative friendship patterns. The use of data over a two-year period also allows us to determine more stable friendship clusters, providing a more complete picture of children's peer relationships.

4.1   Friendship clusters

Our study identifies five groups of children. In line with other research, two of these groups are differentiated by their involvement in bullying and/or victimisation—*bully/victims* and *victims*. However, in contrast with previous studies of bullying and victimisation, we are also able to demonstrate that 'non-involved' or positive friendships are not all the same. In particular, we found three groups distinguished by the number of close friends they had and the degree of conflict or 'fallout' inherent in their friendships.

We designated the three groups of children—*positive, many friends*, *positive, few friends*, and *positive but fallout*. *Positive, many friends* and *positive, few friends* both reported the highest levels of friendship support, but while *positive, many friends* had numerous friends they had fewer than average interactions, whereas *positive, few friends* reported fewer friends but with more interactions. Both of these groups also reported high levels of well-being, supporting other findings that some children may feel supported by only a few friends with whom they have frequent interactions (Lupton *et al.*, 2008).

The more capricious friendships experienced by the *positive but fallout* group do not appear to influence their overall perceptions of support. Like the other positive friendship groups, these children are generally well adjusted and experience high levels of overall well-being and achievement. However, they reported high levels of

external locus of control (i.e. a belief that their lives are determined more by external factors such as luck and chance than their own internal capabilities) similar to those experienced by the **bully/victims** and **victims**. In addition, the **positive but fallout** group had lower Key Stage 2 scores compared to the other positive friendship groups. Together, these findings suggest that the volatility of children's friendships may be taking their toll on both their well-being and their achievement. Further research may wish to examine the nature of children's fallouts and the mechanisms that predict conflictual but supportive friendships.

Our failure to identify a group of children who could be classified as 'pure bullies' and the subsequent finding that fewer than 0.5 per cent of the children engaged in frequent bullying behaviours without experiencing victimisation over a two-year period, supports previous research suggesting that the very nature of bullying varies according to socio-cognitive maturity and, as a result, there may be fewer pure bullies in primary than in secondary school (Schäfer *et al.*, 2005). In primary school, bullies encounter a social environment in which there is a strong belief in the symmetry of power and less tolerance for power differentials in peer relationships (Krappmann and Oswald, 1995). As a result, counter-attacks are within the social norm, resulting in high bully/victim prevalence (Schäfer and Albrecht, 2004). As children mature to secondary school, however, the prevalence of pure bullies likely increases as peer relationships during this period are characterised by a more hierarchical structure differentiating high- and low-status positions (Schäfer *et al.*, 2005).

We are thus unable to comment on the well-being of those who are bullies but not victims. However, the two groups designated as **bully/victims** and **victims** were distinguished from the other groups by their generally low levels of well-being and achievement, having worse mental health than the other groups, lower school achievement and enjoyment of school, with **bully/victims** doing particularly poorly in school. **Bully/victims** also had significantly higher levels of involvement in antisocial activities and engagement with antisocial friends, suggesting that this group may be particularly at risk of later delinquency. These significant differences remained even controlling for children's demographic characteristics. Overall, our findings support the position that children who engage in bullying in primary school are less socially competent aggressors (Crick and Dodge, 1999) who are more likely to be victimised themselves (Veenstra *et al.*, 2005) rather than socially competent manipulators (Sutton *et al.*, 1999).

There were also changes in the nature of the friendship patterns themselves between the ages of 8 and 10. Many of these were common across all the clusters. On average, victimisation decreased, while the rates of bullying remained fairly stable and there was an increase in friendship support. These findings support research that children's experience of friendship improves and victimisation decreases as children grow older (Berndt, 2004; Schäfer *et al.*, 2005). However, these changes do not affect the essential stability of the friendship clusters identified, and the differences in experience which these represent.

Socio-demographic measures for these friendship clusters showed that those from the **positive, many friends** cluster were more and **victims** were less likely to come from families with higher levels of maternal education, higher family income, and where parents were married. Family income, however, had no independent effect on cluster membership. Not all the positive friendship clusters had uniformly favourable socio-demographic backgrounds – **positive, few friends** had mothers with low average educational levels. Nor did the negative friendship groups necessarily

have poor socio-demographic characteristics – **bully/victims** did not significantly differ from the other clusters in terms of income and maternal education, a finding supported by Gutman and Feinstein (2008).

There was also a strong gender bias to some of the friendship clusters: **positive, many friends** were most likely (62 per cent) to be girls while boys predominated in the **positive, few friends** (68 per cent) and **bully/victim** (74 per cent) groups. This finding lends support to the research indicating that girls tend to have closer, more intimate friendships (Parker and Asher, 1993), whereas boys tend to engage in more physical aggression and bullying (Wolke et al., 2000). It was also noticeable that the male-dominated groups had higher than average numbers of close friends who were boys, while the reverse was true for the female-dominated groups, supporting research indicating that friendships may be heavily gendered (e.g. Lupton *et al.*, 2008).

4.2 Continuities: early markers and later outcomes

Although most studies of bullying have focused on more contemporaneous indicators, our study expands findings by demonstrating that children's early language, social and behavioural development relate to their later experiences of friendship and victimisation and/or engagement in bullying.

Our findings show that there is strong continuity between early development, later friendship patterns and continued well-being. In most cases, it was the membership of a positive or a negative cluster which was the important factor: **bully/victims** and **victims** were more likely to have worse indicators of development in their pre-school years—lower language, social and pro-social development as well as more hyperactivity than the other groups—but there was no significant difference among groups with more positive friendship patterns. These findings support the notion that bully and victims may have characteristics, such as hyperactivity, and suffer from problems with social cognitive skills (Boulton and Smith, 1994) that provoke negative reactions from their fellow classmates. Thus, children at risk of difficulties in later social relationships may be identified at pre-school age, highlighting the possibility of early intervention.

We also found that **bully/victims** and **victims** were both more likely to suffer from symptoms of personality disorder at age 11 compared to the more positive groups. With the exception of feelings of abandonment and identity disturbance, however, symptoms were most severe for **bully/victims**, especially for paranoid ideation and impulsivity. As with early indicators, these differences remained significant, even when all symptoms and demographic characteristics were examined simultaneously. In line with other research (e.g. Kumpulainen and Rasanen, 2000), our study suggests that **bully/victims** may be particularly at risk of severe mental health problems as they mature.

These findings show that there is strong continuity between early development, later friendship patterns and continued well-being. What is difficult to disentangle here is the precise nature of cause and effect: we can see that early development problems are linked to later negative friendship patterns and that negative friendship patterns are linked to poor subsequent well-being. What we cannot tell from this analysis is whether the negative friendship patterns merely reflect children's intrinsic problems, or whether the friendship patterns themselves are active in developing and reinforcing poor well-being and behaviour.

None the less, overall, these findings regarding both the antecedents and later effects indicate that children characterised by stability in bullying and victimisation are likely have a trajectory of difficulties beginning in early childhood and continuing throughout their primary school years. Such findings emphasise the importance of long-term strategies introduced at an early age with the aim of preventing and alleviating future problems.

4.3   Implications for policy and practice

Our findings make apparent the importance for children of developing and sustaining positive social relationship and supportive friendships. Much activity is already under way, including a pilot project on effective peer-mentoring practice to promote positive relationships. The DCSF-sponsored programme, Social and Emotional Aspects of Learning (SEAL), also focuses on teaching children the qualities and skills which promote positive behaviour and effective learning, such as a greater awareness and understanding of their relationships with others. The programme comprises resource materials on themes such as New Beginnings, Getting On and Falling Out, Say No to Bullying, and Going for Goals and Relationships. These skills are important for all children: even those in positive friendship patterns may experience problems which affect their enjoyment and learning as the findings for our *positive but fallout* group show.

However, of particular concern are those children who experience victimisation and/or engage in bullying. This affects a sizeable minority on a regular basis, and is a major problem in schools. Strategies to tackle this include the programmes mentioned above but also arrangements through the National Strategies for targeting schools that have particular bullying issues. Our findings support these endeavours not only by emphasizing the prevalence of bullying and victimisation in primary schools, but the negative implications of bullying and victimisation on children's contemporaneous and later emotional, behavioural and academic adjustment.

Particular concern also exists within government that specific groups of children may be vulnerable to bullying due to their race, religion, culture or sexual orientation. Both policy-makers and schools may therefore benefit from a greater understanding of the factors that might indicate an increased likelihood of being victimised and/or bullying. Although we were unable to examine differences within religious and cultural groups, we found that there was some indication that victims were more likely to come from minority ethnic and lower socio-economic families. Further research may illuminate the reasons behind increased victimisation for more socially disadvantaged children. Another study, for example, found that there were no differences in individual experiences of victimisation according to socio-economic status when controlling for school-level effects (Gutman and Feinstein, 2008). Rather, children who attended more disadvantaged schools experienced greater victimisation than those who attended more advantaged schools.   Therefore, increased victimisation may be the result of socially disadvantaged environments rather than social disadvantage in and of itself.

Our findings that early language, social and behavioural difficulties were significant predictors of later problems in social relationships have important implications for the work that is already under way to help very young children develop friendships. The Early Years Foundation Stage, for example, recognises that friendships and relationships are an important part of children's development from birth. One of its four themes is positive relationships, including friendships with

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peers, and the aim is to help children learn to care for others and to accept and value them for their intrinsic qualities. Our study stresses the importance of such early interventions with the aim of preventing later difficulties in developing and maintaining positive peer relationships. Our findings also indicate that interventions which teach young children coping strategies for developmental problems such as hyperactivity may also alleviate the later possibility of being targeted for victimisation and/or engaging in bullying. Such early programmes are particularly vital considering the long-term implications of bullying and victimisation on future social relationships, emotional and academic adjustment, and engagement in negative behaviours.

4.4   Conclusions

Our study provides important insights regarding peer relationships in primary school. On an optimistic note, most children—three out of four in our sample—have positive peer relationships from the ages of 8 to 10 years. These children differ in their friendship patterns but overall feel supported by their friends and experience little or no victimisation or bullying. On the other hand, one in four children were identified as having poor social relationships, characterised by a high prevalence of victimisation and/or bullying. These children typically have a number of adjustment difficulties that extend from early childhood through primary school. Our study also documented a number of early childhood markers from ages 3 to 4 that may help identify children at risk of later bullying and/or victimisation. Early intervention is encouraged to offset possible later social problems and to discourage the likelihood of emotional, behavioural and academic difficulties in the future.

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6 Appendix: measures used in this study

6.1 Children's peer relationships

Victimisation and bullying. The Bullying and Friendship Interview Schedule (Wolke *et al*., 2000, 2001a, 2000b) was conducted at 8 and 10 years of age. The children were asked about a series of actions and whether any of these actions had ever happened to them at school or travelling to/from school which involved other children in the previous six months. They were also asked whether they had ever been the perpetrators of any of these actions. These questions included whether they had personally carried out any of these actions on other children (overt bullying) or been involved in a group that had carried out these actions on another child (relational bullying). Overt questions included: 'had personal belongings taken', 'were threatened/blackmailed', 'had been beaten up or hit', 'had been tricked in a nasty way', and 'had been called bad/nasty names'. Relational questions included: 'others wouldn't play with them to upset them', 'been made to do things I didn't want to', 'had lies/told nasty things about them', and 'had games spoilt'. If a child responded 'Yes', a series of follow-on questions was asked, including the frequency with which each action took place (Infrequently: one to three times in past six months; Frequently: more than four times in past six months but less than once a week; Very frequently: at least once a week). For the current study these were coded positively so that 1 = one to three times in the past six months; 2 = more than four times in past six months; and 3 = at least once a week.

Friendships. The measures concerning friendships were taken from the Cambridge Hormones and Moods Project Friendship questionnaire (Goodyer *et al*., 1989, 1990). The questionnaire was administered at ages 8 and 10. Five questions were asked at both ages. Using factor analysis, four of these items were used to create a single measure, *friend support*, which included: 'Are you happy with the number of friends you've got?' and 'Overall, how happy are you with your friends?' (Very happy = 5, Quite happy = 4, Quite unhappy = 3, Unhappy = 2, No friends = 1, Don't know = 0); 'Do your friends understand you?' and 'Do you talk to your friends about problems?' (Most of the time = 4, Sometimes = 3, Not often = 2, Not at all = 1, Don't know = 0). The fifth item, *friend interaction* which included: 'How often do you see your friends outside of school?' (Almost every day = 6, More than once a week = 5, Once per week = 4, Less than once a week = 3, Hardly ever = 2 ,Never = 1, Don't know = 0), was examined as a separate item. Five additional questions were asked only at age 10. These included *friend sleepover*: 'How often do you have sleepovers with your friends?' (Weekly = 6, Fortnightly = 5, Monthly = 4, Bimonthly = 3, Hardly ever = 2, Never = 1, Don't know = 0); *friend fallout*: 'How often do you fall out with your close friends?' (Almost every day = 6, More than once a week = 5, Once a week = 4, Less than once a week = 3, Hardly ever 2, Never = 1, Don't know = 0); *number of friends*: 'How many close friends do you have?' and *number of friends - boys*: 'How many friends do you have that are boys?

6.2 Demographic characteristics

Child gender. This dichotomous variable was coded as 0 for female; 1 for male.

Maternal education. This was the mother's highest level of educational qualifications coded as 0 = CSE; 1 = technical qualifications including shorthand, typing or other skills (e.g. hairdressing, apprenticeship, or City and Guilds

intermediate technical); 2 = O level/GCSE; 3 = A level/vocational qualification including state-enrolled nurse, state-registered nurse, City and Guilds final technical, City and Guilds full technical, or teaching qualification; and 4 = university degree.

Family income. This continuous variable of weekly income was coded as 1 = less than £100, 2 = £100 to £199, 3 = £200 to £299, 4 = £300 to £399, and 5 = greater than £400.

Marital status. This dichotomous variable was coded as 0 for single parent; 1 for married.

Child ethnicity. This dichotomous variable was coded as 1 for white; 0 for non-white.

Number of siblings. This was a continuous variable recording the number of siblings in the family.

Only child. This was a dichotomous variable coded as 1 for an only child; 0 for a child with siblings.

Youngest Child. This was a dichotomous variable coded as 1 for being the youngest and 0 for not being the youngest and included only children.

6.3   Children's adjustment

External locus of control. This measures the perception of a connection between one's actions and their consequences (Rotter, 1966). People who believe that an outcome is largely contingent upon their own behaviour are seen as having a more *internal* locus of control, whereas those who believe that luck, fate, chance or powerful others largely determine an outcome are considered to be more *external*. Locus of control was measured at 8 years of age using a shortened version of the Nowicki-Strickland Internal-External scale for pre-school and primary schoolchildren (Nowicki and Duke, 1974). The questions were read out to the child by the examiner and the child was asked to respond with a Yes/No answer. Questions included: 'Do you feel that wishing can make good things happen?' and 'Is doing well in class work just a matter of luck for you?' The child's external locus of control score is calculated as the number of affirmative answers he or she gave to the 12 questions.

Self-esteem. This was measured at 8 years of age using a shortened version of Harter's Self-Perception Profile for Children (Harter, 1985). The task was conducted using postboxes and envelopes. Each envelope corresponded to a single item, comprising two statements, one in blue writing, one in red; for example, 'Some children feel that they don't do very well at their school work' (in blue) and 'Some children feel that they do very well at their school work' (in red). There were two postboxes (one blue, one red), and in each postbox there were two slots: 'Sort of true for me' and 'Really true for me'. Each statement was read out to the child, who then had to decide whether he or she agreed more with the statement in the blue writing or the red (and consequently, whether to post the envelope into the blue or red postbox). The children then had to decide whether the relevant statement was 'sort of true for him/her' or 'really true for him/her'. Items were scored as follows: Blue, Really true for me = 0; Blue, Sort of true for me = 1; Red, Sort of true for me = 2; Red, Really true for me = 3. Scores were then summed.

Depression. This assessment was administered at age 10. The children were given a series of envelopes with statements written on them about how they might have been feeling or acting in the previous two weeks. The statements were taken from the Short Mood and Feelings Questionnaire (Angold, Costelo, Messer, Pickles, Winder, and Silver, 1995), which was designed to provide a rapidly administered questionnaire for use in epidemiological studies. Twelve statements included: 'I felt

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lonely', 'I did everything wrong', and 'I cried a lot'. These were first read out by the psychologist, after which the child was asked to post them into one of three boxes which best described whether they had felt like the statement on the card. These were marked as 'True', 'Sometimes' and 'Not at all'. A derived depression score was created by scoring the variables as follows: True = 2; Sometimes = 1; Not at all = 0. These variables were then summed, such that a minimum score of 0 represented no signs of depression, while there was a maximum score of 26.

Antisocial activities. At age 10, a measure created by Wolke *et al*. (2001b) was administered in the clinic. Each of the 11 questions was written on a different envelope. The tester showed a postbox to the child, with two posting slots marked 'Ever' and 'Never' above the slots, asking him or her to post each envelope into one or other slot, depending on whether the child had ever done what was on the envelope or had never done it. Eleven activities were asked about, including: 'destroyed something just for fun' and 'set fire to something'. The antisocial activities score is the number of activities that the child admitted.

Antisocial friends. At age 10, children were asked whether or not (1 = Yes; 0 = No) their friends engaged in antisocial activities. Ele'en activities were asked about, including: 'Have any friends skived off school?" and 'Have any friends stolen something?' The antisocial friends score is the number of activities that the child's friends admitted.

Likes school. A single question was asked at 10 years of age. Children were asked, 'Do you like school?' Responses ranged from 0 = Yes, very much, to 3 = No.

Key Stage 1 scores. Scores were based on a 5-point scale (0 = working towards Level 1), (1 = Level 1), (2 = Level 2C), (3 = Level 2B), (4 = Level 2A), and (5 = Levels 3 to 4A).

6.4   Early markers

Language development. Parents were asked to rate their child's language development at 38 months including use of past tense, plurals, vocabulary and word combinations. Past tense is whether the child uses the correct tense for a series of phases when talking about something that had already happened. Plurals are whether the child uses the correct plural for proper nouns. Vocabulary is whether the child understands a list of words and whether they use the words when speaking. Word combination is whether the child combines a series of common word conjunctions. Parents were asked to rate their child as, No understanding = 0, Understanding = 1, and Says the word = 2. There were a total of 326 possible points.

Social development. Parents were asked to rate their child's ability in reaching 12 developmental milestones, including 'carry out simple tasks around the house' and 'ask for what they want without crying' when their children were 42 months old. Parents were asked to rate their child as, Yes, can do well = 1, Yes, but not well yet = 2, and Not yet = 3. This variable was the sum total of parent ratings on all 12 items.

Behavioural difficulties. The Revised Rutter Parent Scale for Preschool Children was used to measure behavioural difficulties (Elander and Rutter, 1996). Subscales include pro-social behaviour, hyperactivity, emotional and conduct difficulties. Parents were asked a number of questions about their child including 'doesn't share toys' and 'tries to stop quarrels' when their children were 42 months old. Parents were asked to rate their child as, Yes certainly =1, Yes, sometimes = 2, or No = 3. There are a total of 52 possible points.

6.5   Later outcomes

Personality disorder. The Childhood Interview for DSM-IV Borderline Personality Disorder (BPD) was administered as a face-to-face interview when the children were 11 years old. The purpose of the interview was to record the prevalence of the identified behaviours and emotions (not to try to diagnose a child as having a Borderline Personality). Nine symptoms were examined: anger, affective instability (i.e. intense brief episodes of sadness, anxiety or irritability), feelings of emptiness, identity disturbance (i.e. extreme shifting sense of self), paranoid ideation (i.e. cognitively unstable, paranoia), emotion disconnection, abandonment, suicidal or self-mutilating behaviours, impulsivity, and intense interpersonal relationships. After questions had been asked for each symptom, a judgement was made as to whether the symptom was present (2), was probably present (1) or was absent (0). For the symptom to be present, the children only had to display one of the behaviours, but they had to be occurring on a very regular basis, namely every day or at least 25 per cent of the time.

Key Stage 2 scores. Scores were based on total marks on a 100-point scale. Scores were based on total marks in reading, writing, spelling and handwriting on a 100-point scale.

Centre for Research on the Wider Benefits of Learning
Research Report No.29

The importance of social worlds: an investigation of peer relationships

Leslie Morrison Gutman
John Brown

There has been much concern in recent years about peer groups and their effects on children's academic achievement and behaviour. Much of this concern has focused on patterns of bullying and victimisation, whereas relatively little consideration has been given to the wider patterns of friendship and the role these patterns can play in sustaining and developing positive as well as negative experiences and behaviours.

In this report, we investigate the developing social worlds in late primary school, exploring the patterns in children's general peer relationships, their closer and more significant friendships and bullying behaviours. Using longitudinal data from the Avon Longitudinal Study of Parents and Children, we identify unique groups of children characterised not only by their experiences of bullying and victimisation, but the support and satisfaction they receive from their friendships and interactions between the ages of 8 and 10. We also expand on past research by examining how children's early development (ages 3 to 4) may predict their later designation as bullies and/or victims, and whether peer clusters relate to children's contemporaneous and later adjustment.

Our findings indicate that most (75 per cent) primary schoolchildren belong to positive friendship groups. These children feel supported by their friends and do not engage in bullying or experience victimisation. Different patterns of positive friendship were distinguished by their numbers of close friends and levels of 'falling out' with friends. Overall, there were three positive groups: positive, many friends (48 per cent of the sample), positive but fallout (18 per cent), and positive, few friends (10 per cent).

One in four primary schoolchildren belong to groups characterised by poor social relationships which have low friendship support and a much higher general prevalence of victimisation and/or bullying compared to the other groups. These were labelled victims (20 per cent of the sample) and bully/victims (5 per cent). Very few children (fewer than 1 per cent) were 'pure bullies'.

There is strong continuity between early development, later friendship patterns and continued well-being. Bully/victims and victims were more likely to have worse indicators of development in their pre-school years - lower language, social and pro-social development as well as more hyperactivity than the other groups - but there was no significant difference among groups with more positive friendship patterns. We also found that bully/victims and victims were more likely to suffer from later poor well-being, exhibiting more negative behaviours indicative of personality difficulties at age 11 compared to the more positive groups. Symptoms were most severe for bully/victims, indicating that bully/victims may be particularly at risk of severe mental health problems as they mature.

Our report highlights the importance of children developing and sustaining positive and supportive friendships. Of particular concern are those children who experience victimisation and/or engage in bullying. We find that bullying and victimisation are both prevalent, affecting a sizeable minority on a regular basis, and related to well-being and achievement. This demonstrates the importance of the effective and continuing implementation of programmes such as the Social and Emotional Aspects of Learning and arrangements through the National Strategies for targeting schools that have particular bullying issues.

Dr Leslie Morrison Gutman is Research Director at the Centre for Research on the Wider Benefits of Learning, Institute of Education.

Dr John Brown is a Quantitative Research Officer at the Centre for Research on the Wider Benefits of Learning, Institute of Education.